# City Council

## Agenda

**Tuesday, April 21, 2026**
**Council Chambers**
**749 Main Street**
**6:00 PM**

Members of the public are welcome to attend and give comments remotely. However, the in-person meeting may continue even if technology issues prevent remote participation.

- You can call in to +1 719 359 4580 or 877 853 5247 (toll free)
  Webinar ID #876 9127 0986.
- You can log in via your computer. Please visit the City's website to link to the meeting.

City Council considers written and oral comments equally. Email comments to the Council received after the packet is posted online and before 3pm the day of the meeting will be included in the Council addendum and provided to each Council member prior to the meeting. If you prefer to address Council in person, you may attend the meeting either in person or virtually.

1. **Call to Order & Roll Call**
2. **Pledge of Allegiance**
3. **Approval of Agenda**
4. **Public Comments on Items Not on the Agenda and Items on the Consent Agenda**

   Public comments are limited to 3 minutes per speaker. When several people wish to speak on the same position on a given item, a spokesperson may be used to state that position.

5. **Consent Agenda**

   The following items on the City Council Agenda are considered routine by the City Manager and shall be approved, adopted, accepted, etc., by motion of the City Council and voice vote unless the Mayor or a City Council person specifically requests an item be considered under "Regular Business." In such an event the item shall be removed from the "Consent Agenda" and Council action taken separately on said item in the order appearing on the Agenda. Those items so approved under the heading "Consent Agenda" will appear in the Council Minutes in their proper order.

   A. Approval of Minutes

B. Resolution No. 35, Series 2026 — A Resolution Approving a Construction Contract with Inliner Solutions, LLC

C. Resolution No. 36, Series 2026 — A Resolution Approving a Professional Services Agreement with AECOM Technical Services, Inc.

D. Resolution No. 37, Series 2026 - A Resolution Approving a Revised Fourth Amended and Restated Cooperation Agreement with the Louisville Revitalization Commission

E. Resolution No. 40, Series 2026 — A Resolution Authorizing the Purchase of Three (3) Hybrid and Three (3) Electric Vehicles to Replace a Prior Purchase Authorization of Six (6) Electric Vehicles Due to Discontinued Production

**6. Council Informational Comments and Committee Reports**

**7. City Manager's Report**

**8. Regular Business**

A. Ordinance No. 1920, Series 2026 — An Ordinance Removing Lot 1, Block 3, Jefferson Place Subdivision from the Old Town Overlay and Adding to the Boundaries of Downtown Louisville — 2nd Reading, Public Hearing (advertised City of Louisville Website 04/08/2026)

The Public Hearing will be held and 2 rounds of public comment will be taken, along with Council questions and discussion. Final action may be taken on this item.

B. Ordinance No. 1922, Series 2026 — An Ordinance Amending Title 3 of the Louisville Municipal Code to Establish a Business Assistance Program for Small Businesses and to Change Approval Thresholds for BAP Agreements - 1st Reading, Set Public Hearing

1st Reading includes the Staff Presentation and questions from Council. There is no opportunity for public comment. The Public Hearing (2nd Reading) will be set on this item for a later date. The Public Hearing will allow 2 rounds of public comment.

C. Discussion / Direction / Action: Purchase of 101 South Taylor Avenue — Financial Analysis

Discussion / Direction / Action provides Council with the opportunity to learn about an item, ask questions, and take action. There will be one round of public comment. Final decisions may be made on this item.

D. Grain Elevator — 540 County Road

The following two items will be heard as one item. This will be the only reading of these items and final action may be taken. There will be one round of public comment for both items.

i. Resolution No. 38, Series 2026 — A Resolution Approving a First Amendment to the Louisville Mill Site Redevelopment Planned Unit Development (PUD) and a Special Review Use (SRU) for an Outdoor Eating Establishment and Mobile Food Court

ii. Resolution No. 39, Series 2026 — A Resolution Approving a Preservation and Restoration Grant for the Grain Elevator at 540 County Road

E. Temporary Short-Term Rentals

The following two items will be heard as one item. The Public Hearing will be held and 2 rounds of public comment will be taken for both items, along with Council questions and discussion. Final action may be taken on these items.

i. Ordinance No. 1921, Series 2026 — An Ordinance Amending the Louisville Municipal Code Concerning Temporary Short-Term Rentals - 2nd Reading, Public Hearing (advertised City of Louisville Website 04/08/2026)

ii. Resolution No. 41, Series 2026 - A Resolution Establishing an Application Fee and Eligible Dates for Temporary Short-Term Rentals in 2027

## 9. City Attorney's Report

## 10. Upcoming Agenda Items and Identification of Future Agenda Items

## 11. Adjourn

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**Upcoming Agenda Items**
**May 5, 2026 Meeting**

This list is not inclusive; items are subject to change; additional items may be added.

- BAP Amendment — 2nd Reading
- Certificate of Participation — 1st Reading
- ADU Compliance Review — 1st Reading
- Redtail Ridge Easement Vacation (Lift Station)
- Community Event Sponsorships

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**Resident Information**

If you wish to speak at the City Council meeting in person, please fill out a sign-up card and present it to the City Clerk at the meeting. If you are attending remotely, please use the "raise hand" icon to show you wish to speak in appropriate public comments section.

Persons planning to attend the meeting who need sign language interpretation, translation services, assisted listening systems, Braille, taped material, or other accommodation should email the City Clerk's Office or call at 303.335.4574

A forty-eight-hour notice is requested.

Si requiere una copia en español de esta publicación o necesita un intérprete durante la reunión del Consejo, por favor llame a la Ciudad al 303.335.4574 o email

# City Council

## Special Meeting Minutes

### Tuesday, February 24, 2026
### Council Chambers
### 749 Main Street
### 6:00 PM

DRAFT

Mayor Leh called the meeting to order at 6:00 p.m. Roll Call was taken, and the following members were present:

**City Council:**
**Mayor Chris Leh**
**Mayor Pro Tem Barbara Hamlington**
**Council member Josh Cooperman**
**Council member Caleb Dickinson**
**Council member Deborah Fahey**
**Council member Dietrich Hoefner**
**Council member Judi Kern (arrived at 6:02 pm)**

**Staff Present:**
**Diana Langley, City Manager**
**Samma Fox, Deputy City Manager**
**Kurt Kowar, Public Works Director**
**Genny Kline, City Clerk**

**REGULAR BUSINESS**

**PRESENTATION: BOULDER VALLEY SCHOOL DISTRICT – Defining the Path Forward: A Strategic Community Engagement Plan for Resilient Schools (00:01:12)**

Mayor Leh introduced the item.

Rob Price, Assistant Superintendent of Operational Services, Boulder Valley School District, introduced Deann Bucher; and conducted the presentation.

Council posed several questions which were acknowledged and addressed as part of the discussion.

**2026 COUNCIL WORK PLAN ADOPTION (00:50:40)**

Mayor Leh introduced the item.

Deputy City Manager Fox provided the Staff Report.

Council provided their comments and feedback.

Council member Kern asked to add Wildfire Conflagration and WUI Code implementation as a core services requirement.

Council member Cooperman suggests calling out the update to the inclusionary housing ordinance.

Public Comment
- Susan Loo

Council and staff engaged in discussion regarding the Work Plan.

Council member Hoefner moved to approve the 2026 Council Work Plan with the amendment offered by Council members Kern and Cooperman; seconded by Council member Dickinson.

Aye: Leh, Hamlington, Cooperman, Dickinson, Fahey, Hoefner, Kern
Nay: None
Absent: None

**DISCUSSION / DIRECTION: TRAFFIC VIA APPIA AND POLK / DAHLIA (01:14:05)**

Mayor Leh introduced the item

City Manager Langley and Public Works Director Kowar provided the Staff Report.

Public Works Director Kowar asked council members to address the following: what they are hearing from residents, what they think needs to be solved, their concerns, expectations, public outreach and guiding principles and values.

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Council members provided their input and feedback regarding questions presented by Public Works Director Kowar.

Public Comment
- Rebecca Whalen
- Andy Johnson
- Oliver Nix

Public Works Director Kowar continued with the presentation related to safety statistics.

Council recessed briefly.

Public Works Director Kowar continued with the presentation related to crash statistics, traffic volume, street classification, levels of service, improvement metrics and options.

Council members engaged in discussion and shared their feedback.

Council member Hoefner moved to keep the two-lane configuration and pursue additional incremental improvements along the problem areas of the Via Appia corridor as time and budget allow; seconded by Mayor Leh.

Council member Kern made a friendly amendment to focus on the trail crossing at Sagebrush; and designated space for evacuation route.

Council member Hoefner consented to the friendly amendment.

Aye: Leh, Hamlington, Cooperman, Dickinson, Fahey, Hoefner
Nay: Kern
Absent: None

Public Works Director Kowar continued with the Polk Dahlia Corridor.

Council members provided their input and feedback.

Council member Hoefner moved to keep the current configuration, improve communication regarding operation, and pursue additional raised crosswalks, referencing Polk Dahlia; seconded by Council member Dickinson.

Aye: Cooperman, Dickinson, Fahey, Hoefner, Kern
Nay: Leh, Hamlington
Absent: None

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**ADJOURN (03:22:46)**

Council member Hoefner moved to adjourn the meeting; seconded by Council member Kern.

Aye: Leh, Hamlington, Cooperman, Dickinson, Fahey, Hoefner, Kern
Nay: None
Absent: None

The meeting adjourned at 9:23 pm.

_____
Christopher M. Leh, Mayor

_____
Genny Kline, City Clerk

DRAFT

# City Council

## Meeting Minutes

### Tuesday, April 7, 2026
### Council Chambers
### 749 Main Street
### 5:00 PM

Mayor Leh called the meeting to order at 5:03 p.m. Roll Call was taken, and the following members were present:

**City Council:**
**Mayor Chris Leh**
**Mayor Pro Tem Barbara Hamlington**
**Council member Josh Cooperman**
**Council member Caleb Dickinson (arrived at 5:09 pm)**
**Council member Deborah Fahey**
**Council member Dietrich Hoefner**
**Council member Judi Kern**

**Absent:**
**Council member Dietrich Hoefner**

**Staff Present:**
**Diana Langley, City Manager**
**Samma Fox, Deputy City Manager**
**Rob Zuccaro, Community Development Director**
**Kurt Kowar, Public Works Director**
**Kathleen Kelly, City Attorney**
**Genny Kline, City Clerk**

**EXECUTIVE SESSION - REAL PROPERTY ACQUISITIONS AND DISPOSITIONS (00:01:09)**

Mayor Leh introduced the item.



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City Clerk Kline read the statement required by the City Code.

City Attorney Kelly provided a statement outlining the authority for convening the executive session.

Mayor Leh moved to enter executive session; seconded by Council member Kern.

Aye: Leh, Hamlington, Cooperman, Fahey, Kern
Nay: None
Absent: Hoefner, Dickinson

Council entered Executive Session at 5:07 pm.

Council reconvened the Regular Meeting at 6:33 pm.

**EXECUTIVE SESSION REPORT - DISCUSSION / DIRECTION / ACTION (01:30:30)**

City Attorney Kelly stated the Executive Session was for the purpose of discussing potential real property acquisitions and dispositions. She noted that Council had such discussion and recommended Council discuss the matter and determine whether there is a motion.

Mayor Leh stated the discussion was related to 101 S. Taylor. Mayor Leh moved to direct the City Manager to terminate the contract; seconded by Council member Kern.

There was a brief discussion regarding public engagement; fiscal responsibility; the process of Executive Session, including clarification and comment from City Attorney Kelly.

Aye: Leh, Hamlington, Kern
Nay: Dickinson, Fahey, Cooperman
Absent: Hoefner

The motion received a tie vote and therefore failed.

Council member Kern recused herself and exited the meeting at 6:57 p.m.

**APPROVAL OF AGENDA (01:55:05)**

Council member Dickinson moved to approve the agenda; seconded by Council member Cooperman.

Aye: Leh, Hamlington, Cooperman, Fahey, Kern

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Nay: None
Absent: Kern, Hoefner

**PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA AND ITEMS ON THE CONSENT AGENDA (01:56:23)**

- None

**CONSENT AGENDA (01:58:17)**

A. Approval of Minutes

B. Arbor Day Proclamation

C. Resolution No. 29, Series 2026 - A Resolution Approving a Construction Contract with Lightfield Enterprises, Inc.

D. Resolution No. 30, Series 2026 - A Resolution Approving a Contract for Geotechnical Services to A.G. Wassenaar, Inc.

E. Resolution No. 31, Series 2026 -A Resolution Approving an Agreement with the Louisville Chamber of Commerce for Services

F. Resolution No. 32, Series 2026 - A Resolution Approving a Land Dedication Agreement for the AdventHealth GDP Amendments

G. Resolution No. 33, Series 2026 - A Resolution Approving Marshall Fire Permit Fee Refund Program to Remaining Rebuilds

H. Resolution No. 34, Series 2026 -A Resolution Approving a Business Assistance Agreement with Wild Irish Incorporated for an Economic Development Project in the City of Louisville

I. Emergency Water Main Break Repair - Budget Amendment

Mayor Pro Tem Hamlington moved to approve the Consent Agenda; seconded by Council member Cooperman.

Aye: Leh, Hamlington, Cooperman, Dickinson, Fahey
Nay: None
Absent: Kern, Hoefner

Council member Kern returned to the meeting at 7:00 p.m.

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**COUNCIL INFORMATIONAL COMMENTS AND COMMITTEE REPORTS (01:58:37)**

Mayor Leh attended the Metro Mayor's Caucus and noted the bill concerning RTD.

**CITY MANAGER'S REPORT (02:01:03)**

City Manager Langley announced the upcoming Open House at 101 S. Taylor scheduled for Saturday, and noted that the new restaurant at Coal Creek Golf Course will also host an Open House.

## REGULAR BUSINESS

**ORDINANCE NO. 1920, SERIES 2026 - AN ORDINANCE REMOVING LOT 1, BLOCK 3, JEFFERSON PLACE SUBDIVISION FROM THE OLD TOWN OVERLAY AND ADDING TO THE BOUNDARIES OF DOWNTOWN LOUISVILLE - 1ST READING, SET PUBLIC HEARING (02:01:46)**

Mayor Leh introduced the item.

Planner Cline-Gibson presented the staff report.

There were no questions by Council members.

Council member Kern moved Ordinance No. 1920, Series 2026 pass on the first reading and set the public hearing for Tuesday, April 21, 2026, at 6:00 p.m.; seconded by Council member Dickinson.

Aye: Leh, Hamlington, Cooperman, Dickinson, Fahey, Kern
Nay: None
Absent: Hoefner

**ORDINANCE NO. 1921, SERIES 2026 - AN ORDINANCE AMENDING THE LOUISVILLE MUNICIPAL CODE CONCERNING TEMPORARY SHORT-TERM RENTALS - 1ST READING, SET PUBLIC HEARING (02:07:53)**

Mayor Leh introduced the item.

Council member Dickinson recused himself and exited the meeting at 7:10 p.m.

Economic Vitality Manager Zarate presented the staff report.

DRAFT

Council posed several questions, which were acknowledged and addressed as part of the discussion.

Mayor Leh moved Ordinance No. 1921, Series 2026 pass on the first reading and set the public hearing for Tuesday, April 21, 2026, at 6:00 p.m.; seconded by Council member Fahey.

No comments were offered by Council.

Aye: Leh, Hamlington, Cooperman, Fahey, Kern
Nay: None
Absent: Hoefner, Dickinson

Council recessed briefly.

Council member Dickinson returned to the meeting at 7:31 pm

**ORDINANCE NO. 1918, SERIES 2026 - AN ORDINANCE AMENDING TITLE 15 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING WILDLAND URBAN INTERFACE - 2ND READING, PUBLIC HEARING (ADVERTISED CITY OF LOUISVILLE WEBSITE 03/26/2026) (02:30:22)**

Mayor Leh introduced the item and opened the public hearing.

Community Development Director Zuccaro presented the staff report.

Council posed questions, which were acknowledged and addressed as part of the discussion.

Chief Milan provided his opinion and addressed the condition of the entire deck assembly, including the decking material and the Douglas Fir wood beneath it. He also summarized the conversations he previously had with his board regarding the desire to have a fire-safe community.

Public Comments

- Tawnya Somauroo

There were no questions by Council members.

Public Comments

- None

Council shared their feedback and comments.

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Council member Kern moved to approve Ordinance No. 1918, Series 2026, with an amendment to Sec. 18.80.070.A.2 to allow the exception for Class B composite decking; delete Sec. 15.80.80.B.1 to eliminate plantings in the five-foot defensible space; and amend Sec. 15.80.80.C.1 to include dormant grasses and weeds shall be mowed to a height not to exceed six inches; seconded by Mayor Leh.

Council had no further discussion.

Aye: Leh, Hamlington, Cooperman, Fahey, Kern
Nay: Dickinson
Absent: Hoefner

**CITY ATTORNEY'S REPORT (03:00:47)**

City Attorney Kelly indicated there was no report.

**UPCOMING AGENDA ITEMS AND IDENTIFICATION OF FUTURE AGENDA ITEMS (03:00:55)**

Council agreed on bringing forward updates to the home-hardening code to reflect the WUI code modifications permitting Class B decking. Council further directed that a facilities plan discussion be added to an upcoming agenda.

**ADJOURN (03:02:23)**

Council member Kern moved to adjourn the meeting; seconded by Council member Fahey.

Aye: Leh, Hamlington, Cooperman, Dickinson, Fahey, Kern
Nay: None
Absent: Hoefner

The meeting adjourned at 8:04 pm.

_____
Christopher M. Leh, Mayor

_____
Genny Kline, City Clerk

DRAFT

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 5.B.**

**Subject:** Resolution No. 35, Series 2026 — A Resolution Approving a Construction Contract with Inliner Solutions, LLC

**Date:** April 21, 2026

**Prepared By:** Tyler Trojan, Civil Engineer III

**Presented By:** Kurt Kowar, Director

**Summary:**
Staff recommends approval and award of the 2026 Sanitary Sewer CIPP Project contract with Inliner Solutions, LLC for $362,167.00 plus a 10% contingency in the amount of $36,217.00 for a total authorized amount of $398,384.00.

**Background / Prior Discussions:**
City Staff identifies sewer pipes in need of repair or replacement by evaluating videos of sanitary sewer mains with known problematic materials (Clay, Orangeburg) or located in areas where sewer backups occur. Pipes are selected for repair or replacement based on the presence of structural deficiencies, which are scored on a zero to five scale with five being the worst. An example of a level three structural deficiency would be the equivalent of a moderate circumferential or longitudinal crack. An example of a level five deficiency is a broken pipe with void visible. In addition to the score, which identifies the severity of the worst-observed structural deficiency in the segment, the extent of structural deficiencies is also considered. For example, a segment with a score of 2 may be selected before a segment with a score of 3 due to the quantity and extent of the structural deficiencies.

Pipes selected for this year's lining project show clear signs of wear and damage and are considered a priority for maintenance to prevent future failures. Typical issues include cracks in the pipe or root intrusion. Lines included in the project have either significant damage or multiple areas of moderate damage.

Rehabilitating these lines through trenchless lining (Cured-in-Place Pipe, or CIPP) extends the life of the sewer system, reduces the risk of service disruptions, and is more cost-effective and less disruptive to the community than traditional excavation and replacement.

The sections of pipe and their respective scores for this year's project are as follow:

- Pipe ID 35091 (Aline St.) Score – 3
- Pipe ID 35090 (Aline St.) Score – 3
- Pipe ID 35088 (Barbara St.) Score - 3

- Pipe ID 35087 (Barbara St.) Score - 3
- Pipe ID 35081 (Rose St.) Score - 3
- Pipe ID 25675 (S. Roosevelt Ave.) Score - 2
- Pipe ID 25149 (Harper St.) Score - 2
- Pipe ID 25147 (Harper St.) Score - 2
- Pipe ID 25144 (Harper St.) Score - 2

On March 24, 2026, staff received and opened bids from contractors for the 2026 Sanitary Sewer CIPP project. The bids received are listed below:

| CONTRACTOR | BASE BID |
|---|---|
| Inliner Solutions, LLC | 362,167.00 |
| Mocon - Pacific | 427,865.00 |
| QP Services | 433,695.00 |
| Insituform DBA C&L Water Solutions | 523,580.00 |

This year's CIPP Sewer Lining Project includes work on various sanitary sewer lines throughout the City identified in the attached project map. Detailed plans are available upon request.

The contract work will begin in May 2026 and finish in July 2026.

**Development Proposal:**
N/A

**Analysis:**
Staff is requesting Council's approval of this contract as required by the City's purchasing policy for contracts in excess of $100,000.

**Council Work Plan:**
While this project is not specifically listed in the 2026 Council Work Plan, it does align with the Council priority of providing core services. Maintenance of the wastewater distribution system is critical to the goal of providing reliable core services to the residents of Louisville.

**Fiscal Impact:**
**Budgeted** - funding / resources for this item have been fully budgeted and no amendment is required.

The costs of the 2026 Sanitary Sewer CIPP Project are included in the budget. A detailed breakdown of funding and projected expenses is provided below:

**Project Funding**

| Description | Account | Budget Amount |
|---|---|---|
| Sanitary Sewer Rehab – Replacement | 502498-660313 | $617,000.00 |
| **TOTAL:** | | **$617,000.00** |

**Projected Expenses 502498-660313**

| Description | Amount |
|---|---|
| 2026 Sanitary Sewer CIPP Project | ($362,167.00) |
| 2026 Sanitary Sewer CIPP - Contingency | ($36,217.00) |
| **Total Expenses:** | **($398,384.00)** |
| **Remaining Funds:** | **$218,616.00** |

**Alternatives:**

The alternative is to not perform the 2026 Sanitary Sewer CIPP. If maintenance is not performed, it is possible that the City will experience breaks in these lines causing sanitary sewer backups in these areas leading to more costly emergency repairs. Maintenance of the system is recommended to eliminate more costly repairs in the future.

**Recommendation:**

Staff recommends approval and award of the 2026 Sanitary Sewer CIPP Project contract with Inliner Solutions, LLC for $362,167.00 plus a 10% contingency in the amount of $36,217.00 for a total authorized amount of $398,384.00 and to authorize the Mayor, City Manager, Public Works Director, City Clerk, and Project Managers to sign and execute contract documents on behalf of the City.

**Attachments:**

1. Resolution No. 35, Series 2026
2. Project Map
3. Agreement with Inliner Solutions, LLC

**RESOLUTION NO. 35**
**SERIES 2026**

**A RESOLUTION APPROVING A CONSTRUCTION CONTRACT WITH INLINER SOLUTIONS, LLC**

**WHEREAS,** a Construction Contract has been proposed between the City and Inliner Solutions, LLC for the 2026 Sanitary Sewer CIPP Project (the "Project"); and

**WHEREAS,** by this resolution the City Council desires to approve the Construction Contract and to authorize additional contingency for the Project.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** The City Council hereby approves the Construction Contract between the City and Inliner Solutions, LLC for the Project (the "Contract") in substantially the same form as the copy of such Contract accompanying this Resolution.

**Section 2.** The Mayor is hereby authorized to execute the Contract on behalf of the City, and the Mayor is hereby further authorized to negotiate and approve such revisions to the Contract as the Mayor determines are necessary or desirable for the protection of the City, so long as the essential terms and conditions of the Contract are not altered.

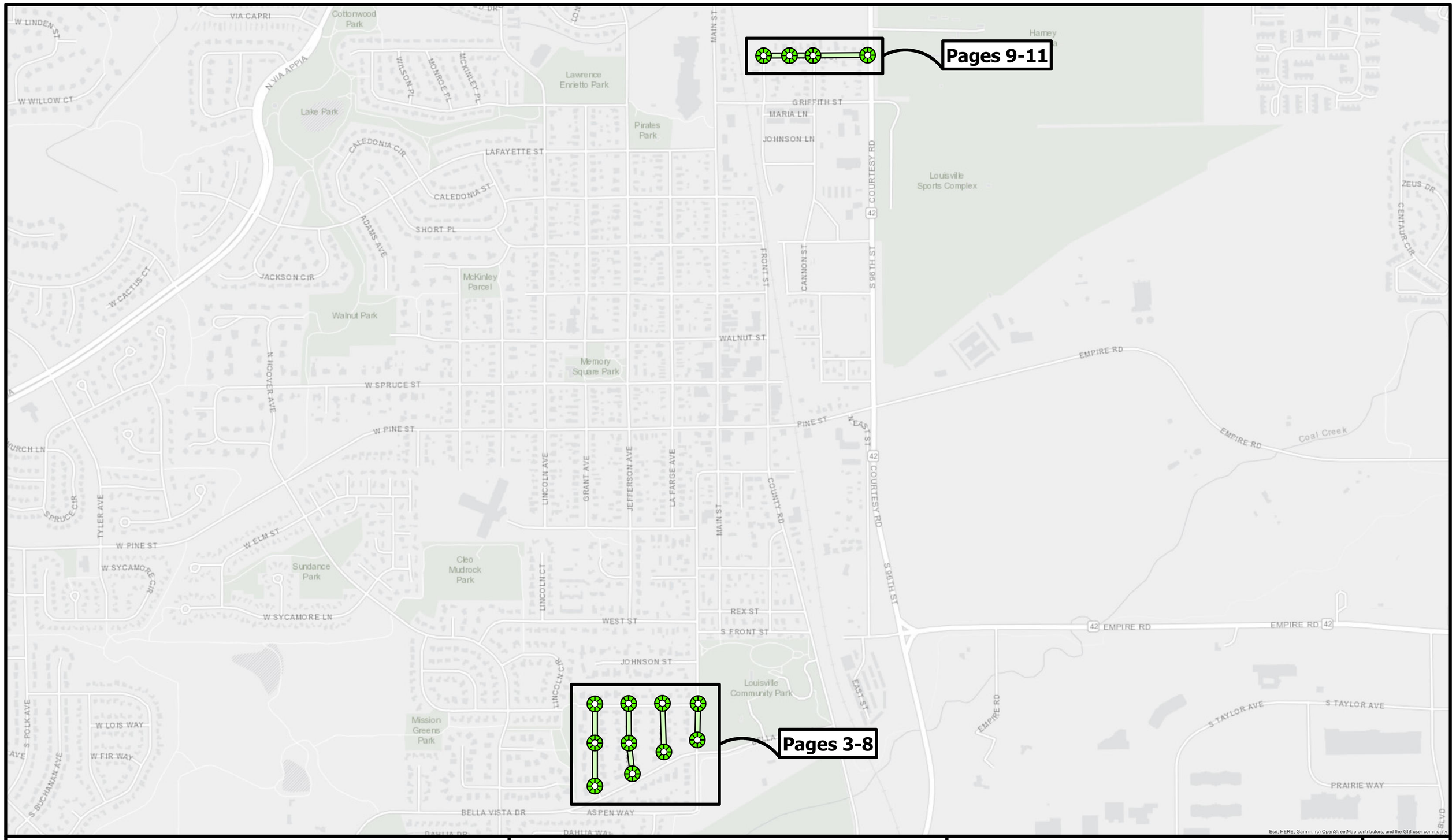
**Section 3.** The City Council hereby approves an additional 10% contingency for the Project in the amount of $36,217.00 for a total authorized amount of $398,384.00 for the Project. The City's Project Manager for the Contract may approve change orders deemed necessary for the Project, subject to the cost limits set forth in this Resolution.

PASSED AND ADOPTED this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk




# Cover Page

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12: Details

**Approved By:**

Tyler Trojan, P.E.
Civil Engineer III

*The City of* **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Manhole: Base Bid

**1**

# Agreement

THIS AGREEMENT is made and entered into this _21_ day of April in the year 2026 by and between:

**CITY OF LOUISVILLE, COLORADO**
**(hereinafter called OWNER)**

and

**INLINER SOLUTIONS, LLC**

**(hereinafter called CONTRACTOR)**

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows.

**Article 1. Work**

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

**PROJECT:** **2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER:** **502498-660313**

**Article 2. Contract Times**

2.1. The CONTRACTOR shall substantially complete all work within **_37_ Contract Days** from the date when the Contract Time commences to run as identified in the Notice to Proceed. The Work shall be completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions.

2.2. LIQUIDATED DAMAGES. The OWNER and the CONTRACTOR agree and recognize that time is of the essence in this contract and that the OWNER will suffer financial loss if the Work is not substantially complete by the date specified in paragraph 2.1 above, plus any extensions thereof allowed in accordance with the Article 12 of the General Conditions. OWNER and CONTRACTOR also agree that such damages are uncertain in amount and difficult to measure accurately. Accordingly, the OWNER and CONTRACTOR agree that as liquidated damages, and not as a penalty, for delay in performance the CONTRACTOR shall pay the OWNER **ONE THOUSAND THREE HUNDRED DOLLARS ($1,300)** for each and every **Contract Day** and portion thereof that expires after the time specified above for substantial completion of the Work until the same is finally complete and ready for final payment. The liquidated damages herein specified shall only apply to the CONTRACTOR's delay in performance, and shall not include litigation or attorneys' fees incurred by the OWNER, or other incidental or consequential damages suffered by the OWNER due to the CONTRACTOR's performance. If the OWNER charges liquidated damages to the CONTRACTOR, this shall not preclude the OWNER from commencing an action against the CONTRACTOR for other actual harm resulting from the CONTRACTOR's performance, which is not due to the CONTRACTOR's delay in performance.

2.3. OPTIONAL RENEWAL TERM. The OWNER and the CONTRACTOR may agree to extend the term of

this CONTRACT in one (1) year increments for up to One ( 1 ) additional years by mutual written agreement. Any such agreement to extend the term of the Agreement shall be by a Change Order executed by OWNER and CONTRACTOR. Adjustments to the labor and material prices for the extension term must be agreed to by the OWNER and CONTRACTOR and shall not exceed a five percent (5%) increase per line item over the prior year. Any such approved price adjustment shall be set forth in the Change Order.

**Article 3. Contract Price**

3.1. The OWNER shall pay in current funds, and the CONTRACTOR agrees to accept in full payment for performance of the Work, subject to additions and deductions from extra and/or omitted work and determinations of actual quantities as provided in the Contract Documents, the Contract Price of THREE HUNDRED SIXTY TWO THOUSAND, AND ONE HUNDRED SIXTY SEVEN dollars ($362,167.00) set forth in the Bid Form of the CONTRACTOR dated March 24, 2026.

As provided in paragraph 11.9 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.10 of the General Conditions. Unit prices have been computed as provided in paragraph 11.9 of the General Conditions.

**Article 4. Payment Procedures**

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by OWNER as provided in the General Conditions.

4.1 PROGRESS PAYMENTS. OWNER shall make progress payments on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, on or about the third Wednesday of each month during construction as provided below. All progress payments will be on the basis of the progress of the Unit Price Work based on the number of units completed as provided in the General Conditions.

4.1.1.1 Prior to final completion and acceptance, progress payments will be made in the amount equal to 95 percent of the calculated value of completed Work, and/or 95 percent of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in 14.2 of the General Conditions), but in each case, less the aggregate of payments previously made and such less amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.7 of the General Conditions.

If OWNER finds that satisfactory progress is being made in any phase of the Work, it may, in its discretion and upon written request by the CONTRACTOR, authorize final payment from the withheld percentage to the CONTRACTOR or subcontractors who have completed their work in a manner finally acceptable to the OWNER. Before any such payment may be made, the OWNER must, in an exercise of its discretion, determine that satisfactory and substantial reasons exist for the payment and there must be provided to the OWNER written approval from any surety furnishing bonds for the Work.

Nothing contained in this provision shall preclude the OWNER and CONTRACTOR from making other arrangements consistent with C.R.S. 24-91-105 prior to contract award.

4.2 FINAL PAYMENT. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as provided in said

paragraph 14.13 of the General Conditions.

**Article 5. Contractor's Representations**

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

5.1. CONTRACTOR has examined and carefully studied the Contract Documents, (including the Addenda listed in paragraph 6.10) and the other related data identified in the Bidding Documents including "technical".

5.2. CONTRACTOR has inspected the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

5.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and furnishing of the Work.

5.4. CONTRACTOR has carefully studied all reports of exploration and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions relating to surface or subsurface structures at or contiguous to the site (Except Underground facilities) which have been identified in the General Conditions as provided in paragraph 4.2.1 of the General Conditions. CONTRACTOR accepts the determination set forth in paragraph 4.2 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to such reports, drawings or to Underground Facilities at or contiguous to the site. CONTRACTOR has conducted, obtained and carefully studied (or assume responsibility for having done so) all necessary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

5.5. CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

5.6. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

5.7. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests studies and data with the Contract Documents.

5.8. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing the Work.

**Article 6. Contract Documents**

The Contract Documents, which constitute the entire agreement between OWNER and CONTRACTOR concerning the Work, are all written documents, which define the Work and the obligations of the Contractor in performing the Work and the OWNER in providing compensation for the Work. The Contract Documents include the following:

6.1. Invitation to Bid.
6.2. Instruction to Bidders.
6.3. Bid Form.
6.4. This Agreement.
6.5. General Conditions.
6.6. Supplementary Conditions.
6.7. General Requirements.
6.8. Technical Specifications.
6.9. Drawings with each sheet bearing the title: **2026 Sanitary Sewer CIPP Project.**
6.10. Change Orders, Addenda and other documents which may be required or specified including:
- 6.10.1. Addenda No. 0 to 1 exclusive
- 6.10.2. Documentation submitted by CONTRACTOR prior to Notice of Award
- 6.10.3. Schedule of Subcontractors
- 6.10.4. Anti-Collusion Affidavit
- 6.10.5. Certification of EEO Compliance
- 6.10.6. Notice of Award
- 6.10.7. Performance Bond
- 6.10.8. Labor and Material Payment Bond
- 6.10.9. Certificates of Insurance
- 6.10.10. Notice to Proceed
- 6.10.11. Contractor's Proposal Request
- 6.10.12. Contractor's Overtime Request
- 6.10.13. Field Order
- 6.10.14. Work Change Directive
- 6.10.15. Change Order
- 6.10.16. Application for Payment
- 6.10.17. Certificate of Substantial Completion
- 6.10.18. Claim Release
- 6.10.19. Final Inspection Report
- 6.10.20. Certificate of Final Completion
- 6.10.21. Guarantee Period Inspection Report

6.11. The following which may be delivered or issued after the Effective Date of the Agreement and are attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraphs 3.5 and 3.6 of the General Conditions.

6.12. In the event of conflict between the above documents, the prevailing document shall be as follows:
1. Permits from other agencies as may be required.

2. Special Provisions and Detail Drawings.
3. Technical Specifications and Drawings. Drawings and Technical Specifications are intended to be complementary. Anything shown or called for in one and omitted in another is binding as if called for or shown by both.
4. Supplementary Conditions.
5. General Conditions.
6. City of Louisville Design and Construction Standards.
7. Reference Specifications.

In case of conflict between prevailing references above, the one having the more stringent requirements shall govern.

There are no Contract Documents other than those listed above in this Article 6. The Contract Documents may only be amended, modified, or supplemented as provided in paragraphs 3.5 and 3.6 of the General Conditions.

**Article 7. Miscellaneous**

7.1. Terms used in this Agreement, which are defined in Article 1 of the General Conditions, shall have the meanings indicated in the General Conditions.

7.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge that assignor from any duty or responsibility under the Contract Documents.

7.3. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

7.4. OWNER AND CONTRACTOR consent to the use of electronic signatures on the Contract Documents. This Agreement, and any other Contract Documents requiring a signature hereunder, may be signed electronically by the Parties in the manner specified under the Uniform Electronic Transactions Act, Title 24, Article 71.3, Part 1, C.R.S.; provided that, electronic records of, and electronic signatures on, any required bonds, including required Performance, Labor and Material Payment, and Warranty Bonds, must be acceptable to the Contractor's selected surety. The Parties agree not to deny the legal effect or enforceability of a Contract Document solely because the document is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of a Contract Document in the form of an electronic record, or a paper copy of an electronic document, or a paper copy or electronic record of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

**Article 8. Other Provisions**

IN WITNESS WHEREOF, OWNER, and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed, initialed, or identified by OWNER and CONTRACTOR.

This Agreement will be effective on April, 21, 2026.

---

**OWNER: CITY OF LOUISVILLE, COLORADO**

By: _____
Christopher M. Leh, Mayor

(CORPORATE SEAL)

Attest: _____
~~Meredyth Muth, City Clerk~~
Genny Kline, City Clerk

Address for giving notices:

749 Main Street
Louisville, Colorado
80027

Attention: City Engineer

**CONTRACTOR: Inliner Solutions, LLC**

By: _____
Thomas Gallagher, CEO

(CORPORATE SEAL)

INLINER SOLUTIONS, LLC LIMITED LIABILITY SEAL May 1, 2002 INDIANA

Attest: _____
Robert Miller, Jr. Secretary

Address for giving notices:

7915 Cherrywood Loop
Kiowa CO 80117

# Performance Bond

_____, as Principal, hereinafter called the Contractor, and

_____ , as Surety, with general offices in

_____
a Corporation organized under the laws of the State of _____, and authorized to transact business in the State of Colorado, are hereby bound unto the City of Louisville, Colorado, as Obligee, hereinafter called the City, in the penal sum of _____ ($_____) in the United States currency, for the payment of which sum the Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally.

WHEREAS, the Contractor has entered into a written contract with the City dated _____, 2026, for _____ in accordance with plans and specifications contained in the Contract, a copy of which Contract is attached hereto and made a part hereof and is hereinafter referred to as the Contract;

NOW, THEREFORE, the conditions of this performance bond are such that, if the Contractor shall satisfactorily perform the Contract, then this bond shall be null and void; otherwise, the Surety shall promptly remedy the default, or shall promptly 1) Complete the Contract in accordance with its terms and conditions, or 2) Obtain a Bid or Bids for completing the contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the City elects, upon determination by the City and the Surety jointly of the lowest responsible bidder, arrange for a Contract between such Bidder and the City, and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the costs of completion plus liquidated damages additional costs pursuant to Section 12.2 of the General Conditions of the Contract less the balance of the contract price, but not exceeding the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the City to the Contractor under the Contract and any amendments thereto, less the amount paid by the City to Contractor.

In addition, if the Contractor or a subcontractor shall fail to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by such Contractor or subcontractor in performance of the Contract, or shall fail to duly pay any person who supplies rental machinery, tools, or equipment, all amounts due as the result of the use of such machinery, tools or equipment in the prosecution of the Work, then the Surety shall pay the same in the amount not exceeding the sum specified in the bond together with interest at a rate of eight percent per annum.

In addition to the other conditions hereof, this bond shall include all provisions set forth in Section 38-26-106, C.R.S.

THE UNDERSIGNED SURETY for value received hereby agrees that no extension of time, change in, addition to, or other modification of the terms of the Contract of Work to be performed thereunder or the specifications of the Contract Documents shall in any way affect its obligation on this bond and the Surety does hereby waive notice of any such extension of time, change, addition, or modifications.

SIGNED AND SEALED this day of _____ , 20____.

| | |
|---|---|
| _____ | _____ |
| **(Contractor)** | **(Surety Company)** |
| By: _____ | Address: _____ |
| (President) | |
| _____ | By: _____ |
| (Attest) | (Attorney-in-fact) |

# Labor and Material Payment Bond

BOND NUMBER:

KNOW ALL MEN BY THESE PRESENCES: that

(Firm) _____
(Address) _____
(an Individual), (a Partnership), (a Corporation), hereinafter referred to as "the Principal", and

(Firm) _____
(Address) _____
hereinafter referred to as "the Surety", are held and firmly bound unto the
CITY OF LOUISVILLE, 749 MAIN STREET, LOUISVILLE, COLORADO a Municipal Corporation, hereinafter referred to as "the Owner", in the penal sum of
_____ Dollars
($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION are such that whereas the Principal entered into a certain Agreement with the Owner, dated the _____ day of _____, 2026, a copy of which is hereto attached and made a part hereof for the performance of

---

NOW, THEREFORE, if the Principal shall make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such Agreement, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, repairs on machinery, equipment and tools, consumed, rented or used in connection with the construction of such work, and all insurance premiums on said Work, and for all labor, performed in such Work whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Agreement or to the Work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this Bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.
In addition to the other conditions hereof, this bond shall include all provisions set forth in Section 38-26-105, C.R.S.

IN WITNESS WHEREOF, this instrument is executed in (3) counterparts, each one of which shall be deemed an original, this _____ day of _____, 20____.

**IN THE PRESENCE OF:**

**PRINCIPAL**

_____

_____

(Corporate Seal)

**PRINCIPAL:**

BY: _____

_____
(Title)

Address:

_____

_____

_____

**IN THE PRESENCE OF:**

_____

_____

**OTHER PARTNERS:**

By: _____

By: _____

**IN THE PRESENCE OF:**

_____

_____

**SURETY:**

By: _____
(Attorney-in fact)

Address:

_____

_____

(Surety Seal)

**NOTE:** Date of Bond must not be prior to date of Agreement.
If Contractor is a Partnership, all partners must execute Bond.

**IMPORTANT:** Surety Company must be authorized to transact business in the state of Colorado and be acceptable to the Owner.

# Notice of Award

DATED: _____

**TO:** _____
_____
_____

---

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

---

Please be advised that on _____, the City of Louisville, Colorado City Council awarded the 2026 SANITARY SEWER CIPP PROJECT to your company in the amount of $_____ per your low unit price bid. In accordance with the Contract Documents, you are required to execute two copies of the Agreement and return both copies with the required bonds and certificates of insurance within **10 days** of the date of this Notice of Award by _____.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

---

| CITY OF LOUISVILLE, COLORADO | ACCEPTANCE OF NOTICE |
|---|---|
| By: _____ | By: _____ |
| Tyler Trojan, P.E. | |
| Title: Civil Engineer III _____ | Title: _____ |

# Notice to Proceed

**DATED**: _____

**TO:** _____
_____
_____

---

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

---

You are hereby notified that the Contract Time under the above Contract will commence to run on _____. On that date, you are to begin performing the Work in accordance with the Contract Documents and you are to complete the Work within _____ **Contract Days** thereafter. The date of substantial completion of all Work is therefore _____**.**

---

**CITY OF LOUISVILLE, COLORADO**

By: _____
Tyler Trojan, P.E.

Title: Civil Engineer III

ACKNOWLEDGEMENT

Receipt of the above Notice to Proceed is hereby acknowledged.

**CONTRACTOR:** _____

By: _____

Title: _____

Date: _____

# Change Order Form

## CHANGE ORDER NO. _____

DATED: _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT** **AGREEMENT DATE: _____**

**PROJECT NUMBER: 502498-660313** **OWNER: CITY OF LOUISVILLE, COLORADO**

---

The following changes are hereby made to the Contract Documents:
Description: _____

| | | | Unit S | $ COST |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | TOTAL | | | |

Attachments: _____

ADJUSTMENT TO CONTRACT PRICE:

| | |
|---|---|
| Original contract price | $ _____ |
| Set change previous Change Orders No. 0 to 0 | $ _____ |
| Contract price prior to this Change Order | $ _____ |
| Net adjustment resulting from this Change Order (+/-) | $ _____ |
| Current contract price including this Change Order | $ _____ |

ADJUSTMENT TO CONTRACT TIME:

| | |
|---|---|
| Original contract time (days or date) | _____ |
| Net change previous Change Orders No. __ to __ (days) | _____ |
| Contract time prior to this Change Order (days or date) | _____ |
| Net Adjustment Resulting from this Change Order (days) | _____ |
| Current contract time including this Change Order (days or date) | _____ |

---

The Contractor's signature below indicates acceptance of full settlement for the work described, both direct and indirect costs. Any claims for additional costs associated with this Change Order will not be considered.

| Recommended: | Approved: | Accepted: |
|---|---|---|
| _____ | CITY OF LOUISVILLE, COLORADO | _____ |
| ENGINEER | OWNER | CONTRACTOR |
| By: _____ | By: _____ | By: _____ |
| Date: _____ | Date: _____ | Date: _____ |

# Field Order Form

**FIELD ORDER NO. _____**

**TO: _____**

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

DATE ISSUED: _____

You are hereby directed and instructed to execute promptly minor variations in the Work by this Field Order as follows:

Attachments:

This form shall be used to authorize minor variations in the Work from the requirements of the Contract Documents, which do not include an adjustment in the Contract Price or the Contract Times.

| **CITY OF LOUISVILLE** | | **ACCEPTED BY CONTRACTOR** | |
|---|---|---|---|
| BY: | _____ | BY: | _____ |
| TITLE: | _____ | TITLE: | _____ |
| DATE: | _____ | DATE: | _____ |

# Work Change Directive Instructions

## A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work that, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order.

For supplemental instructions and minor changes not involving a possible change in the Contract Price or the contract Times a Field Order may be used.

## B. COMPLETING THE WORK CHANGE DIRECTIVE FORM

Engineer initiates the form, including a description of the items involved and attachments.

Based on conversations between Engineer and Contractor, Engineer completes the following:

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE. Mark the method to be used in determining the final cost of Work involved and the estimated net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another Work Change Directive must be issued to change the estimated price or Contractor may stop the changed Work when the estimated price is reached. If the Work Change Directive is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked “Not Applicable”.

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIMES: Mark the method to be used in determining the change in Contract Times and the estimated increase or decrease in Contract Times. If the change involves an increase in the Contract Times and the estimated times are approached before the additional or changed Work is completed, another Work Change Directive must be issued to change the times or Contractor may stop the changed Work when the estimated times are reached. If the Work Change Directive is not likely to change the Contract Times, the space for estimated increase (decrease) should be marked “Not Applicable”.

Once authorized by Engineer a copy will be sent to Contractor. Price and Times may only be changed by Change Order signed by Owner and Contractor.

Once the Work covered by this directive is completed or final cost and times are determined, Contractor should submit documentation for inclusion in a Change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIMES. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

# Work Change Directive Form

**WORK CHANGE DIRECTIVE NO. _____**

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

DATE ISSUED: _____ EFFECTIVE DATE: _____

You are directed to proceed promptly with the following change(s):

Description:

_____
_____
_____

Purpose of Work Change Directive:

_____
_____
_____

Attachments (List documents supporting change):

_____
_____
_____

If a claim is made that the above change(s) have affected Contract Price of Contract Times any claim for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

____ Unit Prices
____ Lump Sum
____ Other _____

Method of determining change in Contract Times:

____ Contractor's Records
____ Engineer's Records
____ Other _____

Estimated increase (decrease) in Contract Price:
$_____
If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Times
Substantial Completion: _____days;
Ready for final payment: _____days.
If the change involves an increase, the estimated times are not to be exceeded without further authorization.

**RECOMMENDED:**

_____
ENGINEER

BY: _____

**ACCEPTED:**

_____
CONTRACTOR

BY: _____

# Application for Payment Form

**Pay Estimate #**
Date

**Project Name**
**Project Number**

**AREA DESCRIPTION**

| ESTIMATED UNITS/CONTRACT UNIT PRICE | | | | | | WORK COMPLETED | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bid Item No. | Bid Item | Unit | Quantity | Unit Price | Total Cost | Prior Units | Current Units | Total Units | Previous Cost | Current Cost | Cost to Date |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0.0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0.0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0.0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| 0 | 0 | 0 | 0 | $ - | $0.00 | 0 | | 0 | $ - | $ - | $ - |
| | | | | | $ - | | | | $ - | $ - | $ - |

Base Bid Contract Amount: $ -
Alternate 1. Contract Amount: $ -
Total MCR Amount: $ -
Total Change Order Amount: $ -
**Project Total: $ -**

| Payment Summary | | | | | Project Cost Summary | |
|---|---|---|---|---|---|---|
| Payment # | Date (mo./yr.) | Payment Amount | Total Payment to Date | Project Completion | | |
| 1 | | $ - | $ - | | Total Earned to Date: | $ - |
| 2 | | | $ - | | | |
| 3 | | | $ - | | Contract Retainage: | $ - |
| 4 | | | $ - | | | |
| 5 | | | $ - | | Previous Payments: | $ - |
| 6 | | | $ - | | | |
| 7 | | | $ - | | **TOTAL DUE:** | $ - |
| 8 | | | $ - | | | |

OWNER:
CITY OF LOUISVILLE
APPROVED FOR PAYMENT BY

NAME:

DATE:

TITLE:

CONTRACTOR:
CONTRACTOR NAME:
TOTAL AMOUNT ACCEPTED FOR COMPLETED WORK DESCRIBED ABOVE.

NAME:

DATE:

TITLE:

# Contractor's Proposal Request Form

(Not a Change Order)

Date Submitted: _____ No. _____

**TO:** _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

We hereby request the cost of the following proposed change in the Contract. A breakdown of the proposed cost is attached.

Description of the proposed change:

_____

_____

_____

_____

_____

_____

_____

All work shall be in accordance with the terms, stipulations, and conditions of the Contract Documents. If the Work herein requested is approved by Change Order, the time of completion will be (increased), (decreased), (unchanged) by _____ calendar days.

New Substantial Completion Date: _____, 2026.

This change will:

____ Increase the Contract by $ _____
____ Decrease the Contract by $ _____
____ No change in the Contract

SUBMITTED BY CONTRACTOR

BY: _____

DATE: _____

DATE: _____

CITY OF LOUISVILLE

___ Contractor's Proposal Request Accepted

___ Contractor's Proposal Request Not Accepted

BY: _____

DATE: _____

TITLE: _____

# Contractor's Overtime Request Form

Date Submitted: _____, 2026

**TO:** _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

We hereby request to perform work on overtime in accordance with the terms, stipulations, and conditions of the Contract Documents.

Requested date of overtime work: _____, 2026

Requested hours of overtime work: _____ (a. m./p. m.) to _____ (a. m./p. m.)

Description of proposed overtime work:

No extra payment will be paid to the CONTRACTOR by the OWNER due to labor overtime or other increased costs of performing the Work on Friday afternoons, Saturdays, or at night. Should the CONTRACTOR desire to work on Friday afternoons or at night between the hours of 5:00 p.m. and 8:00 p.m., Monday-Thursday, or from 3:30 p.m. to 8:00 p.m. Friday, the CONTRACTOR shall submit a written request to the ENGINEER 24 hours prior. If approval is given by ENGINEER to CONTRACTOR for authorized overtime work, ENGINEER and ENGINEER's authorized personnel will charge overtime and other incidental administrative expenses necessary for performing inspections on Friday afternoons, or at night between the hours of 5:00 p.m. and 8:00 p.m., Monday-Thursday and 3:30 p.m. to 8:00 p.m. Friday, the CONTRACTOR will be responsible to pay for all such rates and charges, and shall not be granted a Contract Price increase for such charges.

**Hours of overtime work shall only be allowed from 5:00 p.m. to 8:00 p.m. Monday thru Thursday, and from 3:30 p.m. to 8:00 p.m. Friday.**

**SUBMITTED BY CONTRACTOR**

BY: _____

TITLE: _____

DATE: _____

**CITY OF LOUISVILLE**

_____ Contractors Proposal Request Accepted

_____ Contractors Proposal Request Not Accepted

BY: _____

DATE: _____

TITLE: _____

# Certificate of Substantial Completion Form

**TO:** _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

_____
**DATE OF SUBSTANTIAL COMPLETION**

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in the list does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within **twenty (20)** days of the issuance of this Certificate of Substantial Completion.

CONTRACTOR shall maintain all contractual responsibilities until Final Acceptance.

The following documents are attached to and made a part of this Certificate of Substantial Completion:

Attachments:

_____

_____

_____

(For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by the Contract Documents.)

**CERTIFICATE OF SUBSTANTIAL COMPLETION CONTINUED**

This certificate does not constitute an acceptance of Work or start of the guarantee period nor its release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents. Issuance of Substantial Completion does not commence the guarantee period with this certificate.

| **CITY OF LOUISVILLE, COLORADO** | | **ACCEPTED BY CONTRACTOR** | |
|---|---|---|---|
| BY: | _____ | BY: | _____ |
| TITLE: | _____ | TITLE: | _____ |
| DATE: | _____ | DATE: | _____ |

# Final Inspection Report Form

DATE: _____, 2026

TO: _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

The ENGINEER has performed final inspection of the Work, and accepts the Work subject to the Contractor's performance and completion of the following repairs, corrections and/or replacements:

_____

_____

_____

_____

_____

_____

_____

The ENGINEER does / does not (circle) hereby finally accept the work, and hereby certifies that the Contractor is eligible to receive final payment of the Work.

| **CITY OF LOUISVILLE, COLORADO** | **CONTRACTOR** |
|---|---|
| BY: _____ | BY: _____ |
| TITLE: _____ | TITLE: _____ |
| DATE: _____ | DATE: _____ |

# Certificate of Final Completion Form

DATE: _____, 2026

TO: _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

This Certificate of Final Completion applies to all Work under the Contract Documents, or to the following specified parts thereof:

(specify) _____

_____

_____

The Work to which this Certificate applies has been inspected by authorized representatives of the ENGINEER and the Work is hereby declared to be complete in accordance with the Contract Documents on

_____
**DATE OF FINAL COMPLETION**

In consideration therefor, the OWNER agrees to make Final Payment to Contractor of all amounts retained by OWNER, except such amounts that are subject to verified claims pursuant to Section 38-26-107, C.R.S, if any.

| **CITY OF LOUISVILLE, COLORADO** | **CONTRACTOR** |
|---|---|
| BY: _____ | BY: _____ |
| TITLE: _____ | TITLE: _____ |
| DATE: _____ | DATE: _____ |

# Guarantee Period Inspection Report Form

DATE: _____, 2026

TO: _____

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

The ENGINEER's authorized representative performed the guarantee period inspection on _____, 20 ___, which guarantee was originally due to expire on _____, 20___.

The ENGINEER hereby determines that the project has ___/ has not ___ satisfactorily met the conditions required to pass the guarantee period inspection.

The identified following items of Work are defective and must be repaired, corrected, and/or replaced:

_____

_____

_____

_____

_____

The guarantee period shall be extended for the items listed above until the following date:

_____, 2026

| **CITY OF LOUISVILLE, COLORADO** | **CONTRACTOR** |
|---|---|
| BY: _____ | BY: _____ |
| TITLE: _____ | TITLE: _____ |
| DATE: _____ | DATE: _____ |

# Final Claim Release & Acceptance Form

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

Application for Payment Number: _____
Application for Payment Amount: _____
Application for Payment Date: _____

For valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned hereby releases the City of Louisville, Colorado, and waives all rights of the undersigned to file a claim for material, equipment, tools, machinery, or services heretofore furnished for use in and for labor heretofore performed upon the construction, alteration, addition to or repair of the structure or improvements described in the Contract Documents as:

Project: 2026 SANITARY SEWER CIPP PROJECT

Description of Property: VARIOUS LOCATIONS, CITY OF LOUISVILLE

Owner: CITY OF LOUISVILLE, COLORADO

We acknowledge that the foregoing is an adequate description of the real property and improvements to which this Claim Release pertains inasmuch as the foregoing description is the description given in the Contract Documents, which govern the performance of the Work for which consideration has been received.

In executing this release, we certify that all claims for labor or materials, or both, furnished or performed by the undersigned or on our behalf by our material suppliers or subcontractors have been paid or that satisfactory arrangements for payment have been made and we hereby waive and release any and all rights, claims and liens which the undersigned may now or hereafter have, claim or assert against the project, the Owner, or any funds in Owner's possession or control concerning the project, or against all land and any improvements and appurtenances to the land improved by the project.

In consideration of the final payment made or to be made to the undersigned and to induce said payment, we hereby further release and forever discharge the City of Louisville, its officers and employees, from any and all liability, actions, causes of action, claims, demands, damages, costs, loss of services, loss of properties, expenses, compensation and any and all consequential damages or injuries, which the undersigned may now or hereafter have, claim or assert on account of, relating to, or in any way arising out of the above described project.

In further consideration of the payment made or to be made to the undersigned and to induce said payment, we agree to defend and indemnify the City of Louisville, its officers and employees from any claim or claims on the part of our material suppliers, laborers, employees, servants, and agents, or subcontractors arising from our work on this project, and we further agree to fully satisfy any such claim brought against the City of Louisville and reimburse the City of Louisville for any and all costs, including reasonable attorney fees, which it may incur as a result of such claims.

**FINAL CLAIM RELEASE & ACCEPTANCE CONTINUED**

As contactor on the above described project, we further accept the pay quantities and final payment indicated on the final payment application as correct. The above noted final payment of $_____ results in total cumulative payment of $_____ for this project. By accepting this final payment, we accept that the final payment application is full and complete, that no other or further amounts are due to the undersigned, and we hereby waive and release all rights, claims, and liens arising from the completion of work under the Contract Documents.

The undersigned representative certifies to have full authority to execute this instrument and to bind the contractor to all statement and provisions herein contained.

**PRIME CONTRACTOR**

By: _____

**President**

Date: _____

# Claim Release – Subcontractor/Supplier

**PROJECT: 2026 SANITARY SEWER CIPP PROJECT**
**PROJECT NUMBER: 502498-660313**
**OWNER: CITY OF LOUISVILLE, COLORADO**

For valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned hereby releases the City of Louisville, Colorado, and waives all rights of the undersigned to file a claim for material, equipment, tools, machinery, or services heretofore furnished for use in and for labor heretofore performed upon the construction, alteration, addition to or repair of the structure or improvements described in the Contract Documents as:

Project: 2026 SANITARY SEWER CIPP PROJECT
Description of Property: VARIOUS LOCATIONS, CITY OF LOUISVILLE

Owner: CITY OF LOUISVILLE, COLORADO

We acknowledge that the foregoing is an adequate description of the real property and improvements to which this Claim Release pertains inasmuch as the foregoing description is the description given in the Contract Documents, which govern the performance of the Work for which consideration has been received.

In executing this release, we certify that all claims for labor or materials, or both, furnished or performed by the undersigned or on our behalf by our material suppliers or subcontractors have been paid or that satisfactory arrangements for payment have been made, and we hereby waive and release any and all rights, claims and liens which the undersigned may now or hereafter have, claim or assert against the project, the Owner, or any funds in Owner's possession or control concerning the project, or against all land and any improvements and appurtenances to the land improved by the project.

In consideration of the final payment made or to be made to the undersigned and to induce said payment, we hereby further release and forever discharge the City of Louisville, its officers and employees, from any and all liability, actions, causes of action, claims, demands, damages, costs, loss of services, loss of properties, expenses, compensation and any and all consequential damages or injuries, which the undersigned may now or hereafter have, claim or assert on account of, relating to, or in any way arising out of the above described project.

In further consideration of the payment made or to be made to the undersigned and to induce said payment, we agree to defend and indemnify the City of Louisville, its officers and employees from any claim or claims on the part of our material suppliers, laborers, employees, servants, and agents, or subcontractors arising from our work on this project, and we further agree to fully satisfy any such claim brought against the City of Louisville and reimburse the City of Louisville for any and all costs, including reasonable attorney fees, which it may incur as a result of such claims.

| **SUPPLIER OR SUBCONTRACTOR** | **PRIME CONTRACTOR** |
|---|---|
| By: _____ | By: _____ |
| President | President |
| Date: _____ | Date: _____ |

# General Conditions

## Article 1. Definitions

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

**1.0** **Abnormal Weather** - Snowfall, rainfall, freezing temperatures, or wind conditions, in excess of those encountered in the project area of Boulder County during the past 10 years that necessitates cessation of Work and causes consequence to the project.

**1.1** **Addenda** - Written or graphic instruments issued prior to the opening of Bids, which clarify, correct or change the Bidding Requirements or the Contract Documents.

**1.2** **Agreement** - The written contract between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

**1.3** **Application for Payment** - The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

**1.4** **Asbestos** - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

**1.5** **Bid** - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

**1.6** **Bidding Documents** - The advertisement or invitation to Bid, instructions to Bidders, the Bid form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

**1.7** **Bidding Requirements** - The advertisement or invitation to Bid, instructions to bidders, and the Bid form.

**1.8** **Bonds** - Performance and Payment bonds and other instruments of security.

**1.9** **Change Order** - A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

**1.10** **Contract Day** - A Contract Day specifies that construction will be completed Monday through Sunday, excluding OWNER-observed holidays and Abnormal Weather days.

**1.11** **Contract Documents** - The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued pursuant to paragraphs 3.5, 3.6.1, and 3.6.3 on or after the Effective Date of the Agreement. Shop Drawing submittals approved pursuant to paragraphs 6.26 and 6.27 and the reports and drawings referred to in paragraphs 4.2.1.1 and 4.2.2.2 are not Contract Documents.

**1.12** **Contract Price** - The monies payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

**1.13** **Contract Times** - The numbers of days or the dates stated in the Agreement: (i) to achieve Substantial Completion, and (ii) to complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment in accordance with paragraph 14.13.

**1.14** **CONTRACTOR** - The person, firm, or corporation with whom OWNER has entered into the Agreement.

**1.15** **Defective** - An adjective which when modifying the work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).

**1.16** **Drawings** - The drawings that show the scope, extent, and character of the Work to be furnished and performed by CONTRACTOR and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.

**1.17** **Effective Date of the Agreement** - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

**1.18** **ENGINEER** - The word "ENGINEER" refers to the City of Louisville, Director of Public Works or his authorized representative, designated by the OWNER as its Engineering representative.

**1.19** **OWNER's Consultant** - A person, firm, or corporation having a contract with OWNER to furnish services as OWNER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

**1.20** **Field Order** - A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Times.

**1.21** **General Requirements** - Sections of Division 1 of the Specifications.

**1.22** **Hazardous Waste** - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

**1.23** **Laws and Regulation: Laws or Regulations** - Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

**1.24** **Liens** - Liens, charges, security interests, or encumbrances upon real property or personal property.

**1.25** **Milestone** - A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

**1.26** **Notice of Award** - The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

**1.27** **Notice to Proceed** - A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.

**1.28** **OWNER** - The public body or authority, corporation, association, firm, or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

**1.29** **Partial Utilization** - Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

**1.30** **PCBs** - Polychlorinated biphenyls.

**1.31** **Petroleum** - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

**1.32** **Plans** - The term plans as used in these Contract Documents shall have the same meaning as Drawings.

**1.33** **Product** - Includes materials, equipment, and systems.

**1.34** **Project** - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

**1.35** **Provide** - Furnish and install specified materials and equipment unless the context requires otherwise.

**1.36** **Radioactive Material** - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

**1.37** **Resident Project Representative** - The authorized representative of ENGINEER who may be assigned to the site or any part thereof.

**1.38** **Samples** - Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

**1.39** **Shop Drawings** - All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

**1.40** **Specifications** - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

**1.41** **Subcontractor** - An individual, firm, or corporation having a contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

**1.42** **Substantial Completion** - The Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by ENGINEER's written recommendation of final payment in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

**1.43** **Supplementary Conditions** - The part of the Contract Documents which amends or supplements these General Conditions.

**1.44** **Supplier** - A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

**1.45** **Underground Facilities** - All pipeline, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems, or water.

**1.46** **Unit Price Work** - Work to be paid for on the basis of unit prices.

**1.47** **Work** - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

**1.48** **Work Change Directive** - A written directive to CONTRACTOR, issued on or after the Effective Date

of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or emergencies under paragraph 6.23. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in paragraph 10.2.

**1.49 Written Amendment** - A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly construction-related aspects of the Contract Documents.

## Article 2. Preliminary Matters

**Delivery of Bonds**

2.1 When CONTRACTOR delivers the executed Agreement to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds and Certificates of Insurance as CONTRACTOR may be required to furnish in accordance with Article 5.

**Copies of Documents**

2.2 OWNER shall furnish to CONTRACTOR up to four copies of the contract documents for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

**Commencement of Contract Times; Notice to Proceed**

2.3 The Contract Times will commence to run on the day indicated in the Notice to Proceed. Timing and completion of the **2026 SANITARY SEWER CIPP PROJECT** is based on 37 contract days. The OWNER has set the proposed project schedule and plans to implement the following schedule for this project. The CONTRACTOR shall be required to start construction on or before the start date listed below:

**Proposed Project Schedule**

Advertisement..... March 4, 2026
Pre-Bid Conference.....March 10, 2026
Deadline for Questions.....March 17, 2026
Prequalification Deadline..... March 19, 2026
Bid Opening.....March 24, 2026
Contract Award by City Council .....April 21, 2026
Notice of Award Issued.....April 22, 2026
Pre-Construction Conference .....April 28, 2026
Bonds & Insurance Certificates due..... May 1, 2026
Contract Agreement Executed..... May 1, 2026

Notice to Proceed Issued ..... May 1, 2026
Contract Time Commences to run ..... May 4, 2026
Substantial Completion ..... June 26, 2026

**Starting the Work**

2.4 CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the site prior to the date on which the Contract Times commence to run.

**Before Starting Construction**

2.5 Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents, unless CONTRACTOR knew or reasonably should have known thereof.

2.6 Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for review:

2.6.1 A preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestone specified in the Contract Documents;

2.6.2 A preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal.

**Preconstruction Conference**

2.7 Before any Work at the site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.6, procedures for handling Shop Drawings and other submittal(s), processing Applications for Payment, and maintaining required records.

**Initially Acceptable Schedules**

2.8 Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review the Application for Payment for acceptability to ENGINEER. No progress payment shall be made to CONTRACTOR until the schedules are submitted to and acceptable to ENGINEER as provided below. The progress schedule will be acceptable to ENGINEER as providing an orderly progression of the Work to completion within any specified Milestones and the Contract Times, but such acceptance will neither impose on ENGINEER

responsibility for the sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor. CONTRACTOR's schedule of Shop Drawing and Sample submissions will be acceptable to ENGINEER as providing a workable arrangement for reviewing and processing the required submittals.

## Article 3. Contract Documents: Intent, Amending, Reuse

### Intent

3.1 The Contract Documents comprise the entire agreement OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2 It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases, which have a well-known technical or construction industry or trade meaning, are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 9.4.

### Reference to Standards & Specifications of Technical Societies; Reporting and Resolving Discrepancies

3.3

3.3.1. Reference to standards, specifications, manuals, or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

3.3.2 If, during the performance of the Work, CONTRACTOR discovers any conflict, error ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, CONTRACTOR shall report it to ENGINEER in writing at once, and, CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by paragraph 6.23) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.5 or 3.6; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or reasonably should have known thereof. Upon notification to the ENGINEER, the CONTRACTOR shall proceed with

other parts of the Work not affected by the conflict, error, ambiguity, or discrepancy.

3.3.3 Except as otherwise specifically stated in the Contract Documents or as may be provided by amendment or supplement thereto issued by one of the methods indicated in paragraph 3.5 or 3.6, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

3.3.3.1 The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

3.3.3.2 The provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

No provision of any such standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of paragraph 9.13 or any other provision of the Contract Documents.

3.4 Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review, or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13 or any other provision of the Contract Documents.

**Amending and Supplementing Contract Documents**

3.5 The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.5.1 a formal Written Amendment,

3.5.2 a Change Order (pursuant to paragraph 10.4), or

3.5.3 a Work Change Directive (pursuant to paragraph 10.1).

3.6 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

3.6.1 a Field Order (pursuant to paragraph 9.5),

3.6.2 ENGINEER's approval of a Shop Drawing or Sample (pursuant to paragraphs 6.26 and 6.27), or

3.6.3 ENGINEER's written interpretation or clarification (pursuant to paragraph 9.4).

**Reuse of Documents**

3.7 CONTRACTOR, and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's Consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER.

## Article 4. Availability of Lands; Subsurface and Physical Conditions, Reference Points

**Availability of Lands**

4.1 OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. OWNER shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR and OWNER are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times as a result of any delay in OWNER's furnishing these lands, rights-of-way or easements, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

**Subsurface and Physical Conditions**

4.2 BIDDERs are responsible for examining and determining for themselves the location and nature of the proposed Work, the amount and character of the labor and materials required therefor, and the difficulties, which may be encountered. BIDDERs may not rely on oral or written representations made by the OWNER, including reports and drawings identified pursuant to 4.2.1 and subparagraphs thereof, unless the OWNER has guaranteed in writing that such representation is factually accurate, and by submitting a Bid, each BIDDER waives all liability for any error in any representation made by the OWNER to the BIDDER. BIDDERs shall inspect the site and its surroundings and conduct such supplementary examinations, investigations, and tests

concerning conditions at or contiguous to the site (including surface, and subsurface) which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto for performing the Work in accordance with the Contract Documents. By failing to make such an inspection, the BIDDER waives all rights to claim extra payment or time extensions due to unexpected conditions, which could have been determined had the site been reasonably inspected. If concealed or unknown conditions differ materially from those ordinarily encountered and generally recognized as inherent in the Work, or differ materially from the conditions indicated in the Contract Documents, then an equitable adjustment in the Contract Price or in the Contract Time will be allowed by change order as provided in Article 11 or Article 12 respectively. By submitting a Bid, the BIDDER represents that the BIDDER's observations at the site are not inconsistent with the requirements of the proposed Contract Documents, unless otherwise noted by the BIDDER.

**Reports and Drawings**

4.2.1 Reference is made to the Supplementary Conditions for identification of:

The following reports of explorations and tests of subsurface conditions at the site of the Work:

**Subsurface Conditions**

4.2.1.1 Those reports of explorations and tests of subsurface conditions at or contiguous to the site that have been utilized by ENGINEER in preparing the Contract Documents; and

Report dated **N/A**, prepared by **N/A** entitled: **N/A**. The technical data contained in such report upon which CONTRACTOR may rely is **N/A**.

Copies of these reports that are not included with Bidding Documents may be examined at ENGINEER's office during regular business hours. Please call for appointment. Copies of such reports are not available for distribution. These reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which CONTRACTOR is entitled to rely as provided in GC-4.2 and as identified and established above are incorporated therein by reference.

**Physical Conditions**

4.2.1.2 Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) that have been utilized by ENGINEER in preparing the Contract Documents.

**Limited Reliance by CONTRACTOR authorized; Technical Data**

4.2.2 Reports and drawings identified pursuant to paragraph 4.2 are not Contract Documents. Unless otherwise set forth in the Contract Documents or OWNER has otherwise guaranteed in writing that such representation is factually accurate, CONTRACTOR may not rely upon or make any claim against the OWNER,

ENGINEER, or ENGINEER's consultants with respect to the accuracy of any "technical data" contained in reports and drawings and CONTRACTOR may not rely upon or make any claim against the OWNER, ENGINEER, or ENGINEER's consultants with respect to:

4.2.2.1 The completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto, or

4.2.2.2 other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings, or

4.2.2.3 any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such data, interpretations, opinions, or information.

4.2.3 CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Times if:

4.2.3.1 CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a bid or becoming bound under a negotiated contract; or

4.2.3.2 the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTORs making such final commitment.

If OWNER and CONTRACTOR are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefor as provided in Articles 11 and 12. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages sustained by CONTRACTOR on or in connection with any other project or anticipated project.

**Physical Conditions - Underground Facilities**

4.3

**Shown or Indicated**

4.3.1 The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others.

4.3.1.1 OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

4.3.1.2 The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work.

**Not Shown or Indicated**

4.3.2 If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Price or Contract Times, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages incurred or sustained by CONTRACTOR on or in connection with any other project or anticipated project.

**Reference Points**

4.4 OWNER shall provide engineering surveys to establish baseline and benchmarks for construction, which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

OWNER shall provide survey reference points, construction stakes, lines and grades required for the completion of the work specified in the specifications, on the plans, or in the Special Conditions. Additional staking requested by the Contractor will be at the CONTRACTOR's expense. When the CONTRACTOR requires staking, he shall notify the OWNER of his requirements in

writing a reasonable length of time in advance of starting work that require construction staking. Under no circumstances shall a notice of less than 2 contract days be considered a reasonable length of time. Failure of the CONTRACTOR to provide 2 contract days written notice to the OWNER of his staking requests shall relieve the OWNER from any responsibility for additional costs or delays caused by such failure. The CONTRACTOR shall carefully preserve stakes set by the OWNER. When stakes are destroyed or damaged, the CONTRACTOR will be charged for the cost of necessary replacement or restoration of stakes. The charge for replacement and restoration of stakes will be deducted from any moneys due or to become due the CONTRACTOR.

**Asbestos, PCBs Petroleum, Hazardous Waste, or Radioactive Material**

4.5

4.5.1 OWNER shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. OWNER shall not be responsible for any such materials brought to the site by CONTRACTOR, Subcontractor, Suppliers, or anyone else for whom CONTRACTOR is responsible.

4.5.2 CONTRACTOR shall immediately: (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by paragraph 6.23), and (ii) notify OWNER and ENGINEER (and thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. CONTRACTOR shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR special written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided Articles 11 and 12.

4.5.3 If after receipt of such special written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefor as provided in Articles 11 and 12. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

4.5.4 The provisions of paragraphs 4.2 and 4.3 are not intended to apply to Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material uncovered or revealed at the site.

## Article 5. Bonds and Insurance

**Performance, Payment, and Other Bonds**

5.1 CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act. The CONTRACTOR shall furnish the performance and payment bond in the form provided in the Contract Documents or approved by the OWNER; the earlier of ten (10) days after the OWNER has issued the notice of award or delivery of the executed Agreement. The OWNER reserves the right to exclude any Surety Company on any ground it deems appropriate. The cost of the bonds shall be included in the bid.

5.2 If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, CONTRACTOR shall within ten days thereafter substitute another Bond and surety, both of which must be acceptable to OWNER.

**Licensed Sureties and Insurers; Certificates of Insurance**

5.3

5.3.1 All Bonds and insurance required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety or insurance companies acceptable to OWNER that are duly licensed to transact business in the State of Colorado and to issue Bonds or insurance policies for the limits and coverage so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.3.2 CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain accordance with paragraph 5.4. The certificates shall be reviewed and approved by OWNER prior to execution of the Agreement. The OWNER shall have the right to request and obtain copies of any insurance policies required under paragraph 5.4 of the

General Conditions. The completed certificates of insurance shall be sent to: City of Louisville, 749 Main Street, Louisville, Colorado 80027, ATTN: City Engineer.

**CONTRACTOR's Liability Insurance**

5.4 (a) The CONTRACTOR agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by the CONTRACTOR pursuant to paragraphs 6.12, 6.16, 6.31, 6.32 and 6.33, and 6.5 in addition to any other insurance requirements imposed by the Contract Documents or by law. The CONTRACTOR shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to paragraphs 6.12, 6.16, 6.31, and 6.33 by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.

(b) CONTRACTOR shall procure and maintain, and shall cause any Subcontractor or Supplier of the CONTRACTOR to procure and maintain or insure the activity of his Subcontractors and Suppliers in his own policy, the minimum insurance coverages listed below. Such coverages shall be procured and maintained with forms and insurers acceptable to the OWNER. All coverages shall be continuously maintained from the date of commencement of the Work to cover all liability, claims, demands, and other obligations assumed by the CONTRACTOR pursuant to paragraphs 6.31 and 6.33. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.

(1) Workers' Compensation insurance to cover obligations imposed by the Workers' Compensation Act of Colorado and any other applicable laws for any employee engaged in the performance of Work under this contract, and Employers' Liability insurance with minimum limits of FIVE HUNDRED THOUSAND DOLLARS ($500,000) each accident, FIVE HUNDRED THOUSAND DOLLARS ($500,000) disease - policy limit, and FIVE HUNDRED THOUSAND DOLLARS ($500,000) disease - each employee. Evidence of qualified self-insured status may be substituted for the Workers' Compensation requirements of this paragraph.

(2) Comprehensive General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each occurrence and TWO MILLION DOLLARS ($2,000,000) aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, independent contractors, products, and completed operations. The policy shall include coverage for explosion, collapse, and underground hazards. The policy shall contain a severability of interests' provision.

(3) Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS ($1,000,000) each occurrence and ONE MILLION DOLLARS ($1,000,000) aggregate with respect to each of CONTRACTOR's owned, hired or non-owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests' provision.

(4) The CONTRACTOR shall provide and maintain builder's risk insurance upon the entire project equal to one hundred percent (100%) of the insurable value thereof. Such insurance shall cover any and all physical damage including, without limitation, damage caused by fire, vandalism, malicious mischief, blasting, excessive surface runoff or storm water, high winds, and other occurrences covered in a standard extended coverage endorsement. The policy shall remain in effect until the Work is accepted as substantially complete.

(c) The policy required by paragraph (2) above, by paragraph (3) and by (4) above shall be endorsed to include the OWNER, the ENGINEER and its consultants, and each of their officers, agents, and employees as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the OWNER, its officers, or its employees, shall be excess and not contributory insurance to that provided by CONTRACTOR. No additional insured endorsement to the policy required by paragraph (1) above shall contain any exclusion for bodily injury or property damage arising from completed operations. The CONTRACTOR shall be solely responsible for any deductible losses under any policy required above.

(d) The certificate of insurance provided to OWNER shall be completed by the CONTRACTOR's insurance agent as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be reviewed and approved by the OWNER prior to commencement of the contract.

(e) Failure on the part of the CONTRACTOR to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the OWNER may immediately terminate this contract, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the OWNER shall be repaid by CONTRACTOR to the OWNER upon demand, or the OWNER may offset the cost of the premiums against any monies due to CONTRACTOR from the Owner.

(f) The OWNER reserves the right to request and receive a certified copy of any policy and any endorsement thereto.

(g) The parties hereto understand and agree that the OWNER, the City of Louisville, is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations (presently $150,000 per person and $600,000 per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., 10 C.R.S., as from time to time amended, or otherwise available to the City of Louisville, its officers, or its employees.

(h)

**OWNER's Liability Insurance**

5.5 In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.4, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

**Property Insurance**

5.6 The OWNER shall be responsible for maintaining its own property insurance and, at its option, may maintain such insurance as will protect it against claims which may arise from operations under the Contract Documents.

## Article 6. CONTRACTOR's Responsibilities

**Supervision and Superintendence**

6.1 CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

6.2 CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications to the superintendent shall be as binding as if given to CONTRACTOR.

**Labor, Materials, and Equipment**

6.3 CONTRACTOR shall provide competent, suitably qualified personnel to survey, layout, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except as otherwise required for the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to ENGINEER. No extra payment will be paid to the CONTRACTOR by the OWNER due to labor overtime or other increased costs of performing the Work on Saturdays, Sundays, OWNER-observed holidays, or at night. Should the CONTRACTOR desire to work on Saturdays, Sundays, OWNER-observed holidays, or at night between the hours of 5:00 p.m. and 7:00 a.m. on **Contract Days** the CONTRACTOR shall submit a written request to the ENGINEER 24 hours prior. If approval is given by ENGINEER to CONTRACTOR for authorized overtime work, ENGINEER's and ENGINEER's authorized personnel will charge overtime and other incidental administrative expenses necessary for performing inspections on Saturdays, Sundays, OWNER-observed holidays, or at night between the hours of 5:00 p.m. and 7:00 a.m., the CONTRACTOR will be responsible to pay for all such rates and charges, and shall not be granted a Contract Price increase for such charges. Overtime and other incidental administrative expenses for Engineer and Engineer's authorized personnel are as follows:

| DESCRIPTION | HOURLY RATE |
|---|---|
| Engineer | $60.00 |
| Construction Inspector | $45.00 |
| Operations Supervisor | $45.00 |
| Maintenance Worker | $30.00 |
| Clerical | $25.00 |
| Vehicle | $15.00 |

6.4 Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the Work.

6.5 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

**Progress Schedule**

6.6 CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.8 as it may be adjusted from time to time as provided below:

6.6.1 CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.8) proposed adjustments in the progress schedule that will not change the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

6.6.2 Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of paragraph 12.1. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

**Substitutes and "Or-Equal" Items**

6.7

6.7.1 Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment of

other Suppliers may be accepted by ENGINEER under the following circumstances:

**“Or-Equal”**

6.7.1.1 If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

**Substitute Items**

6.7.1.2 If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under subparagraph 6.7.1.1, it will be considered a proposed substitute item. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by the ENGINEER will include the following as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall first make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair, and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered

by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute.

**CONTRACTOR's Expense**

6.7.1.3 All data to be provided by CONTRACTOR in support of any proposed "or-equal" or substitute item will be at CONTRACTOR's expense.

**Substitute Construction Methods or Procedures**

6.7.2 If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction acceptable to ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.7.1.2.

**ENGINEER's Evaluation**

6.7.3 ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.7.1.2 and 6.7.2. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed, or utilized without ENGINEER's prior written acceptance, which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or-equal" or substitute. ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR pursuant to paragraphs 6.7.1.2 and 6.7.2 and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER accepts a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute item.

**Concerning Subcontractors, Suppliers, and Others**

6.8

6.8.1 CONTRACTOR shall not employ any Subcontractor, Supplier, or other person or organization, whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2 The Contract Documents require the identity of certain Subcontractors, Suppliers, or other persons or organizations (including those who are to furnish the principal

items of materials or equipment) to be submitted to OWNER with the Bid in the Bid Form prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER, and if CONTRACTOR has submitted a list thereof in accordance with the Contract Documents, OWNER's or ENGINEER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in Contract Documents) of any such Subcontractor, Supplier, or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier, or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

6.8.3 Subletting of Contract. The Contractor shall not sublet, sell, transfer, assign, or dispose of the Contract or Contracts, or any portion thereof without written consent of the Engineer. The Contractor will be permitted to sublet a portion of the Contract, however, the Contractor's organization shall perform work amounting to not less than 50 percent of the total contract cost.

The calculation of the percentage of subcontracted work shall be based on the prime contract unit prices rather than subcontract unit prices. Proportional value for a subcontracted partial contract item shall be verified by the Engineer. For the purpose of calculating the value of subcontracted work, the cost of procuring materials and manufactured products can be included in either the prime contract or subcontract. However, when a firm both sells material to a prime contractor and performs the work of incorporating the materials into the project, these two phases shall be considered in combination and as constituting a single subcontract.

Subcontracts, or transfer of Contract shall not release the Contractor of liability under the Contract and bonds.

6.8.4 CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors. Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other person or organization, to the extent practicable, evidence of amounts paid to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other person or organization any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier, or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other person or organization except as may otherwise be required by Laws and Regulations.

6.8.5 CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with

CONTRACTOR. CONTRACTOR shall require all Subcontractors, Suppliers, and such other persons and organizations performing or furnishing any of the Work to communicate with the ENGINEER through CONTRACTOR.

6.9 The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.10 All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier, which specifically binds the Subcontractor or Supplier to the applicable terms and, conditions of the Contract Documents for the benefit of OWNER and ENGINEER.

**Patent Fees and Royalties**

6.11 CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants and the officers, directors, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

**Permits**

6.12 Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

6.12.1 Prior to the commencement date for the Work set forth in the Notice to Proceed, The CONTRACTOR, and all subcontractors shall be or shall become a CONTRACTOR licensed in accordance with the applicable ordinance of the City of Louisville, Colorado.

6.12.2 If water is required for the project, CONTRACTOR shall obtain a bulk water permit from the City of Louisville, Public Works Department in accordance with the permit requirements.

6.12.3 CONTRACTOR shall obtain a Right-of-Way Permit from the City of Louisville, Public Works Department for all Work to be completed within the City right-of-way.

6.12.4 CONTRACTOR shall obtain and pay for all other necessary construction permits and licenses.

**Laws and Regulations**

6.13

6.13.1 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

6.13.2 If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages caused by, arising out of, or resulting therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.3.2.

**Taxes**

6.14 CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project, which are applicable during the performance of the Work. City of Louisville municipal taxes shall be waived upon application for and acceptance of "tax exemption".

The CONTRACTOR shall apply for and receive a Certificate of Exemption from the Colorado Department of Revenue for construction materials to be physically incorporated into the Work. This Certificate of Exemption provides that the CONTRACTOR shall neither pay nor include in his bid prices Sales and Use Taxes collected by the State of Colorado on those building and construction materials physically incorporated into the Work. Sales and Use Taxes of the State of Colorado, RTD, and the County are collected by the State of Colorado. All applicable Sales and Use Taxes (including State collected taxes) on any items other than construction and building materials physically incorporated into the Work are to be paid by the Contractor and are to be included in the appropriate bid items. CONTRACTOR and any Subcontractor assume all liability for the nonpayment of taxes, or the payment of exempt taxes resulting from a failure to use the Certificate of Exemption required by this paragraph.

**Use of Premises**

6.15 CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction

equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and anyone directly or indirectly employed by any of them from and against all claims, costs, losses, and damages arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

6.16 During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish, and other debris resulting from the Work. At the completion of the Work, CONTRACTOR shall remove all waste materials, rubbish, and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials. CONTRACTOR shall leave the site clean and ready for occupancy by OWNER at Substantial Completion of the Work. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

6.17 CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

**Record Documents**

6.18 CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to ENGINEER for OWNER.

**Safety and Protection**

6.19 CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

6.19.1 all persons on the Work site or who may be affected by the Work;

6.19.2 all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.19.3 other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures, fences, gates, ditches,

utilities, and underground facilities not designated for removal, relocation, or replacement in and during the course of construction.

6.19.4 The CONTRACTOR shall take all measures necessary to mitigate the impact of weather so that the project may continue on schedule. In no event shall OWNER be liable for extra costs incurred on materials and any part of the Work due to CONTRACTOR's failing to take all measures necessary protect the Work from weather and CONTRACTOR shall not be entitled to such claims. Also, no extension of the Contract Time shall be allowed if the CONTRACTOR is able, notwithstanding the weather, to proceed with other Work of the Contract.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other person or organization directly or employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR. CONTRACTOR's duties and responsibilities for safety and for protection of the work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

**Safety Representative**

6.20 CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

**Hazard Communication Programs**

6.21 CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in accordance with Laws or Regulations.

**Emergencies**

6.22 In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER or ENGINEER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change directive or Change order will be issued to document the consequences of such action.

**Shop Drawings and Samples**
6.23

6.23.1 After checking and verifying all field measurements, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of shop drawings and sample submittal (see paragraph 2.8), three copies (or at ENGINEER's option, one reproducible copy) of all shop drawings, which shall have been checked and approved by the CONTRACTOR. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the materials and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.26.

6.23.2 CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.24. The numbers of each Sample to be submitted will be as specified in the Specifications.

**Submittal Procedures**
6.24

6.24.1 Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

6.24.1.1 all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

6.24.1.2 all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work, and

6.24.1.3 all information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto.

CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

6.24.2 Each submittal will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

6.24.3 At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

6.25 ENGINEER will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by ENGINEER as required by paragraph 2.8. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.26 ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission as required by paragraph 6.24.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.24.1.

6.27 Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by ENGINEER as required by paragraph 2.8, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

**Continuing the Work**

6.28 CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as OWNER and CONTRACTOR may otherwise agree in writing.

**CONTRACTOR's General Warranty and Guarantee**

6.29

6.29.1 CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and

will not be **defective**. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

6.29.1.1 abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, or Suppliers; or

6.29.1.2 normal wear and tear under normal usage.

6.29.2 CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the work in accordance with the Contract Documents:

6.29.2.1 observations by ENGINEER;

6.29.2.2 recommendation of any progress or final payment by ENGINEER;

6.29.2.3 the issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;

6.29.2.4 use or occupancy of the Work or any part thereof by OWNER;

6.29.2.5 any acceptance by OWNER or any failure to do so;

6.29.2.6 any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.13;

6.29.2.7 any inspection, test, or approval by others; or

6.29.2.8 any correction of **defective** Work by OWNER.

6.29.3 The CONTRACTOR warrants that, unless otherwise specified in the Contract Documents, the materials and equipment installed in the Work will be new, merchantable, and fit for the purpose for which they are intended, and that the Work will be performed in a workmanlike manner. The CONTRACTOR also warrants the workers who perform the Work will be sufficiently skilled to produce a high quality product which is free of blemishes (surface defects) and flaws (internal defects).

The CONTRACTOR is under a continuing duty to warn the OWNER and ENGINEER of any possible defect in the design of the Work and materials incorporated in the Work and against potentially unsafe uses of products incorporated in the Work which may cause personal injury or property damage as soon as the CONTRACTOR discovers the possible defect or has notice that the product may be unsafe. The CONTRACTOR's duty under this paragraph shall be continuing and

shall not expire when the OWNER accepts the Work or when the CONTRACTOR's guarantee expires. If the CONTRACTOR fails to warn the Owner of a design or product defect of which the CONTRACTOR is aware, and if personal or property damage thereafter results from such design or product defect, the CONTRACTOR shall be liable jointly and severally with any other party responsible at law for all damages resulting from such defect.

**Indemnification**

6.30

The CONTRACTOR agrees to indemnify and hold harmless the OWNER (City of Louisville), ENGINEER, ENGINEER's consultants, and their officers, employees, agents, and insurers, from and against all liability, claims, and demands, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this contract, if such injury, loss, or damage is caused in whole or in part by, or is claimed to be caused in whole or in part by, the act, omission, error, professional error, mistake, negligence, or other fault of the CONTRACTOR, any Subcontractor of the CONTRACTOR, or any officer, employee, representative, or agent of the CONTRACTOR or of any Subcontractor of the CONTRACTOR, or which arise out of any workers' compensation claim of any employee of the CONTRACTOR or of any employee of any subcontractor of the CONTRACTOR. The CONTRACTOR agrees to investigate, handle, respond to, and to provide defense for and defend against, any such liability, claims or demands at the sole expense of the CONTRACTOR. The CONTRACTOR also agrees to bear all other costs and expenses related thereto, including court costs and attorney fees, whether or not any such liability, claims, or demands alleged are groundless, false, or fraudulent.

6.31 In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**Survival of Obligations**

6.32 All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the work and termination or completion of the Agreement.

**Article 7. Other Work**

**Related Work at Site**

7.1 OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other direct contracts therefor which shall contain General Conditions similar to these, or have other work performed by utility owners. If the fact that such other work is to be performed was not noted in the Contract Documents, then: (i) written notice thereof will be given to CONTRACTOR prior to starting any such other work, and (ii) CONTRACTOR may make a claim therefor as provided in Articles 11 and 12 if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.

7.2 CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3 If the proper execution or results of any part of CONTRACTOR's work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure so to report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in such other work.

**Coordination**

7.4 Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility in respect of such coordination.

Should CONTRACTOR cause damage to the Work or property of any separate CONTRACTOR at the site, or should any claim arising out of CONTRACTOR's performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws, and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR's performance of the Work. Should a separate contractor cause damage to the

Work or property of CONTRACTOR or should the performance of Work by any separate CONTRACTOR at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER or ENGINEER or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER or ENGINEER on account of any such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Time attributable thereto, CONTRACTOR may make a claim for an extension of time in accordance with Article 12. An extension of the Contract Time shall be CONTRACTOR's exclusive remedy with respect to OWNER and ENGINEER for any delay, disruption, interference, or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER or ENGINEER for activities that are their respective responsibilities.

## Article 8. Owner's Responsibilities

8.1 Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2 In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer whose status under the Contract Documents shall be that of the former ENGINEER.

8.3 OWNER shall furnish the data required of OWNER under the Contract documents promptly and shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.4 and 14.13.

8.4 OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4.

8.5 OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.6 OWNER's responsibility in respect of certain inspections, tests, and approvals is set forth in paragraph 13.4.

8.7 In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

8.8 The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

8.9 OWNER's responsibility in respect of undisclosed Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Materials uncovered or revealed at the site is set forth in paragraph 4.5.

8.10 If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

## Article 9. Engineer's Status During Construction

**OWNER's Representative**

9.1 ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

**Visits to Site**

9.2 ENGINEER will make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER will endeavor for the benefit of OWNER to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous onsite inspections to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and onsite observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against **defective** Work. ENGINEER's visits and onsite observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.13 and particularly, but without limitation, during or as a result of ENGINEER's onsite visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work.

**Project Representative**

9.3 ENGINEER will furnish a Resident Project Representative, assistants, and other field staff to assist ENGINEER in observing the performance of the Work of the CONTRACTOR. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.13 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other person will be as provided in the Supplementary Conditions.

9.3.1 Resident Project Representative is ENGINEER's Agent and will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding his actions. His dealings in matters pertaining to the onsite Work will in general

be with ENGINEER and CONTRACTOR keeping the ENGINEER advised as necessary. His dealings with Subcontractors will only be through or with the full knowledge and approval of CONTRACTOR.

**Duties and Responsibilities**

Resident Project Representative will:

**Schedules**

Review the progress schedule, schedule of Shop Drawing submittal, schedule of values and other schedules prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

**Conferences and Meetings**

Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings and other job conferences, and other project-related meetings.

**Liaison**

Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist him in understanding the intent of the Contract Documents. Assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's onsite operations.

Assist in obtaining from ENGINEER additional details or information, when required for proper execution of the Work.

**Shop Drawings and Samples**

Record date of receipt of Shop Drawings and samples.
Receive samples, which are furnished at the site by CONTRACTOR for ENGINEER's review, and notify ENGINEER of their availability for examination.

Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by ENGINEER.

**Review of Work, Rejection of Defective Work, Inspections, and Tests**

Conduct onsite observations of the Work in progress to assist ENGINEER in determining that the Work is proceeding in accordance with the Contract Documents.

Report to ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective, or does not conform to the Contract Documents, or has been

damaged, or does not meet the requirements of any inspections, tests, or approvals required to be made; and advise ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.

Verify that tests, equipment, and systems startups and operating and maintenance training are conducted in presence of the appropriate personnel, and that CONTRACTOR maintains adequate records thereof; observe, record, and report to ENGINEER appropriate details relative to the test procedures and start-ups.

Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

**Interpretation of Contract Documents**

Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and Transmit to CONTRACTOR clarification and interpretation of the Contract Documents as issued by ENGINEER.

**Modifications**

Consider and evaluate CONTRACTOR's suggestions for modification in Drawings or Specifications and report with his recommendations to ENGINEER. Transmit to CONTRACTOR decisions issued by ENGINEER.

**Records**

Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions or original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Agreement, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

Keep a diary, daily report form, or log book, recording hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders, or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures.

Record names, addresses, and telephone numbers of all CONTRACTORs, subcontractors, and major suppliers of equipment and materials.

**Reports**

Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawings and sample submittal.

Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.

Draft proposed Change Orders and Work Directive Changes, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Directive Changes, and Field Orders.

Report immediately to ENGINEER upon the occurrence of any accident.

**Payment Requests**

Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with his recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

**Certificates, Maintenance, and Operations Manuals**

During the Course of Work verify that certifications, maintenance, and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment of the Work.

**Completion**

Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring correction or completion.

Conduct final inspection in the company of ENGINEER and CONTRACTOR and prepare a final list of items to be corrected or completed.

Observe that all items on final list have been corrected or completed and make recommendations to ENGINEER concerning acceptance.

**Limitation of Authority**

Resident Project Representative shall not:

Authorize any deviations from the Contract Documents or accept any substitute materials or equipment, unless authorized by ENGINEER.

Exceed limitations of ENGINEER's authority as set forth in the Contract Documents.

Undertake any of the responsibilities of CONTRACTOR, Subcontractors, or CONTRACTOR's superintendent.

Advise on, or issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences, or procedures for construction unless such is specifically called for in the Contract Documents.

Advise on or issue directions regarding or assume control over safety precautions and programs in connection with the Work.

Shall not accept Shop Drawings or sample submittals from anyone other than CONTRACTOR.

Authorize OWNER to occupy the Work in whole or in part.

Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

**Clarifications and Interpretations**

9.4 ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER or CONTRACTOR believes that a written clarification or interpretation justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree to the amount or extent thereof, if any, OWNER or CONTRACTOR may make a written claim therefor as provided in Article 11 or Article 12.

**Authorized Variations in Work**

9.5 ENGINEER may authorize minor variations in the work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR who shall perform the Work involved promptly.

**Rejecting Defective Work**

9.6 ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be **defective**, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the work as provided in paragraph 13.9, whether or not the work is fabricated, installed or completed.

**Shop Drawings, Change Orders and Payments**

9.7 In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraphs 6.24 through 6.28 inclusive.

9.8 In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

9.9 In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

**Determinations for Unit Prices**

9.10 ENGINEER will have authority to determine the actual quantities and classifications of items of Unit Price Work performed by CONTRACTOR, and the written decisions of ENGINEER on such matters will be final, binding on OWNER and CONTRACTOR and not subject to appeal (except as modified by ENGINEER to reflect changed factual conditions).

**Decisions on Disputes**

9.11 ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes, and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and Claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute or other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than fifteen days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within thirty days after the start of such occurrence or event unless ENGINEER allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute of other matter. The opposing party shall submit any response to ENGINEER and the claimant within thirty days after receipt of the claimant's last submittal (unless ENGINEER allows additional time). ENGINEER will render a formal decision in writing within thirty days after receipt of the opposing party's submittal, if any, in accordance with this paragraph. ENGINEER's written decision on such claim, dispute or other matter will be final and binding upon OWNER and CONTRACTOR.

9.12 When functioning under paragraphs 9.10 and 9.11, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to paragraphs 9.10 or 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.15) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations.

**Limitations on ENGINEER's Authority and Responsibilities**

9.13

9.13.1 Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose or give rise to any duty owned by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.

9.13.2 ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.3 ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9.13.4 ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.12 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests and approvals that the results certified indicate compliance with, the Contract Documents.

9.13.5 The limitations upon authority and responsibility set forth in this paragraph 9.13 shall also apply to ENGINEER's Consultants, Resident Project Representative, and Assistants.

**Article 10. Changes in the Work**

10.1 Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work. A Written Amendment, a Change Order, or a Work Change Directive will authorize such additions, deletions, or revisions. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved, which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2 If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of a Work Change Directive, a claim may be made therefor as provided in Article 11 or Article 12.

10.3 CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified, and supplemented as provided in paragraphs 3.5 and 3.6 except in the case of an emergency as provided in paragraph 6.23 or in the case of uncovering Work as provided in paragraph 13.9.

10.4 OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

10.4.1 changes in the Work which are (i) ordered by OWNER pursuant to paragraph 10.1., (ii) required because of acceptance of **defective** Work under paragraph

13.13 or correcting **defective** Work under paragraph 13.14, or (iii) agreed to by the parties;

10.4.2 changes in the Contract Price or Contract Times which are agreed to by the parties; and

10.4.3 changes in the Contract Price or Contract Times, which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11.

10.5 If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

**Article 11. Change of Contract Price**

11.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities, and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.

11.2 The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than fifteen days) after the start of the occurrence or event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within thirty days after the start of such occurrence or event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the adjustment claimed covers all known amounts to which the claimant is entitled as a result of said occurrence or event. ENGINEER shall determine all claims for adjustment in the Contract Price in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for ad adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3 The value of any Work covered by a Change Order or of any claim for an adjustment in the Contract Price will be determined as follows:

11.3.1 where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1 through 11.9.3 inclusive);

11.3.2 where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2);

11.3.3 where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.3.2,

on the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 11.6).

**Cost of the Work**

11.4 The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1 Certified payroll record costs for employees in the direct employment of CONTRACTOR in the performance of the Work under schedules of job classifications shall be submitted to the ENGINEER with the claim. Such employees shall include without limitation superintendents, foremen, and other personnel employed full-time at the site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

11.4.2 Invoices for cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith shall be submitted to the ENGINEER with the claim. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates, refunds, and returns from sale of surplus materials and equipment shall be in accordance with the State Department of Highways, Division of Highways, and State of Colorado Standard Specifications for Road and Bridge Construction 2005 Edition. If the materials used in performing the extra Work are taken from the CONTRACTOR's stock, then in lieu of invoices the CONTRACTOR shall furnish an affidavit, certifying that such materials were taken from its stock, that the quantity claimed was actually used in the Work, and that the price and transportation claimed represent the actual cost to the CONTRACTOR shall be submitted to the ENGINEER with the claim.

11.4.3 Payments made by CONTRACTOR to the Subcontractors for Work performed or furnished by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same

manner as CONTRACTOR's Cost of the Work and fee as provided in paragraphs 11.4, 11.5, 11.6 and 11.7. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4 Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

11.4.5 Supplemental costs including the following:

11.4.5.1 The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

11.4.5.3 Rentals rates of all construction equipment and machinery and the parts thereof which has been authorized by the ENGINEER, the CONTRACTOR will be paid for the use of equipment in the manner hereinafter specified. Rental rates will be from the current edition of the Rental Rate Blue Book for Construction Equipment and will be determined as follows:

Hourly rate: RR = (ADJ BB/176)(RF)(SAF)+EOC

| | | | |
|---|---|---|---|
| Where: | RR | = | Hourly rental rate |
| | ADJ BB/176 | = | Blue Book Monthly Rate adjusted for year of manufacture/176 |
| | RF | = | Regional Factor of 1.06 |
| | SAF | = | State Adjustment Factor of 1.05 |
| | EOC | = | Estimated Hourly Operating Costs from Blue Book |

With each claim, the CONTRACTOR shall submit the rental rate calculations including copies of the appropriate pages of the Blue Book for each piece of equipment listed in the claim.

Rental of equipment not owned by the CONTRACTOR will be paid for by invoice cost plus operating cost (EOC). Copies of the applicable pages of the Rental Rate Blue Book for Construction Equipment shall be submitted to the ENGINEER with the claim.

The costs of transportation, loading, unloading, installation, dismantling, and removal thereof all in accordance with the terms of said rental agreements. If equipment is used intermittently and when not in use could be returned to its rental source at less expense to the OWNER than holding it at the Work site, it shall be returned unless the CONTRACTOR elects to keep it at the Work site at no expense to the OWNER. The rental of any such equipment, machinery, or parts shall cease when the use of the equipment is no longer necessary for the Work. No payment will be made for the use of tools, which have a replacement value of $200.00 or less. Operators will be paid for separately as provided in paragraph 11.4.1. Certified invoices for rental cost of all construction equipment and machinery incorporated in the Work shall be submitted to the ENGINEER with the claim.

11.4.5.4 Sales, consumer, use, or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.5 Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable.

11.4.5.6 Losses and damages (and related expenses) caused by damage to the work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance and furnishing of the Work, (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7 The cost of utilities, fuel, and sanitary facilities at the site.

11.4.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage, and similar petty cash items in connection with the Work.

11.5 The term Cost of the Work shall not include any of the following:

11.5.1 Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4: all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

11.5.2 Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3 Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4 Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5 Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of **defective** Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.6 The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1 a mutually acceptable fixed fee; or

11.6.2 if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the work:

11.6.2.1 for costs incurred under paragraphs 11.4.1 and 11.4.2, the CONTRACTOR's fee shall be fifteen percent;

11.6.2.2 for costs incurred under paragraph 11.4.3, the CONTRACTOR's fee shall be five percent;

11.6.2.3 where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraphs 11.4.1, 11.4.2, 11.4.3, and 11.6.2 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of fifteen percent of the costs incurred by such Subcontractor under paragraphs 11.4.1 and

11.4.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

11.6.2.4 no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5, and 11.5;

11.6.2.5 the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

11.6.2.6 when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.5, inclusive.

11.7 Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4 and 11.5, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

**Cash Allowances**

11.8 It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

11.8.1 the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2 CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances and no demand for additional payment on account of any of the foregoing will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

**Unit Price Work**

11.9

11.9.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each

item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with paragraph 9.10.

11.9.2 Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

11.9.3 OWNER or CONTRACTOR may make a claim for an adjustment in the contract Price in accordance with Article 11 if:

11.9.3.1 the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

11.9.3.2 there is no corresponding adjustment with respect to any other item of Work; and

11.9.3.3 if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense of, OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

11.9.4 In no event shall a claim be made or an adjustment of Unit Price allowed if a variation in actual quantities used does not equal or exceed 25 percent (25%) of the total Bid Price.

**Article 12. Change of Contract Times**

12.1 The Contract Times (or Milestones) may only be changed by a Change Order or a Written Amendment. Any claim for an adjustment of the Contract Times (or Milestones) shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than fifteen days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Times (or Milestones) shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Times (or Milestones) will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2 Liquidated damages. The OWNER and the CONTRACTOR agree and recognize that time is of the essence for every time period set forth in the Contract Documents and that the OWNER will suffer financial loss if the Work is not substantially complete within the time set forth in the Contract

Documents, plus any extensions thereof allowed in accordance with this Article 12 of the General Conditions. If the CONTRACTOR fails to perform the Work within the specified time set forth in the Contract Documents as adjusted pursuant to Article 12, the OWNER and CONTRACTOR agree that as liquidated damages, and not as a penalty, for delay in performance the Contractor shall pay OWNER in the amount stipulated below for each and every contract day that expires after the time set forth in the Contract Documents for Substantial Completion of the Work until the same is finally complete and ready for Final Payment. The OWNER shall have the right to deduct liquidated damages from any amount due or that may become due to the CONTRACTOR, or to collect such liquidated damages from the CONTRACTOR or the Surety. The OWNER has the option to enforce liquidated damages or to waive such damages. The liquidated damages herein specified shall only apply to the CONTRACTOR's delay in performance. Liquidated damages are intended only to compensate the OWNER for additional OWNER personnel efforts in administering the Contract after normally scheduled completion dates, and for City governmental and citizen inconvenience, lost opportunities, and lost confidence in government and morale of government when work is not completed on time. Such damages are uncertain in amount and difficult to measure and prove accurately. By executing this contract, the CONTRACTOR agrees that the liquidated damages specified in the Contract Documents are reasonable in amount and are not disproportionate to actual anticipated damages. Liquidated damages do not include any sums of money to reimburse the OWNER for extra costs which the OWNER may become obligated to pay on other contracts which are delayed or extended because of CONTRACTOR's failure to complete the Work within the time periods set forth in the Contract Documents. Liquidated damages are not intended to include litigation or attorneys' fees incurred by the OWNER, or other incidental or consequential damages suffered by the OWNER due to CONTRACTOR’s performance. If the OWNER charges liquidated damages to the CONTRACTOR, this shall not preclude the Owner from commencing an action against the CONTRACTOR for other actual harm resulting from the CONTRACTOR's performance, which is not due to the CONTRACTOR's delay in performance. In order to recover liquidated damages, OWNER is under no obligation to prove the actual damages sustained by OWNER due to the CONTRACTOR's delay in performance. In no event shall the CONTRACTOR be assessed liquidated damages if the contract is suspended or terminated for events beyond the control of the CONTRACTOR for which a time extension beyond the original schedule of performance could be granted under 12.3.

The parties agree that liquidated damages shall be in the amount set forth in Article 2 of the Agreement.

12.3 Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.4 The CONTRACTOR specifically waives any and all claims against the OWNER for damages resulting from any hindrance or delay caused by circumstances beyond the control of CONTRACTOR that prevents completing any part of the Work within the Contract Times (or Milestones), whether or not caused by the OWNER. The CONTRACTOR may instead be granted an extension of the Contract Times for which the OWNER will not claim liquidated damages, provided that the hindrance or delay is beyond the control of the CONTRACTOR. An extension of the Contract Times

(or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall OWNER be liable to CONTRACTOR, any subcontractor, any supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from delays caused by or within the control of Contractor, or delays beyond the control of CONTRACTOR whether or not caused by the OWNER.

## Article 13. Tests and Inspections; Correction, Removal, or Acceptance of Defective Work

### Notice of Defects

13.1 Prompt notice of all **defective** Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All **defective** Work may be rejected, corrected, or accepted as provided in this Article 13.

### Access to Work

13.2 OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

### Tests and Inspections

13.3 CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

13.4 OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

13.4.1 for inspections, tests, or approvals covered by paragraph 13.5 below:

13.4.2 that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.9 below shall be paid as provided in said paragraph 13.9; and

13.4.3 as otherwise specifically provided in the Contract Documents.

13.4.4 Any and all retesting of soil necessitated by the CONTRACTOR's operations or inability to obtain specified density test results on the first attempt shall be the sole responsibility and costs of the CONTRACTOR to achieve required passing test results. Retesting required because of non-conformance to specified requirements shall be performed by the independent firm employed by the OWNER. Payment for retesting will be charged to the CONTRACTOR by deducting inspection, testing and administrative charges from the Contract Price.

13.5 If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection, or approval. CONTRACTOR shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work.

13.6 If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

13.7 Uncovering Work as provided in paragraph 13.6 shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

**Uncovering Work**

13.8 If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9 If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is **defective,** CONTRACTOR shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefor as provided in Article 11.

**OWNER May Stop the Work**

13.10 If the Work is **defective**, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any surety or other party.

**Correction or Removal of Defective Work**

13.11 If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all **defective** Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with Work that is not **defective.** CONTRACTOR

shall pay all claims, costs, losses, and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

**Correction Period**
**13.12**

13.12.1 If within one year after the date of Final Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, CONTRACTOR shall within seven calendar days after receiving notice from OWNER, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective Work, or if it has been rejected by OWNER, remove it from the site and replace it with WORK that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If CONTRACTOR does not within seven calendar days after receiving notice from OWNER comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses, and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

13.12.2 In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

13.12.3 Where **defective** Work (and damage to other Work resulting therefrom) has been corrected, removed, or replaced under this paragraph 13.12, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

**Acceptance of Defective Work**

13.13 If, instead of requiring correction or removal and replacement of **defective** Work, OWNER (and, prior to ENGINEER's recommendation of final payment, also ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall play all claims, costs, losses, and damages attributable to OWNER's evaluation of and determination to accept such **defective** Work (such costs to be approved by ENGINEER as to reasonableness). If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, CONTRACTOR will pay an appropriate amount to OWNER.

**OWNER May Correct Defective Work**

13.14 If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct **defective** Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors and ENGINEER and ENGINEER's Consultants access to the site to enable OWNER to exercise the rights and remedies under this paragraph. All claims, costs, losses, and damages incurred or sustained by OWNER in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. Such claims, costs, losses, and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's **defective** Work. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

## Article 14. Payments to Contractor and Completion

**Schedule of Values**

14.1 Progress payments on account of Unit Price Work will be based on the number of units completed.

**Application for Progress Payment**

14.2 At least twenty days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens, claims, security interests, or encumbrances and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement. With each application for payment the CONTRACTOR shall submit a notarized

waiver(s) of claim signed by the CONTRACTOR acceptable in form to the ENGINEER. The waiver of claim for payment for the work of the CONTRACTOR shall equal the amount of the previous payment distributed to the CONTRACTOR for work of the CONTRACTOR and the amount of the total previous payment distributed to the CONTRACTOR.

**CONTRACTOR's Warranty of Title**

14.3 CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

**Review of Applications for Progress Payment**

14.4 ENGINEER will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

14.5 ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's onsite observations of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

14.5.1 the Work has progressed to the point indicated,

14.5.2 the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10 and to any other qualifications stated in the recommendation), and

14.5.3 the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled insofar as it is ENGINEER's responsibility to observe the Work.

However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) exhaustive or continuous onsite inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

14.6 ENGINEER's recommendation of any payment, including final payment, shall not mean that ENGINEER is responsible for CONTRACTOR's means, methods, techniques, sequences, or

procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of CONTRACTOR to perform or furnish Work in accordance with the Contract Documents.

14.7 ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.5. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.7.1 the Work is **defective**, or completed Work has been damaged requiring correction or replacement,

14.7.2 the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3 OWNER has been required to correct **defective** Work or complete Work in accordance with paragraph 13.14, or

14.7.4 ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.3 inclusive.

In addition to the retainages set forth in the Contract Documents, the Owner may retain one hundred percent (100%) of all progress payments for any unsatisfactory performance of the Work and any payment recommended by the ENGINEER, including without limitation:

Defective work or failure to repair or replace defective work;

Claims filed against the CONTRACTOR, or reasonable evidence indicating probable filing of such claims;

Failure of the CONTRACTOR to make adequate or proper payments to subcontractors or suppliers for materials, equipment or labor;
Failure to obtain necessary permits or licenses, or to comply with applicable laws, ordinances, codes, or regulations, unless such noncompliance is due to reasons beyond the control of the CONTRACTOR, or due to act of the OWNER or and ENGINEER hired by the OWNER, or agents or employees thereof;

Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price then unpaid;

Reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

Persistent failure to carry out the Work in accordance with the Contract Documents;

As a set off for amounts due the Owner on other items;

Collusion with other bidders in preparing the bid;

Actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.7.1 through 14.7.3 or paragraphs 15.2.1 through 15.2.3, inclusive.

When the above reasons for withholding payment are removed and corrected to the OWNER's satisfaction, OWNER shall make payment to the CONTRACTOR of the sums withheld pursuant to this paragraph, subject to the amounts required to be retained by the Contract Documents.

Progress Payments to Suppliers and Subcontractors. The CONTRACTOR shall make partial payments of the amount due to each of the CONTRACTOR's suppliers and subcontractors in the same manner as the OWNER is required to pay the CONTRACTOR under Article 4 of the Agreement and Article 14 of the General Conditions, provided that the suppliers and subcontractors are performing to the CONTRACTOR's satisfaction. If the OWNER is notified that the CONTRACTOR is in arrears in payments to the CONTRACTOR's suppliers or subcontractors, the OWNER shall notify the CONTRACTOR and determine why such funds are being withheld. If the OWNER determines that no legitimate basis exists for the CONTRACTOR's withholding of such payments, the OWNER may, five (5) days after the mailing of written notice to the CONTRACTOR, make such payments directly to the CONTRACTOR's suppliers or subcontractors from funds which otherwise would be due the CONTRACTOR.

**Substantial Completion**

14.8 When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion, which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion, ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform

ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9 OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

**Partial Utilization**

14.10 Use by OWNER at OWNER's option of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents or (ii) OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1 OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof land access thereto.

**Final Inspection**

14.11 Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or **defective.** CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

**Final Application for Payment**

14.12 After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by paragraph

5.4, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents. CONTRACTOR may make application for final payment following the procedure for progress payments. The final application for payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence satisfactory to the OWNER of the continuation of completed operations insurance and any insurance coverage written on a claims-made basis at final payment and one year thereafter; (ii) the consent of surety to final payment and that the performance bond shall remain in effect throughout the guarantee period; (iii) complete and legally effective claim releases signed by all suppliers and subcontractors in the form provided in the Contract Documents certifying that all outstanding claims for payment have been paid. The CONTRACTOR shall not receive final payment due under the Agreement until the CONTRACTOR obtains and files the foregoing items (i), (ii), and (iii).

14.12.1 LIENS. Colorado Statutes do not provide for any right of lien against public buildings. In lieu thereof, §38-26-107, Colorado Revised Statutes, as amended, provides adequate relief for any claimant having furnished labor, materials, rental machinery, tools, equipment, or services toward construction of the particular public work in that final payment may not be made to a CONTRACTOR until all such creditors have been put on notice by publication of such pending payment and given opportunity to stop payment to the CONTRACTOR in the amount of such claims. Pursuant to §38-26-107, C.R.S., any supplier may bring a suit and file a notice of lis pendens against the OWNER within ninety (90) days after the date set for final settlement. If any such supplier or person files any such claim and notice of lis pendens, the OWNER shall withhold retained amounts from final payments to the CONTRACTOR as are necessary to satisfy fully such claims. References to liens appearing in Article 14 shall be deemed as references to claims made pursuant to C.R.S §38-26-101 et seq. unless the context requires otherwise.

**Final Payment and Acceptance**

14.13 If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. Upon receipt of the ENGINEER's recommendation for payment and the final Application for Payment, OWNER shall order the publication of Notice of Final Payment as required by C.R.S. §38-26-107(1) and shall make final payment in accordance with C.R.S. 38-26-107(3).

14.14 If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make

payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**Waiver of Claims**

14.15 The making and acceptance of final payment will constitute:

14.15.1 a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from **defective** Work appearing after final inspection pursuant to paragraph 14.11, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

14.15.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

## Article 15. Suspension of Work and Termination

**OWNER May Suspend Work**

15.1 At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER, which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

**OWNER May Terminate**

15.2 Upon the occurrence of any one or more of the following events:

15.2.1 if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.8 as adjusted from time to time pursuant to paragraph 6.6);

15.2.2 if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.3 if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if any,) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR

from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages sustained by OWNER arising out of or resulting from completing the Work such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and when so approved by ENGINEER incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

15.3 Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4 Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Agreement. In such case, CONTRACTOR shall be paid (without duplication of any items):

15.4.1 for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

15.4.2 for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

15.4.3 for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and

15.4.4 for reasonable expenses directly attributable to termination.

CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

**CONTRACTOR May Stop Work or Terminate**

15.5 If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty days after it is submitted or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Agreement and recover from OWNER payment on the same terms as provided in paragraph 15.4. In lieu of terminating the

Agreement and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within thirty days after it is submitted, or OWNER has failed for thirty days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.5 are not intended to preclude CONTRACTOR from making claim under Articles 11 and 12 for an increase in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this paragraph.

## Article 16. Miscellaneous

**Giving Notice**

16.1 Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

**Computation of Times**

16.2.1 When any period of time is referred to in the Contract Documents by days, it will be computed to include the first and the last day of such period.

**Notice of Claim**

16.3 Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 16.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

**Cumulative Remedies**

16.4 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees, and obligations imposed upon CONTRACTOR by paragraphs 6.12, 6.16, 6.30, 6.31, 6.32, 13.1, 13.12, 13.14, 14.3, and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

**Professional Fees and Court Costs Included**

16.5 Whenever reference is made to "claims, costs, losses, and damages," it shall include in each case, but not be limited to, all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs.

**Interest**

16.6 In the event that any payment of interest is to be made pursuant to any provision of the Contract Documents, excluding any bid bond, labor and materials bond or performance bond entered into by the CONTRACTOR, interest shall be paid at the average rate earned by the City of Louisville on its invested funds during the quarterly fiscal period prior to the period during which the interest was accrued.

**Third Parties**

16.7 The contract is not intended to create any right in or for the public or any member thereof, any subcontractor or supplier, or any other third party, or to authorize anyone not a party to the contract to maintain a suit to enforce its terms. The duties, obligations, and responsibilities of the parties to the contract, with respect to third parties, shall remain as imposed by law. This paragraph shall not apply to any surety to the extent it is acting under any labor and materials bond or performance bond entered into by the CONTRACTOR.

**Severability**

16.8 To the extent that the performance of the parties' obligations may be accomplished within the intent of the contract, the terms of the contract are severable, and should any term or provision of the contract be declared invalid or become inoperative for any reason, such invalidity or failure shall not affect the validity of any other contract term or provision.

**Equal Opportunity Employer**

16.9 The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, disability, or national origin. The CONTRACTOR will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard for their race, color, religion, age, sex, disability, or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

The CONTRACTOR shall be in compliance with the appropriate areas of the Americans with Disabilities Act of 1990 as enacted and from time to time amended and any other applicable federal regulation. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of any contract and with any contract entered by the OWNER.

# Supplementary Conditions

**CONDITIONS OF THE CONTRACT**

These Supplementary Conditions amend or supplement the General Conditions of the Project Manual as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

**1. GC-1 DEFINITIONS**

A. Section 1.9.1, **CONTRACT DAY** of Article 1 of the General Conditions, delete the definition in its entirety and add the following language:

**CONTRACT DAY** – A calendar day of 24 hours each, excluding Saturdays, Sundays, OWNER-observed holidays and Abnormal Weather days.

B. Section 1.41, **SUBSTANTIAL COMPLETION** of Article 1 of the General Conditions, add the following language:

The Work will not be considered suitable for Substantial Completion review until all project Bid Items and incidentals in the Work are completed and operational as designed, all designated or required governmental inspections and certifications have been made and posted, designated instruction of Owner's personnel in the operation of systems has been completed, and all final finishes within the Contract are in place. In general, the only remaining work shall be minor in nature, so that the Owner could occupy the building or utilize the improvements on that date and the completion of the Work by the Contractor would not materially interfere or hamper the Owner's normal operations. As a further condition of Substantial Completion acceptance, the Contractor shall certify that all remaining "punch list" work will be completed within twenty (20) Contract Days after receipt of notification or as agreed upon following the date of issuance of Certificate of Substantial Completion.

**2. GC-2 PRELIMINARY MATTERS**

A. Add the following language to Section 2.3 of Article 2 of the General Conditions:

- Contractor shall not park equipment and employee vehicles on abutting side streets that can be used by residents that are directly impacted by the reconstruction.

- Construction Phasing for the project shall be as follows:

**All Locations**

a. Provide ingress, egress to private drives and single access developments. No additional payment will be made to provide access. All closures must be communicated to the property owners 5-days in advance of driveway closures.

No work shall be performed on the following City observed Holidays without prior authorization:

- New Year's Day
- Martin Luther King Jr. Day
- President's Day
- Memorial Day - No work after 12 PM Friday before through Monday
- Juneteenth
- Independence Day
- Labor Day – No work after 12 PM Friday before through Monday
- Veteran's Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Eve
- Christmas Day

**3. GC-4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS**

A. Section 4.4, **REFERENCE POINTS,** of Article 4 of the General Conditions, delete the second paragraph in its entirety and add the following language:

The OWNER shall not provide survey reference points, construction stakes, lines and grade for the work unless otherwise noted.

**4. GC-5 BONDS AND INSURANCE**

A. Delete paragraph 5.1 in its entirety and insert the following:

5.1 CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACT-OR's obligations under the Contract Documents. These Bonds shall remain in effect at least until two years after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act. The CONTRACTOR shall furnish the performance and payment bond in the form provided in the Contract Documents or approved by the OWNER; the earlier of ten (10) days after the OWNER has issued the notice of award or delivery of the executed Agreement. The OWNER reserves the right to exclude any Surety

Company on any ground it deems appropriate. The cost of the bonds shall be included in the bid."

**4. GC-6 CONTRACTOR'S RESPONSIBILITIES- Labor, Materials and Equipment**

A. **Labor, Materials and Equipment**, delete paragraph 6.3 in its entirety and insert the following:

6.3 CONTRACTOR shall provide competent, suitably qualified personnel to survey, layout and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except as otherwise required for the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, or at night without OWNER's written consent given after prior written notice to ENGINEER. No extra payment will be paid to the CONTRACTOR by the OWNER due to labor overtime or other increased costs of performing the Work on Friday afternoons, or at night. Should the CONTRACTOR desire to work at night between the hours of 5:00 p.m. and 8:00 p.m., Monday-Thursday, from 3:30 p.m. to 8:00 p.m. Friday, the CONTRACTOR shall submit a written request to the ENGINEER 24 hours prior. If approval is given by ENGINEER to CONTRACTOR for authorized overtime work, ENGINEER's and ENGINEER's authorized personnel will charge overtime and other incidental administrative expenses necessary for performing inspections between the hours of 5:00 p. m. and 8:00 p.m., Monday-Thursday and 3:30 p.m. to 8:00 p.m. Friday, the CONTRACTOR will be responsible to pay for all such rates and charges, and shall not be granted a Contract Price increase for such charges. Overtime and other incidental administrative expenses for Engineer's and Engineer's authorized personnel are as follows:

| DESCRIPTION | HOURLY RATE |
|---|---|
| Engineer | $70.00 |
| Construction Inspector | $55.00 |
| Operations Supervisor | $55.00 |
| Operations Technician | $40.00 |
| Clerical | $35.00 |
| Vehicle | $25.00 |

**5. GC-6 CONTRACTOR'S RESPONSIBILITIES-Permits**

B. **Permits**

a. Paragraph 6.13.2, add the following language:

A deposit is required for the 2" water meter in an amount of $2500 and the deposit is reimbursed when the 2" meter is returned, in good condition. Charges for water consumption are waived when water is used for this project. Bulk Water Permit and meter are available from the City of Louisville Operations Division, located at 739 S. 104th St.

b. Paragraph 6.13.3, add the following language:

.

Right of Way Permit fee is waived for this project.

**6. GC-7 OTHER WORK**

A. Section 7.1 of Article 7 of the General Conditions, add the following language:

The OWNER has employed an asphalt contractor to resurface various streets. The concrete replacement work in this contract shall be completed prior to the asphalt resurfacing. Asphalt patching may take place at the same time as the concrete replacement work in the same location(s). It is critical for CONTRACTOR to maintain the phasing schedule identified in the Supplementary Conditions. CONTRACTOR shall coordinate their activities with the asphalt contractor to allow completion of concrete flatwork prior to asphalt resurfacing.

**7. ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION**

A. Section 9.3.1 **CONFERENCES AND MEETINGS** of the General Conditions, add the following language:

**NEIGHBORHOOD MEETING**

**<u>At least 10 days</u> prior to the start of construction, CONTRACTOR will be required to coordinate and have a representative at a meeting with the residents of the neighborhood. CONTRACTOR is required to hand out notices to all affected residents <u>at least 5 days prior to the meeting</u>. A template for the notice is below. ENGINEER must review and approve the notice prior to delivery. ENGINEER shall be notified by CONTRACTOR after notices are distributed. At this meeting CONTRACTOR will be required to define the schedule for construction and to address any special needs and concerns of the residents. ENGINEER shall be present at this meeting.**

[EXAMPLE NOTIFICATION]

Construction Notification / Neighborhood Meeting Invite

[CONTRACTOR NAME] has been contracted by the City of Louisville to perform the [PROJECT NAME]. The intent of this work is to [PROJECT SCOPE DESCRIPTION]. This work will begin in [MONTH] and will be completed by [MONTH]

A neighborhood meeting is scheduled for [DATE] at [TIME]. The meeting will be located in the Council Chambers at City Hall at 749 Main Street. Representatives from the City and [CONTRACTOR] will be present to discuss the project.

Topics that will be covered at the meeting will include coordination of work, and time frames.

Construction will begin at 7 AM and should be completed by 5 PM. Note that delays during the day could require the contractor to work beyond 5 PM on some days. All vehicles will need to be removed from the street by 7:00 AM if "NO PARKING" signs are on your street to allow the contractors access to the area. The "NO PARKING" signs will be placed on your street at least 24 hours prior to work beginning. When work is being performed in front of your address, the process will require that your street/driveway be closed for parking most of the day, so please make arrangements to park any vehicles you need outside the work area. Every effort will be made to have the street open by 5:00 PM.

We hope the coordination will reduce your inconvenience and allow for you to plan accordingly. We appreciate your patience as we repair the street near your address. If you have any questions or concerns or need immediate assistance, please contact [CONTRACTOR] Project Manager [NAME] at [CONTRACTOR PM PHONE NUMBER].

In the event that weather or other delays occur, we may need to reschedule the work and will attempt notify affected residents of any changes.

Attendees can request interpretation services at least 7 days in advance of the meeting (Los asistentes podrán solicitar los servicios de un intérprete con 7 días de anticipación a la fecha una reunion) by contacting Derek Cosson at dcosson@louisvilleco.gov or 303-335-4814.

**8. GC-12 CHANGES OF CONTRACT TIMES**

A. Section 12.2 **LIQUIDATED DAMAGES** of Article 12 of the General Conditions, add the following language:

PHASE TIMES – The work is broken into Phases as specified in the Supplementary Conditions with a specific road closure or lane closure limit, described work item with respective day limit, and Substantial Completion date for each Phase. Failure to perform the phase work described in Section 2.3 of the General Conditions will result in liquidated damages. The CONTRACTOR shall pay OWNER **ONE THOUSAND DOLLARS ($1,000.00)** for each and every **Contract Day** and portion thereof that expires after the specified road or lane closure limit days, described work item with respective day limit and Substantial Completion date until the same is finally complete.

B. Add the following language to Article 12 of the General Conditions:

**12.4 EXTENSIONS OF TIME**

a. The OWNER and CONTRACTOR are both aware that construction will be conducted during spring and summer and that variable weather conditions are typical for the site of the work.

b. The CONTRACTOR expressly agrees that the Contract Price is based on completion of the work within the times specified in the Agreement and under weather conditions typically encountered during the contemplated construction period at the site of the work.

c. For purposes of evaluating requests for extensions of time due to abnormal weather conditions, the following conditions, and no others, will be considered unusually severe:

1) Precipitation volume exceeding the historical mean for the *months* of the construction period by more than one standard deviation.

2) Isolated abnormal weather occurrences of a severely destructive nature, which in fact, cause such destruction at the site of the work.

d. For the purpose of determining mean conditions, all available data contained in the records of the National Weather Service for reporting from Denver, as well as data available from the State Climatologist for the same areas.

e. The CONTRACTOR further agrees that should a request for time extension due to abnormal weather conditions, the CONTRACTOR shall submit all necessary historical and detailed daily data during the construction period to support the claim.

**9C-13 TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

A. Section 13.11, **CORRECTION OR REMOVAL OF DEFECTIVE WORK** of Article 13 of the General Conditions, add the following language:

Failure or neglect on the part of the ENGINEER to condemn unsatisfactory material or reject inferior workmanship will in no way release the CONTRACTOR, nor shall it be construed to mean the acceptance of such work, nor shall Final Acceptance bar the OWNER from recovering damages in case fraud was practiced, or for defective work resulting from the CONTRACTOR's dishonesty.

Work done contrary to or regardless of the instructions of the ENGINEER, work done without lines, grade, and/or cross section stakes and grades shown on the Plans or as given by the ENGINEER, or any deviation made from the Plans and Specifications without written authority will be considered unauthorized and at the expense of the CONTRACTOR and will not be measured or paid for by the OWNER. Any and all work so done may be ordered removed and replaced immediately at the CONTRACTOR's expense.

- END OF SECTION -

# GENERAL REQUIREMENTS

SECTION 01010 – SUMMARY OF WORK

SECTION 01025 – MEASUREMENT AND PAYMENT

SECTION 01091 – REFERENCE STANDARDS

SECTION 01300 – SUBMITTALS

SECTION 01410 – TESTING AND INSPECTIONS

SECTION 01500 – TEMPORARY FACILITIES, CONTROLS, AND SERVICES

SECTION 01700 – CONTRACT CLOSEOUT

- END OF SECTION -

## SECTION 01010 - SUMMARY OF WORK

**PART 1 - GENERAL**

**1.1 SUMMARY:**

1.1.1 PROJECT NAME: 2026 SANITARY SEWER CIPP PROJECT
1.1.2 PROJECT NUMBER: 502498-660313
PROJECT LOCATION: Louisville, Colorado

1.1.3 OWNER: City of Louisville

1.1.4 WORK INCLUDED: The work shall consist of, but not limited to methods and materials for the rehabilitation of partially and fully deteriorated pipelines by the UV Cured-In-Place Pipe (CIPP) PROCESS, incidentals within the City of Louisville.

Scope of Work:

| DESCRIPTION | UNIT | QUANTITY |
|---|---|---|
| SANITARY SEWER CLEANING | LF | 2,750 |
| CIPP SANITARY SEWER MAIN (6") | LF | 2,750 |
| SANITARY SERVICE CUT OUT (6" MAIN) | EA | 61 |
| LATERAL SEAL (6" MAIN) | EA | 61 |
| MANHOLE STEPS | EA | 76 |
| INTERNAL POINT REPAIR | EA | 5 |
| CONSTRUCTION ZONE TRAFFIC CONTROL | LS | 1 |

## SECTION 01025 - MEASUREMENT AND PAYMENT

**1.1 GENERAL**

A. Measurement and payment criteria applicable to (portions of) the Work performed under a unit price payment method.

B. Defect assessment and non-payment for rejected work.

**1.2 AUTHORITY**

A. Measurement methods delineated in the individual specification sections complements the criteria of this section. (In the event of conflict, the requirements of the individual specification section govern.)

B. Take all measurements and compute quantities. ENGINEER will verify measurements and quantities.

**1.3 UNIT QUANTITIES SPECIFIED**

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by ENGINEER determine payment.

B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit/lump sum prices contracted.

C. If the actual Work requires a change that is equal to an increase or decrease that is 25 percent (25%) or more of the Bid Price, then OWNER or CONTRACTOR may claim for a Contract Price adjustment.

D. The City reserves the right to remove work from the Contract. If an item is removed from the contract, no payment will be made for said item.

1.3.1 LUMP SUM SCHEDULES

A. There will be no measurement for lump sum items included in the lump sum schedule.

1.3.2 FORCE ACCOUNT – MINOR CONTRACT REVISIONS

A. Force account items include the Project Manager's estimate for items included in the Contract. The estimated amounts marked with "AL" will be added to the total bid to determine the amount of performance and payment bonds. Force Account work shall be performed as directed and approved by the City's Project Manager. This is not a lump sum bid item, but rather an allowance for work not reasonably anticipated in the above items.

B. Payment will be made in accordance with the General Conditions. If additional work as described above is not encountered, this item will not be used.

C. Force Account Descriptions

i. F/A Minor Contract Revisions – This work consists of minor work and approved by the Project Manager, which is not included in the Contract drawings or specifications, and is necessary to accomplish the scope of work of this contract.

**1.4 MEASUREMENT OF QUANTITIES**

A. Measurement by volume: Measured by cubic dimension using mean length, width, and height or thickness.

B. Measurement by area: Measured by square dimension, using mean length and width or radius.

C. Linear measurement: Measured by linear dimension, at the item centerline or mean chord.

D. Measurement by weight: The term "ton" will mean the short ton consisting of 2000 pounds avoirdupois.

Materials measured or proportioned by weight shall be weighed on accurate scales. Scales shall be accurate within the allowable tolerances as prescribed by State law. The scales shall be sealed by the measurement Standards Section of the Colorado Department of Agriculture at least once each year, each time the scales are relocated, and as often as ENGINEER may deem necessary. Scales shall be furnished by CONTRACTOR or CONTRACTOR may utilize commercial scales.

Scales shall be operated according to the Colorado Department of Agriculture's regulations. Weighers, scales, scale tickets, scale house, and verification of the scale's accuracy will not be measured and paid for separately but shall be included in the work.

CONTRACTOR may use either certified hopper scales or certified platform scales.

When platform scales are used to weigh vehicles carrying material paid for by weight, each vehicle shall be weighed by a certified weigher. Hopper scales used to directly measure material paid for by weight shall be operated by certified weighers and provide an accurate net weight.

The operator of each vehicle carrying material measured and paid for by weight shall obtain a scale ticket (certificate of correct weight) from the certified weigher and deliver the ticket to ENGINEER at the point of delivery of the material.

The scale ticket shall include the following information:

1. Project Number
2. Date
3. Ticket Number
4. Haul Unit Number
5. Gross weight
6. Tare Weight
7. Net Weight
8. Material Type
9. Certified Weigher's Name

## 1.5 PAYMENT

A. Payment includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by ENGINEER multiplied by the unit price for Work which is incorporated in or made necessary by the Work.

## 1.6 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

## 1.7 NON-PAYMENT FOR REJECTED PRODUCTS

A. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected Products.

## 2.0 PRODUCTS - Not Used

## 3.0 EXECUTION - Not Used

# REFERENCE STANDARDS

## PART 1 - SUMMARY

### 1.1 SUMMARY:

### 1.1.1 WORK INCLUDED:

A. This Section contains a summary of industry-accepted and recognized standards published by trade associations, government, and institutional organizations, which are referred to in the various sections of these specifications or elsewhere in the Contract Documents.

B. Standards listed herein are included in the Contract Documents by this reference, and become a part of the Contract Documents to the same extent as though included in their entirety unless specific limitations are noted in the individual Specifications Sections.

C. Listings of reference standards include name and address of the organization publishing the standard, plus the full name and designator of each of the standards referenced herein.

D. If a publication date or edition number is listed with the reference standard, that publication date or edition number shall apply; otherwise, the publication date of edition number in effect at the Contract Date shall apply.

E. Inclusion of reference standards herein does not make the Engineer an agent of the publishing agency, nor does it obligate the Engineer to perform inspections required by or enforce rules or regulations contained in the reference standards.

### 1.2 REFERENCES:

**1.2.1 RELATED DOCUMENTS**: General Conditions, Supplementary Conditions, and applicable provisions of other Division 1 sections apply to this section.

**1.2.2 PRECEDENCE OF REQUIREMENTS:** In the event of a conflict between the requirements of a published reference standard and the specific requirements of the general conditions, supplementary conditions, or other Contract Documents, or between one reference standard and another reference standard, the more stringent requirements shall take precedence.

## PART 2 - PRODUCTS - (Not Used)

**PART 3 - EXECUTION**

3.1.1 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

444 North Capital Street NW, Suite 225, Washington, DC 2002

3.1.2 AMERICAN CONCRETE INSTITUTE (ACI)
P.O. Box 19150, Redford Station, Detroit, MI 48219
(313) 372-9800

3.1.3 AMERICAN WATER WORKS ASSOCIATION (AWWA):
6666 W. Quincy Ave., Denver, CO 80235
(303) 794-7711
Specifications and Test Methods Specifically Referenced Herein.

3.1.4 PORTLAND CEMENT ASSOCIATION (PCA)
5420 Old Orchard Road, Skokie, IL 60077
(312) 966-6200
Design and Control of Concrete Admixtures.

3.1.5 CITY OF LOUISVILLE
Department of Public Works - Engineering Division
749 Main Street
Louisville, Colorado 80027
(303) 335-4608
Design and Construction Standards, 1994 Edition

3.1.6 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT)
4201 E. Arkansas Avenue, Denver, CO 80222
(303) 757-9011
Standard Specification for Road and Bridge Construction, 2011 Edition.

3.1.7 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
1916 Race Street, Philadelphia, PA 19103
(215) 299-5585

Comply with:
- ASTM D5813
- ASTM F1743
- ASTM F2019
- ASTM F2207
- ASTM F1417
- NASSCO PACP (latest edition)

- END OF SECTION -

**TECHNICAL SPECIFICATIONS**

SECTION 02765 – UV CURED-IN-PLACE PIPE (CIPP)

SECTION 02200 – SANITARY SEWER REPLACEMENT TECHNICAL SPECIFICATIONS

SECTION 02600 – CONSTRUCTION ZONE TRAFFIC CONTROL

**SECTION 02765**
**TECHNICAL SPECIFICATIONS**
**UV CURED-IN-PLACE PIPE (CIPP)**

1.0 SCOPE OF WORK

2.0 MATERIALS

3.0 CITY DESIGN CONSTRUCTION STANDARDS AND SPECIFICATIONS

4.0 BASIS OF PAYMENT – UV CURED-IN-PLACE PIPE

5.0 FINAL PAYMENT

# 1.0 SCOPE OF WORK

The work shall consist of, but not limited to methods and materials for the rehabilitation of partially and fully deteriorated pipelines by the UV Cured-In-Place Pipe (CIPP) PROCESS incidentals at the following location within the City of Louisville:

| DESCRIPTION | UNIT | QUANTITY |
|---|---|---|
| SANITARY SEWER CLEANING | LF | 2,750 |
| CIPP SANITARY SEWER MAIN (6") | LF | 2,750 |
| SANITARY SERVICE CUT OUT (6" MAIN) | EA | 61 |
| LATERAL SEAL (6" MAIN) | EA | 61 |
| MANHOLE STEPS | EA | 76 |
| INTERNAL POINT REPAIR | EA | 5 |
| CONSTRUCTION ZONE TRAFFIC CONTROL | LS | 1 |

# 2.0 MATERIALS

**REFFERNECES**

A. ASTM D-5813 Standard Specification for Cured-in-Place Thermosetting Resin Sewer Pipe.
B. ASTM F-1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-In-Place Installation of Cured-In-Place Pipe (CIPP).
C. ASTM F-2019 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled-in-Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP).
D. ASTM F-2207 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube Using Ambient Curing.
E. ASTM F-1417 Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air.
F. NASSCO PACP (Latest Edition) Pipeline Assessment Certification Program for Sewer Condition Assessment.

**SUBMITALS**

A. Product Data: Resin; tube material, qualification testing results for laminated samples, resin enhancer, bond enhancer, certification of applicability of resin; sealant/caulking material, resin curing schedule showing time and temperature for each reach,

Manufacture's recommended installation pressures, minimum and maximum for each reach.

B. Design Information: Wall thickness design calculations for each pipe section.
C. Inspection Information: Video Recordings of pre and post-insertion inspections and curing logs.
D. Qualifications: Documents for experience of lining manufacturer and installer.
E. Certification: Affidavit for flat plate samples.
F. Public Relations: Notification Flyers.
G. Lateral Reinstatement: Products and Methods.

**QUALIFICATIONS**

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum 3 years' experience or otherwise allowed prior to bid acceptance.
B. Installer: Company specializing in performing the work of this section and who is licensed and approved by the manufacturer. Company shall have experience with projects of similar size and complete and complexity as this project, minimum of 150,000 linear feet of installed UV CIPP product within the last 5 years.
   **Product Manufacturer experience shall not be utilized in lieu of actually installer experience. Installer experience refers to the actual Contractor Intending to the work. No exceptions.**
C. Project Superintendent: Project Superintendent shall have a minimum of 3 years' experience as a superintendent on UV-Cured CIPP projects within the last 5 years, or otherwise allowed prior to bid acceptance.
   **Full Time Project superintendent will be required and MUST be on site at all time throughout the duration of the lining work.**

**PRODUCTS**

A. The tube material shall meet the requirements of ASTM F 2019.
B. The tubes shall have a uniform thickness that when compressed at installation pressures will equal the designed nominal tube thickness.
C. Contractor shall present tube thickness design calculations based on structural requirements.
D. The tube shall be fabricated to a size that when installed, will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during insertion. The minimum length shall be that deemed necessary by the Contractor to effectively span the distance between respective access points unless otherwise specified. The contractor shall verify the lengths and diameters in the field before fabricated the tube. Individual insertion runs can be made over one or more manhole sections as determined in the field by the Contractor, as long as traffic control restrictions are adhered to.

E. The outside layer of the tube (before insertion) shall be plastic coated with a flexible material.
F. The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers.
G. The wall color of the interior pipe surface of the CIPP after installation shall be a light reflective color so that a clear detail examination with closed circuit television inspection equipment may be made.
H. Over Expansion Sleeves shall be used in the following locations as directed by the Engineer after the pipeline has cleaned and inspection via CCTV per the contract documents.
    a. Each end of the pipe segment.
    b. At each section of pipe that has complete or significant wall loss.

**UV MATERIALS**

A. For UV products, the finished UV Light Cured Fiberglass pipe liner in place shall be fabricated from materials which when complete are chemical resistant to and will withstand internal exposure to domestic sewage having a pH range of 5 to 11 and temperature sup to 150 F.
B. The liner thickness shall be sized for a minimum hydrostatic and earth load as per design criteria or per ASTM F1216. The earth load and hydrostatic load shall be increased to the manhole depth unless otherwise noted as shown on the Drawings.
C. The liner shall be structurally designed to the following centers.
    a. Minimum service life: 50 years
    b. Fully deteriorated host pipe/direct bury condition
    c. Prism loading:120 PCF soil
    d. Factor of safety: 2.0
    e. Ovality factor 2%
    f. Maximum deflection: 5%
    g. Soil modulus: 1000 PSI
    h. Maximum lining enhancement factor: 5
    i. H-20 live loading, applicable long term modulus reduction factor
    j. Groundwater: assume the groundwater elevation is at the existing ground surface.
D. All UV cured-in-place fiberglass lining products shall comply with ASTM F 2019-03 or the intent thereof as determined by the Engineer, minimum finished liner thickness as defined by design calculation.
E. The Contractor shall furnish a general purpose polyester or vinyl ester UV curing resin and catalyst system compatible with the Ultra Violet Light Curing process that provides cured physical strengths specified herein.

**RESIN**

A. The Resin System. The resin system shall be a corrosion resistant polyester, vinyl ester, or epoxy and catalyst system that when properly cured meets the minimum requirements given herein or those that are to be utilized in the design of the CIPP for this project.

B. Submit data certifying that resin system is not recycled.

**CALKING SEALANT**

A. Sealant shall be a quick-set epoxy mortar or high viscosity epoxy with good adhesion to the liner and concrete. The lateral sealing system shall extend a minimum of six (6) inches into the lateral.

**LATERAL SEALS**

**ASTM F-3240**
Standard Practice for Installation of Resin-Impregnated Tubes for Lining of Laterals and Connections by the UV Light Curing Method.

**CHEMICAL RESISANCE REQUIRMENTS**

CIPP samples for testing shall be of tube and resin system same as to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical-testing requirements.

**STRUCTURAL REQUIREMENTS**

The layers of the cured CIP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers; nor shall separation of the layers occur during testing performed under the requirements of this specification. The cured CIPP for fiberglass reinforced tubes shall also conform to the minimum structural standards as listed: Flexural Strength (ASTM D-790): 25,000 PSI, and Modulus of Elasticity (ASTM D-790): 1,000,000 PSI.

## 3.0 CITY DESIGN CONSTRUCTION STANDARDS AND SPECIFICATIONS

**PREPARATION**

A. Access Points- Contractor will locate and designate all manhole access points, open and make access points available for the Work.
B. Cleaning of Sewer Lines- the Contractor shall remove all roots and internal debris (including grease) from the sewer line prior to CIPP installation by any means necessary.

C. Inspection of Pipelines- Inspection of pipelines shall be performed by NASSCO PACP-certified personnel, experienced and trained in locating defects, breaks, obstacles and service connection by closed circuit television (CCTV).
D. Infiltration- minor infiltration is a normal condition sometimes encountered during the CIP process. It is not a "changed condition" and should not be regarded as a reason for change orders. If in the opinion of the Engineer, infiltration is significant enough to adversely affect the curing process, chemical grouting or other remedies may be required. This additional work will be paid for by the Owner as a change order.
E. Site Restoration- Areas damaged or modified by the Work for this project shall be repaired or restored to a condition equal to or better than the original condition. Site restoration is incidental to the Work and shall not be regarded as a reason for change orders.
F. Public Relations- A public Information and Notification Program shall, as a minimum, require the Contractor to be responsible for contacting homeowners or businesses wo will be affected by the construction activities and informing them of the Work to be done and the estimated timing for the Work. Written notices shall be delivered to each home or business 1 week prior to installation. A second notice will be required 24 hours before each service will be affected. Notice shall include a local telephone number of the Contractor they can call to discuss the project, and how the homeowner or business will be affected. The written notices must be review by the Owner prior to the start of any work.
G. Service Connections- Determine by dye test, running water or visual inspection whether connections are active or abandoned and proved results to Engineer prior to insertion. Engineer and Contractor shall agree prior to insertion which services are to be reopened. Only reopened services will be paid for.

**INSTALLATION**

A. CIPP installation shall be in accordance with ASTM F2019 for UV light Curing Installations. Installation shall be in accordance with manufacturer's recommendation, which shall be available for verification by the Engineer.
B. Curing schedules shall be strictly adhered to, per manufacturer requirements.
C. The CIPP liner shall make a tight fitting seal with the existing pipe(s) in the manholes. If the CIPP liner fails to make a tight seal, the Contractor shall apply a seal at that point using a sealant or caulking material that is compatible with CIP materials, watertight, flexible and impervious to hydrogen sulfide. The top half of the CIPP through a manhole shall be neatly cut off and not broken or sheared off. The channel of the manhole shall be a smooth continuation of the pipe(s) and shall be merged with other lines or channels. Void space between liner and channel wall shall be filled with non-shrink grout and sealed with sealant. CIPP and the existing pipe in the manhole must be sealed before proceeding on to the next manhole section and all manholes shall be individual inspected for CIPP cut-offs and sealing works. Liner shall be cut off at the pipes and all liner removed within intermediate manholes with deflection angles greater than 45 degrees.

D. The finished CIPP shall be continuous over the entire length of an insertion run between two manholes and be free from visual defects such as foreign inclusions, dry spots, pinholes, and delamination. If in the opinion of the Engineer, a portion of the liner is inadequate, the Contractor shall correct the defect(s) to the satisfaction of the Engineer.
E. Contactor shall terminate and seal end of CIPP liner to structures using one of the following approved methods:
    a. Expanding Hydrophilic Rubber Joint Seal
        i. The rubber joint seal shall be an extended hydrophilic rubber compounded from chloroprene (Neoprene) rubber and a hydrophilic resin, which expand on contact with water.
        ii. The rubber joint seal shall he bonded with adhesive on one face to hold it in place during assembly.
        iii. On contact with water, the rubber shall swell by up to 10 times its original volume if necessary and mold itself to completely fill any gaps and exert pressure evenly to ensure the seal. High compression or bolt up forces shall not be necessary to affect a complete watertight seal.
    b. CIPP manufacturer-approved epoxy.
F. A pre-liner will be allowed without prior approval from the Owner.
G. The liner shall be pulled into place via the manufacturer's instructions.
H. The liner shall be inflated with air before curing with Ultra Violet light according to the manufacturer's specifications.
I. The reconstructions tube will be impregnated to meet manufacturer specifications with UV Curing Resins in the manufacturing facility prior to installation. The Contractor shall allow the Owner to inspect the materials before installation.
J. The Pre Impregnated UV Light Fiberglass Liner shall be inserted through the existing manhole or other approved access by means of a pull in place process utilizing a winch which will fully extend it to the next designated manhole or termination point. The Fiberglass Liner shall be inflated in place slightly with air to the manufacturer's specification for installing the UV Chain. Liner cure schedule shall adhere to per manufacturer's specifications. The Fiberglass liner will then be inspected with a camera mounted on the UV Chain as it is pulled to the end of the UV light bulbs will he turned on. The curing will commence at a rate specified by the manufacture according to the total dimensions of the liner.
K. As the liner is curing, the UV Curing System shall record all curing data in DVD format for the viewing of the Owner.
L. Initial cure shall be deemed to be complete when the UV Chain arrives at the initial entry point of insertion.

**TESTING**

A. Testing will be required for each insertion of CIPP lining. The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe so that the layers spate cleanly. If separation of the layers occurs during testing of field samples, new samples will be cut from the manhole samples. Any reoccurrence

may cause rejection of the work. Contractor shall provide all labor and materials necessary to produce samples for laboratory and or field testing. Contractor shall contact testing lab prior to first insertion and determine samples size requirements. Samples shall be large enough to perform wall thickness test, flexural strength and modulus of elasticity test and porosity test.

B. Sample Preparation:
Samples will be submitted by the Contractor to an independent third party laboratory. The cured samples shall be tested by an independent testing laboratory approved by the City Engineer. Final payment will not be made until acceptable test results are received by the Engineer.

The Contractor shall be responsible for any deviation from the specified physical properties. Failure to meet the specified physical properties will result in the liner being considered defective work. The Contractor shall be responsible for all costs associated with repair of defective work.

Samples used for testing shall be individually labeled to record the following:

1. Contract number and title
2. Sample number
3. Date of installation
4. Location of installation
5. Contractor Name including person responsible for collecting samples
6. Upstream and downstream manhole numbers from where the samples was taken
7. Type of restraint used

C. The wall thickness will be measured in accordance with the applicable sections of the ASTM Test Method D5813 and D3567. Flexural strength and flexural modulus of elasticity shall be determined in accordance with ASTM D-790. Porosity test will be conducted in accordance with APS Water Porosity Standard. For pipe 15 inch and smaller, a constrained samples will be obtained by inventing through a like diameter inverted half-section of pipe which has been held in place by a suitable heat sink, such as sandbags. Sample location can be either the receiving manhole or an intermediate MH provided a straight through channel exists. For pipe greater than 15 inch but no greater than 24 inch a constrained sample will be obtained from an intermediate MH, if one exists.

D. A post-insertion CCTV log in a format acceptable to the Engineer shall be provided to the Engineer with two weeks of liner curing.

E. Wrinkle height shall not exceed 2% of the host pipe diameter.

F. Non-Conforming Work:
    1. If the measured wall thickness of the installed CIPP is more that 5% reduction in payment for that insertion will occur, or an additional liner sufficient to make up the deficiency must be installed, at the determination of the Engineer.
    2. If the flexural strength, and/or flexural modulus of elasticity is more than 5% less than specified, a minimum 5% reduction in payment for that insertion will occur,

or an additional liner sufficient to make up the deficiency must be installed, at the determination of the Engineer.

3. For all instances where the CIPP is deemed unacceptable the Contractor shall submit a method of repair or replacement for review and approval by the Owner.
4. All Work required to remedy non-conforming work shall be at the sole cost of the Contractor.

**PRIVATE PROPERTY**

A. Care shall be taken to avoid damage to private property (i.e. sprinkler stems, lawn areas). If damage occurs, repairs shall be completed as soon as possible. Costs associated with repairs shall be the responsibility of the Contractor.

## 4.0 BASIS OF PAYMENT

Include all costs to perform the work in this section in the Lump Sum bid.

The entire cost of the work and material necessary to complete all terms shown or implied on the drawings or specified herein shall be included and merged into the pay items shown in the Schedule of Unit Price. All associated work necessary for the proper and complete installation of this project and associated bonding, maintenance and guarantees shall be merged into the pay items shown in the Schedule of Unit Prices. All payments shall be subject to the conditions of these specifications. All pay items shall include sales tax, licenses, permits, and other taxes required to complete the work. No additional compensation will be allowed for any item unless the Engineer issues a change order.

Minor items and minor details are not listed but shall be part of the complete contract.

Include the cost of removal of obstructions that appeared on pre bid video documentation and made available prior to the bid opening in the bid price.

**SANITARY SEWER CLEANING (6")**

1. Scope of Work

Work shall consist of furnishing all labor, materials, equipment, and incidentals necessary to perform sanitary sewer main cleaning and closed-circuit television (CCTV) video inspection of sanitary sewer mains and appurtenances in accordance with the plans and specifications.

Work shall include, but not be limited to: Mechanical cleaning of sanitary sewer mains using appropriate methods (e.g., hydraulic jetting, power rodding, bucket machines, or other approved means) to remove debris, roots, grease, sediment, and obstructions. Removal and proper disposal of all debris generated from cleaning operations. Pre-installation CCTV video inspection of the sanitary sewer main following cleaning operations. Documentation of pipe condition, including defects, service connections, infiltration, offsets, cracks, fractures, and structural deficiencies. Digital video

recording and written inspection logs referencing stationing and defect locations. Traffic control, bypass pumping (if required), flow control, and all necessary safety measures. Mobilization and demobilization of equipment and personnel. All miscellaneous materials and equipment necessary to complete the work.

**Pre-installation CCTV video recordings shall be submitted to the Owner for review and approval prior to any pipe lining or rehabilitation activities. No lining operations shall commence until the video documentation has been reviewed and accepted.**

2. Method of Measurement and Payment

Payment will be made on a linear foot installed basis for SANITARY SEWER CLEANING (6") and shall be full compensation for all work necessary to complete the item.

**CIPP SANITARY SEWER MAIN (6")**

1. Scope of Work

Work shall consist of furnishing all labor, materials, equipment for the construction, and construction necessary relating to the installation of CIPP SANITARY SEWER MAIN (6") and appurtenances per the plans and specifications.

Work shall include all necessary material, equipment, video inspections, labor, installation, and testing. Work shall include mobilization of equipment and miscellaneous material.

2. Method of Measurement and Payment

Payment will be made on a linear foot installed basis for CIPP SANITARY SEWER MAIN and shall be full compensation for all work necessary to complete the item.

**SANITARY SERVICE CUT OUT**

1. Scope of Work

Work shall consist of furnishing all labor, materials, equipment for the construction, and construction necessary relating to the installation of SANITARY SERVICE CUT OUT and appurtenances per the plans and specifications.

Work shall include cutting at the main, removal, loading, haul and disposal and miscellaneous material.

2. Method of Measurement and Payment

Payment will be made on an each installed basis for SANITARY SERVICE CUT OUT and shall be full compensation for all work necessary to complete the item.

**LATERAL SEAL**

1. Scope of Work

Work shall consist of furnishing all labor, materials, equipment for the construction, and construction necessary relating to the installation of LATERAL SEAL and appurtenances per the plans and specifications.

Work shall include all necessary material, equipment, video inspections, labor, installation, and testing. Work shall include mobilization of equipment and miscellaneous material.

2. Method of Measurement and Payment

Payment will be made on an each installed basis for SANITARY SERVICE CUT OUT and shall be full compensation for all work necessary to complete the item.

**INTERNAL POINT REPAIR**

1. Scope of Work

Work shall consist of furnishing all labor, materials, equipment for the construction, and construction necessary relating to the installation of INTERNAL POINT REPAIR and appurtenances per the plans and specifications.

Work shall include all necessary material, equipment, video inspections, labor, installation, and testing. Work shall include mobilization of equipment and miscellaneous material.

2. Method of Measurement and Payment

Payment will be made on each installed basis for INTERNAL POINT REPAIR and shall be full compensation for all work necessary to complete the item.

## 5.0 FINAL PAYMENT

Final payment for the project will be withheld pending receipt and approval of test results, Post-TV inspection videos, Warranty- TV inspection, and repairs found in the Post-TV and Warranty-TV video inspection. If properties tested to not meet the minimum physical and thickness requirements as required by the Contract, repair the Cured-In-Place Pipe (CIPP) according to manufacturer's recommendations or remove and replace the lining material.

- END OF SECTION

**SECTION 02200**
**TECHNICAL SPECIFICATIONS**
**SANITARY SEWER**

1.0 SCOPE OF WORK

2.0 CITY DESIGN CONSTRUCTION STANDARDS AND SPECIFICATIONS

3.0 MATERIALS

4.0 BASIS OF PAYMENT - SANITARY SEWER

## 1.0 SCOPE OF WORK

The work shall consist of, but not limited to methods and materials for the rehabilitation of partially and fully deteriorated pipelines by the UV Cured-In-Place Pipe (CIPP) PROCESS incidentals at the following location within the City of Louisville:

| DESCRIPTION | UNIT | QUANTITY |
|---|---|---|
| SANITARY SEWER CLEANING | LF | 2,750 |
| CIPP SANITARY SEWER MAIN (6") | LF | 2,750 |
| SANITARY SERVICE CUT OUT (6" MAIN) | EA | 61 |
| LATERAL SEAL (6" MAIN) | EA | 61 |
| MANHOLE STEPS | EA | 76 |
| INTERNAL POINT REPAIR | EA | 5 |
| CONSTRUCTION ZONE TRAFFIC CONTROL | LS | 1 |

### NEIGHBORHOOD MEETING

At least 10 days prior to the start of construction, CONTRACTOR will be required to coordinate and have a representative at a meeting with the residents of the neighborhood. CONTRACTOR is required to hand out notices to all affected residents at least 5 days prior to the meeting. A template for the notice is below. ENGINEER must review and approve the notice prior to delivery. ENGINEER shall be notified by CONTRACTOR after notices are distributed. At this meeting CONTRACTOR will be required to define the schedule for construction and to address any special needs and concerns of the residents. ENGINEER shall be present at this meeting.

## 2.0 CITY DESIGN AND CONSTRUCTION STANDARDS

Any and all materials required for this project shall be pursuant to the requirements of the City of Louisville, Colorado “Design and Construction Standards”, adopted February 15, 1994 and the latest revisions thereto except as modified by these plans and/or specifications.

## 3.0 MATERIALS

### MISCELLANEOUS

1) During construction, the Contractor shall take whatever measures required to facilitate a continuous flow of wastewater around the project. If required, the Contractor shall pump these flows.

2) Responsibility for any damages incurred during construction by homeowners and businesses with service connections along the project reach and upstream on the project shall be the sole responsibility of the Contractor.

3) At no time shall wastewater flow be pumped at night through the project.

4) Tap locations shown on the plans are general locations. The tap locations have been provided for general information. The Contractor is responsible for locating all existing sanitary sewer taps and services during construction.

**SANITARY SEWER MANHOLES**

Manholes shall be constructed of precast concrete.

**BARREL SIZE**

The internal diameter of the manhole barrel shall not be less than 48 inches for sanitary sewers.

**MATERIALS**

The materials to be used in the construction of manholes shall conform to the following requirements:

**CONES**

All cones shall be eccentric. Flat top sections may be used, upon written permission of the Engineer, on shallow lines where standard cone sections will not conform to specified elevations. Flat top sections shall be designed for H-20 loadings and conform to ASTM C 478.

**PRECAST MANHOLES**

Precast manhole risers and cones shall be manufactured to conform with ASTM C 478.

**CAST IN PLACE MANHOLES**

Cast in place manholes will not be allowed.

**CEMENT**

All cement used in concrete and mortar shall conform to ASTM Designation C 150 Type II, Type IIA or when deemed necessary, Type V.

**AGGREGATE**

Aggregate shall conform to Standard Specifications for Concrete Aggregates ASTM Designation C 33.

**CONCRETE FOR MANHOLES**

Concrete used in precast manhole sections shall conform to ASTM C 478 and the manhole foundation shall have a 28 day strength of 3750 psi and shall have a maximum water cement ratio of 0.45.

**MANHOLE STEPS**

Manhole steps shall be corrosion resistant and shall be M.A. Industries Inc. PS2-PF or approved equal. Manhole steps shall be no more than 24 inches or less than 18 inches from the top of the manhole ring or from the bench of the manhole.

**RING AND COVER**

Manhole rings and covers shall be 24 inch diameter for 48 inch diameter manhole barrels. The word "SEWER" shall be marked with raised lettering on sanitary sewer covers. Construction castings #J-1361 or approved equal shall be used. Metal used for castings shall conform to ASTM A48 83 Class 25B gray cast iron, no aluminum castings or riser rings shall be allowed.

The cover shall be machined to fit the ring to exclude surface water and be level with the top of the ring. Covers shall have one lifting notch of 1" x 1 1/4".

The ring shall be held in place by being set on ramneck and by asphalt being placed over the ring from the edge of the support structure to the top edge of the ring. A maximum of 18" of concrete adjustment rings will be allowed between the last manhole section and finished grade.

**FLEXIBLE JOINT SEALING COMPOUND**

Kent-Seal No. 2 as manufactured by Hamilton-Kent Company, or other approved plastic joint material shall be used in all concrete joints and between the cast iron ring and cover and cone section. Sealing compounds shall conform to Federal Specifications SS-S-00210 and shall remain pliable to -20 degrees Fahrenheit and shall not become excessively pliable at +120 degrees Fahrenheit.

**EPOXY COATING**

Where required or shown on the drawings, the epoxy coating shall be similar or equal to "PREBOUND CONCRETE BONDING AGENT ET-150H".

**CONSTRUCTION**

Manholes shall be constructed at the locations and to the elevations indicated on the drawings.

Manholes shall be constructed so as to form a circle in a horizontal plane. The internal diameter of manhole barrels shall be maintained to a distance of not more than five (5) feet below finished grade and vertically plumb. From that point the manhole barrel shall be tapered to the 24 inch internal diameter for 4 foot diameter manholes, and 30 inch internal diameter for 5 foot diameter manholes and larger as shown on the standard manhole drawings. The manhole barrels shall be watertight at all joints.

All manholes under construction shall be sealed tightly to prevent storm or other non-sewage flows from entering the sanitary sewer system.

**HORIZONTAL JOINTS**

Flexible plastic joint sealing compound in accordance with Section 208.13 of these Design and Construction Standards shall be applied to all manhole joints. The application of the priming compound and the sealing compound shall be accomplished in strict conformance with the manufacturer's instructions. The joint materials shall conform to the approximate manufactured shape at the time of installation. The joint materials shall not be stretched or in any other way distorted.

**MANHOLE BASES**

Except as otherwise shown on the approved plans, the manhole bases shall be constructed as shown on the Manhole Base Detail. **Precast manhole bases are preferred** over cast-in place manhole bases. Changes in direction of flow through the manhole shall be made with a smooth curved channel having as large a radius as possible. The change in size of channels shall be made gradually and evenly and shall be formed directly in the concrete. The floor of the manhole outside of the channel shall be finished to a smooth surface and shall slope to the channel. The thickness of the base shall not be less than eight (8) inches no more than twelve (12) inches under the invert of the channel and have a mat of #4 rebar 12" o.c. each way. The elevation of the subgrade for the manhole shall not vary more than 0.05 feet.

Concrete bases shall be placed on undisturbed ground. The ground surface below the precast concrete base shall be excavated three inches below the elevation of the bottom of the base and backfilled with 1 1/2" fractured rock or other material approved by the Engineer.

The 1 1/2" rock shall be carefully leveled to give uniform support to the precast base over the entire area. The precast base shall be set at the proper location to center the manhole.

**CONNECTIONS TO EXISTING MANHOLES**

Sewer pipe connections, to existing manholes where there are no existing pipes stubbed out, shall be made in such a manner that the finished work will conform to the requirements specified for new manholes. The Contractor shall remove existing piping in the manhole and break out as small an opening in the existing manhole as necessary to insert the new water stop gasket and sewer pipe. The existing concrete foundation bench shall be chipped to the cross-section of the new pipe in order to form a smooth continuous invert similar to what would be formed in a new concrete base. Non-shrink, non-metallic grout 3M 5600 or an approved equal shall be used to smoothly finish the new invert and to seal the new line so the junction is watertight.

**TRENCH BACKFILLING**

Backfilling shall be in accordance with these specifications, with the exception that compaction tests on the service trench within City R.O.W. must be reviewed by the Engineer prior to patching the street.

**TESTING AFTER CONSTRUCTION**

PVC gravity sewer pipe shall be tested in accordance with this section as well as in accordance with other sections of these Design and Construction Standards. The Engineer may require that alignment, infiltration, exfiltration and deflection tests be completed by the Contractor at the Contractor's expense. **In addition, the Engineer will require the Contractor at the Contractor's expense, to jet the sewer mains and have the pipe inspected with TV equipment (a copy of the DVD must be supplied to the City).**

**MAXIMUM DEFLECTION TEST** (NOT APPLICABLE)

PVC gravity sewer pipe shall not deflect more than 5% of the diameter of the pipe. The deflection shall be tested in every section by the Contractor with a Pin-Type Go-No-Go Gauge, in no case shall the deflection test be performed within 30 days after the completion of the air test. When the test fails, the line shall be repaired and retested at the Contractors expense. The Inspector shall be present during the test and shall verify the accuracy of the equipment.

**211.2 AIR TEST**

All lines shall be tested for exfiltration by low pressure air testing in accordance with ASTM C 828. Testing must be completed with the Inspector present.

**211.3 MANHOLE LEAKAGE TEST**

At the discretion of the Engineer vacuum testing manholes may be required. All pipes entering the manhole shall be plugged and braced and a vacuum of ten inches (10") of mercury shall be

drawn. The vacuum pump shall be turned off and the time monitored as the vacuum drops on inch (1"). The vacuum must not drop more than one inch (1") for the duration of the time indicated in the following table:

Specified Test Duration for Diameter of Manhole
(duration indicated in min:sec)

| Manhole Diameter (inches) | | |
|---|---|---|
| 48" | 60" | 72" |
| 1:00 | 1:15 | 1:30 |

Manholes which fail the vacuum test shall have the defects located and repaired and the test shall be repeated. Repair and retesting shall be continued until the test meets the requirements.

In lieu of vacuum testing of manholes the Engineer may require water testing of manholes. Manholes shall be tested separately from the pipe. The sewer pipe in the manhole will be plugged. If the ground water table is below the invert, the manhole shall be filled to a depth of five (5) feet above the invert. If the ground water level is above the invert of the manhole, then the manhole will be filled to level at least three (3) feet above the ground water level or to the top of the upper most precast manhole section whichever is less, but not less than five (5) feet above the invert. After soaking for one hour, the manhole shall be filled to the original level. It shall then be tested for two hours. The allowable drop of water shall be one quarter (1/4) inch.

No manhole will be accepted when there is any visible infiltration when empty.

At the discretion of the Engineer, at least twenty (20) percent of all manholes installed will be tested. Based on these tests, and visual inspection of all the manholes, additional tests may be required for other manholes. Any manhole whose test is unsatisfactory shall be repaired and retested until satisfactory results are obtained.

Failure of either test is considered failure of the section involved.

**CLEANING THE LINE**

When all of the work has been installed, the line and manholes shall be cleaned and be free of sand, dirt and debris. If the line must be flushed, it shall be done by the use of a high pressure jet or sewer balling method. Care shall be taken to insure that no non-sewage water enters the existing sanitary system. Should the Contractor allow water to enter the existing system, damages to the system, costs of treating the water, and fines in accordance with the City Code shall be at the Contractor's expense.

**MISCELLANEOUS**

1. During construction, the Contractor shall take whatever measures required to facilitate a continuous flow of wastewater around the project. If required, the Contractor shall pump these flows.

2. Responsibility for any damages incurred during construction by homeowners and businesses with service connections along the project reach and upstream on the project shall be the sole responsibility of the Contractor.

3. At no time shall wastewater flow be pumped at night through the project.

4. Tap locations shown on the plans are general locations. The tap locations have been provided for general information. The Contractor is responsible for locating all existing sanitary sewer taps and services during construction.

## 4.0 BASIS OF PAYMENT - SANITARY SEWER

The entire cost of the work and material necessary to complete all terms shown or implied on the drawings or specified herein shall be included and merged into the pay items shown in the Schedule of Unit Price. All associated work necessary for the proper and complete installation of this project and associated bonding, maintenance and guarantees shall be merged into the pay items shown in the Schedule of Unit Prices. All payments shall be subject to the conditions of these specifications. All pay items shall include sales tax, licenses, permits, and other taxes required to complete the work. No additional compensation will be allowed for any item unless the Engineer issues a change order.

Minor items and minor details are not listed but shall be part of the complete contract.

Potholing any potential conflicting utilities to determine construction grade and alignment shall be part of the work and shall be included in the unit prices and no additional compensation shall be provided by the owner to the contractor for this work.

**Contractor shall provide a DVD inspection of the sewer mains as part of the completed work. The cost for the DVD inspection shall not be paid for separately but shall be included in the work.**

The following items in this section are representatives of all work items required and therefore are not referred to by proposal or item number for each individual work item.

**MANHOLE STEPS**

1. Scope of Work

Work shall consist of furnishing all labor, materials, equipment for the construction, and construction necessary relating to the installation of MANHOLE STEP and appurtenances per the plans and specifications.

Work shall include existing steel step removal by flush cutting at wall, removal, loading, haul and disposal and miscellaneous material. Work shall include new step, labor, equipment and material to install steps per manufacture recommendation.

2. Method of Measurement and Payment

Payment will be made on an each installed basis for MANHOLE STEP and shall be full compensation for all work necessary to complete the item.

- END OF SECTION -

## SECTION 02600

CONSTRUCTION ZONE TRAFFIC CONTROL

### PART 1 - GENERAL

### 1.1 DESCRIPTION

**Construction zone traffic control shall apply to any and all construction and related construction on the 2025 CIPP Sewer Lining Project to complete the work.**

This work consist of furnishing, installing, moving, maintaining and removing temporary traffic signs, advance warning arrow panels, variable message boards, flashing portable beacons, barricades, channelizing devices, delineators, masking and unmasking existing signs in construction zones, and flagging as required by the Manual on Uniform traffic Control Devices for Streets and Highways and the Colorado Supplement thereto, in accordance with the plans and these specifications. When a device is not in use, the contractor may remove it from the project for the period it is not needed. Devices temporarily not in use shall not be stored in the roadway or walkways.

### 1.2 GENERAL REQUIREMENTS

Pertinent provisions of the following listed documents shall apply to this work, except as they may be modified herein, and are hereby made a part of this specification to the extent required.

A. Standard Specifications for Road and Bridge Construction by the Colorado Department of Transportation (CDOT), Section 630, Construction Zone Traffic Control, and Section 627, Pavement Marking.

B. Manual on Uniform Traffic Control Devices for Streets and Highways, FHWA, and the latest revision of the Colorado Supplement thereto.

C. CDOT Standard Plan S-630-1 (sheets 8 and 9), S-630-2 and S-630-3.

### 1.3 SUBMITTALS

A. Five (5) CONTRACT DAYS prior to the start of any construction activity, submit copies of the following:

1. Proposed detour plan and traffic control elements as described under Section 3.2.
2. Schedule of proposed duration and sequence of operations.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

A. In accordance with CDOT Section 627.02 regarding pavement marking tape.
B. In accordance with CDOT Section 630.02 regarding signs and barricades.
C. In accordance with CDOT Section 630.05 regarding traffic cones.

**PART 3 - EXECUTION**

**3.1 GENERAL**

In accordance with CDOT, Subsection 630.09 through Subsection 630.13, Construction Zone Traffic Control - Construction Requirements, except as modified herein.

In accordance with CDOT, Section 627.10, Pavement Marking Tape.

**3.2 METHOD OF HANDLING TRAFFIC**

Delete the second paragraph of Subsection 630.09.

Subsection 630.08 shall include the following:

**ALL TRAFFIC CONTROL DEVICES MUST BE IN GOOD AND CLEAR CONDITION, INSTALLED PRIOR TO ALL AND ANY CONSTRUCTION ACTIVITY. THE ENGINEER MAY DIRECT MINOR MODIFICATIONS TO THE APPROVED TRAFFIC CONTROL PLAN BASED ON OBSERVATIONS OF FIELD CONDITIONS AT ANY TIME OR SUSPEND WORK UNTIL APPLICABLE SAFETY MEASURES ARE TAKEN WITHOUT ANY CHANGES TO THE COST OF THE PROJECT.**

**DEFICIENCIES IN TRAFFIC CONTROL SHALL BE CORRRECTED IMMEDIATELY OR WORK SHALL BE SUSPENDED. THE OWNER WILL REQUEST A REDUCTION IN COST IF TRAFFIC CONTROL IS NOT PROVIDED PER APPROVED METHOD OF HANDLING TRAFFIC.**

In Subsection 630.09, add the following:

The City Engineer must approve all street closures. At least 24 hours before a street closure, it shall be the responsibility of the Contractor to notify the following agencies:

1. Police Department .....303-441-4444
2. Louisville Fire Protection District .....303-666-8809
3. City of Louisville Operations and Maintenance Department .....303-335-4750
4. AMR Ambulance Service .....303-665-6623
5. Boulder Valley School District .....303-447-1010
6. Boulder County Communications .....303-441-4444
7. Regional Transportation District .....303-443-0100

In addition to the above agencies and organizations, the Contractor shall notify the Post Office and local Trash Companies.

At the completion of work, the agencies must be notified of resumption of normal service.

Changes to the approved traffic control plan necessitated by unforeseen circumstances, such as utility conflicts, must be reviewed and authorized by the Engineer.

"NO PARKING" signs shall be placed not less than 24 hours in advance of commencement of work in a work zone. The sign shall state, for example "No Parking 7 a.m. to 7 p.m.", together with the day of the week.

A copy of the Right of Way Permit and the approved MHT shall be available at the project site in order that City personnel may verify compliance with the specified traffic control requirements.

The specified elements of the MHT shall also include the number of flag persons to be used.

Approval of the proposed MHT does not relieve the Contractor of liability specifically assigned to him under the contract. The Contractor shall erect and maintain warning lights, signs, barricades, and sufficient safeguards around all excavations, embankments, and obstructions.

The Contractor shall coordinate and cooperate fully with agents of the City of Louisville, utility owners, and other contractors. He shall also coordinate and cooperate fully with agents of other entities to assure adequate and proper traffic control is provided.

The Contractor is advised that other significant construction might be occurring in the area and that he shall cooperate fully with the City of Louisville and all other contractors occupying public right-of-way in terms of work location, work schedule and traffic control requirements.

Through traffic shall be carried on a paved surface at all times unless otherwise approved by the Engineer. The Contractor shall maintain at his own expense that portion of the existing roadway being used to carry traffic so that traffic may readily pass over it.

All traffic control devices supplied by the contractor must be maintained in good and clear condition and meet minimum national standards for reflectivity. Devices shall comply with minimum size and shape as specified in the MUTCD. **No bent, broken, damaged, defaced, dented, dirty, discolored, faded, non-conforming traffic control devices and/or supports shall be used in this project.**
All traffic control devices shall bear the name, address, and phone number of the barricade company that owns them. The phone number shall be a 24-hour a day dispatched hotline in the event an emergency situation occurs where additional devices are needed or existing devices must be removed.

The Contractor shall install construction traffic control devices in locations that do not block or impede sidewalks for pedestrians, or bicyclists or other existing traffic control devices. This strategy shall include, but is not limited to, strapping signs to streetlight or utility poles. Devices may only be attached to wooden street light and utility poles.

All existing traffic control devices, including traffic signs and pavement markings that are compatible with the construction zone traffic control shall remain visible and fully operational. If any devices are incompatible with the temporary construction traffic control devices, they shall be covered, relocated or removed.

The Contractor shall not be allowed to begin operations, which require traffic control until the setup of traffic control devices is completed. Also, the Contractor shall clear his operations allowing 30 minutes for removals of traffic control devices in accordance with the designated hours of work and roadway closures.

During non-working hours, the roadways shall be restored to safe pre-construction travel conditions for the free flow of traffic. Any maintenance required to restore the roadways to this condition, including pavement patching and grading, shall be done prior to opening the areas to traffic or completing work for the day. Temporary pavement markings shall be placed at the direction of the Engineer. All costs incidental to the foregoing requirements in this paragraph shall be included in the original contract prices for the project, including any additional traffic control items required for haul routes into or away from the project.

Any existing signs damaged due to Contractor operations shall be replaced in kind or repaired to the satisfaction of the Engineer by the Contractor at no cost to the project.

Any existing traffic signs removed or relocated during construction as part of the approved traffic control plan are the responsibility of the Contractor to reset upon completion of construction, unless noted otherwise in the plans or specifications. Existing signs may not be removed without prior approval of the Engineer.

The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time. Brief lane closures (of 5 minutes or less), as approved by the Engineer, may be permitted for moving construction equipment. Flaggers will be required for such operations. All personal vehicles and construction equipment parking will be prohibited where it conflicts with safety, access, or flow of traffic.

During non-construction periods (evenings, weekends, holidays, etc.) all work shall be adequately protected to ensure the safety of vehicular and pedestrian traffic, using materials meeting the approval of the Engineer.
Lane widths in work zones shall be 12 feet, minimum.

The vertical cut or fill, including rotomilling over 1" height differences resulting from construction operations adjacent to traffic lanes shall be temporarily sloped at a 3:1 or flatter slope, or as shown on the typical plan section, and barrier protected, or delineated at 25-foot intervals immediately after grading or removal operations. The 3:1 slope requirement applies to roadway construction projects and would not generally apply to utility construction or rehabilitation projects. Slope or shoring requirements for these type projects shall be reviewed on a project by project basis.

The Contractor shall equip all vehicles operating within the moving lanes with flashing amber lights visible from all directions.

Any portable device that requires weight to prevent overturning shall be weighted with appropriate sized sand bags. Rocks, asphalt, or any other debris will not be permitted.

**MAINTENANCE OF ACCESS**

The Contractor shall maintain access to all roadways, side streets, and alleyways, at all times unless otherwise approved by the Engineer. During non working hours the Contractor shall maintain access to the roadways and driveways within the construction zone with temporary ramps.

Protection of Adjacent Property and Drives. The Contractor shall use extra care so as to minimize disruption to adjacent property and drives and shall leave the construction site clean, with all debris and concrete removed. If the Engineer determines that the Contractor did not exercise reasonable care to protect the parking areas or street sections from unnecessary damage while accomplishing his work, the Contractor will be required to restore the damaged items to their original condition at his own expense. The Contractor will not be permitted to operate trucks and equipment or store equipment and supplies on private property unless he has written permission to do so.

Work Limits. Work limits shall be marked by the Contractor with orange plastic fencing in pedestrian areas and other suitable materials in the street prior to beginning work. He shall confine all work to within these limits except as provided in the contract documents. If work limits are not established by permit or contract documents, said limits shall be determined by the Engineer and shall be suitably marked by the Contractor, prior to beginning work.

Should the Contractor be unable to obtain written approval of property owners or occupants, documentation of a "Good Faith Effort" to obtain said approval must be submitted.

**CONTACTS**

The Contractor shall notify the following 72 hours prior to beginning construction and 48 hours prior to changing traffic patterns. The Contractor shall also notify these persons in case of an emergency.

City of Louisville Public Works - Craig M. Duffin, P.E. 303-335-4602
City of Louisville Operations Div. – Michael Cleveland 303-335-4750
City of Louisville Police Department – Boulder Dispatch 303-441-4444
City of Louisville Fire Department - Fire Marshal 303-666-6595

## 3.3 TRAFFIC CONTROL MANAGEMENT

Subsection 630.10(6) shall include the following: A day shall be defined as the time from 12:00 midnight to 12:00 midnight. The log shall list all devices and personnel deployed within the limits of construction for each day and shall be available for review by the Engineer at all times.

In subsection 630.09, first paragraph, delete the first sentence and replace with the following:

The Contractor shall designate an individual, other than the superintendent, to be the traffic control supervisor.

In subsection 630.09, second paragraph, delete parts (1), (5) and (6) and replace with the following:

(1) Preparing, revising, and implementing each required method of handling traffic in accordance with the traffic control plan.

(5) Preparing traffic control diary on every calendar day traffic control devices are in use. This dairy shall be submitted to the Engineer daily and become a part of the Department's project records.

(6) Inspecting traffic control devices on every calendar day that traffic control devices are in use, masked, or turned away from traffic. These inspections shall include at least one night inspection per week. These inspections shall be performed by the traffic control supervisor or another representative who is certified as a worksite traffic supervisor.

(10) Supervising the cleaning and maintenance of all traffic control devices.

In subsection 630.09, delete the third paragraph and replace with the following:

Traffic control management shall be provided by a certified traffic control supervisor on a 24-hour-per-day basis. The traffic control supervisor or another representative who is certified as a worksite traffic supervisor shall be available and reasonably accessible to the job site on every working day, on call at all times, and available upon The Engineer's request at other than normal working hours. During non-work periods, the traffic control supervisor or another representative shall respond to the job site within 45 minutes. The traffic control supervisor or another representative who is certified as a worksite traffic

control supervisor shall arrive at the job site within two hours after notification. The Contractor shall maintain a 24-hour telephone number at which the traffic control supervisor can be contacted. The traffic control supervisor shall not act as a flagger except in an emergency or in relief for short periods of time.

In subsection 630.11, delete the first paragraph and replace with the following:

630.11 General. Portable construction traffic signs shall be removed when temporarily not required. Permanently mounted construction traffic signs shall be masked or turned away form traffic when temporarily not required. When work is suspended, or the project is in free time, and there is no condition requiring traffic control devices or construction traffic signs, all of the construction traffic signs shall be masked or turned away from traffic. If this condition is to exist for more than 30 days, all construction traffic signs shall be removed. When storing portable signs or supports within the project they shall be stored laying flat and the location shall be at least four feet outside the edge of the shoulder and not on landscaped areas or sidewalks. When masking is used, it shall be done in accordance with subsection 630.10.

The retroreflective surfaces of all signs and other traffic control devices shall be cleaned as frequently as necessary to preserve their legibility and retroreflectivity. However, all devices shall be cleaned a minimum of once every two weeks.

In subsection 630.12, first paragraph, delete the fifth sentence and replace with the following:

When storing portable signs or supports within the project they shall be removed beyond the clear zone and shall not be visible to traffic. All storage areas shall be approved. The minimum clear zone distance shall be 18 feet, measured from the edge of traveled way. If the signs cannot be stored at least 18 feet from the traveled way, they shall be removed. Under no circumstances shall signs be stored on the paved surface.

**3.4 FLAGGING**

Subsection 630.13(a) shall include the following:

The flagger's STOP/SLOW sign paddle shall be 18 inches with letters six inches high.

Delete Subsection 630.13(a) and replace with the following:

(a) The Contractor shall provide all flagging through the project necessary to assure proper safety to traffic. All flagging personnel shall be certified by the American Traffic Safety Services Association (ATSSA).

**PART 4 - MEASUREMENT AND PAYMENT**

**4.1** Delete Subsection 630.14, 630.15 and replace with the following:

## 4.2 CONSTRUCTION ZONE TRAFFIC CONTROL (WATER MAIN) (SANITARY SEWER) (CONCRETE REPLACEMENT) (ASPHALT)

Construction Zone Traffic Control shall be paid for at the lump sum price indicated in the Schedule of Unit Prices. The lump sum price shall be full compensation for flagging and for furnishing, erecting, cleaning, maintaining, moving, removing and disposing of construction traffic control devices, including labor, material equipment and incidentals necessary to complete the work. All construction traffic control devices, which are not permanently incorporated into the project, will remain the property of the Contractor.

**Traffic Control Supervisor will not be paid for separately, but shall be included in the work.**

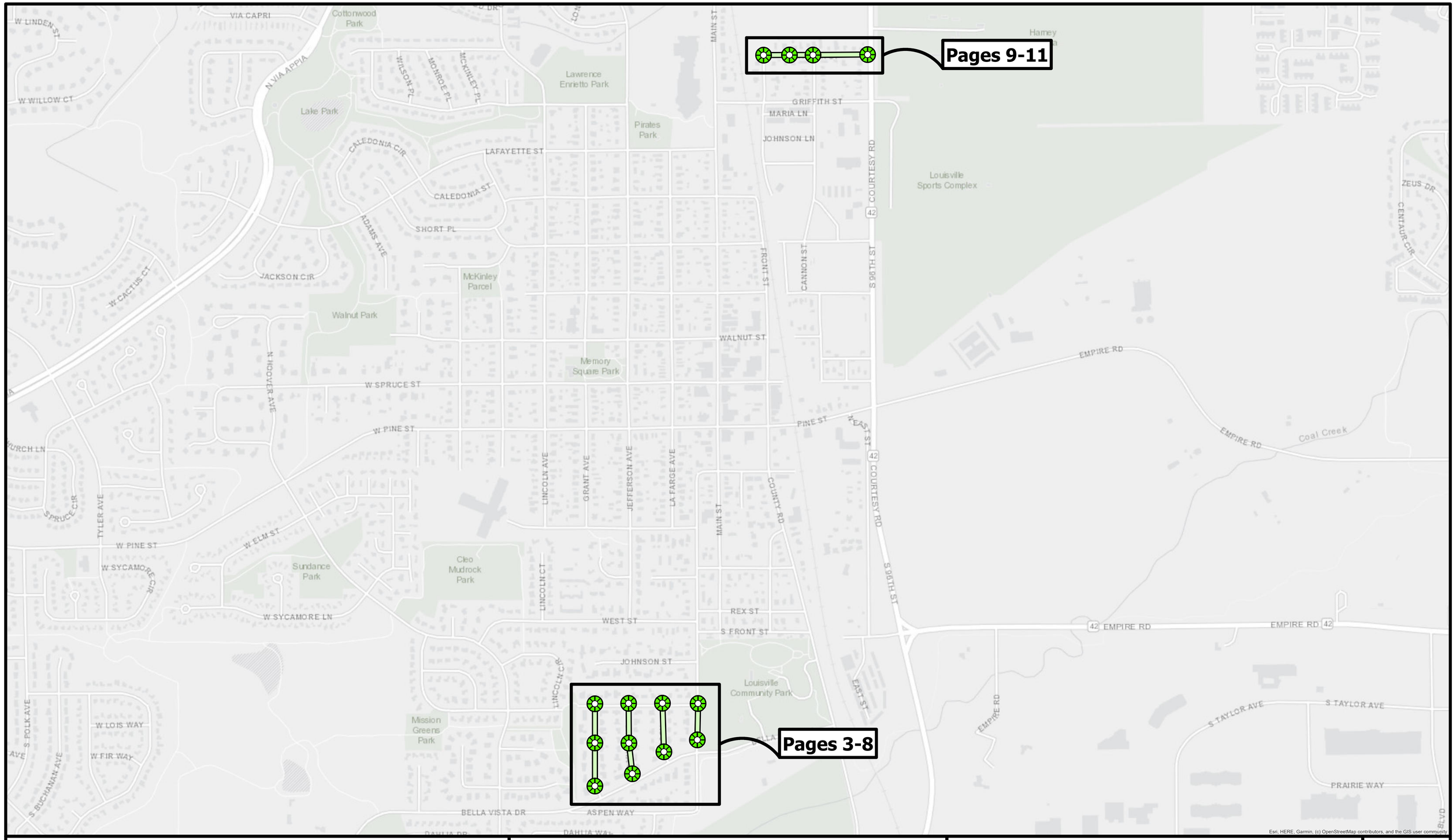
**Temporary roadway/driveway ramps will not be paid for separately, but shall be included in the work.**

**Preparation of the MHT will not be paid for separately but shall be included in the work.**

**Construction fencing and temporary walkways will not be paid for separately but shall be included in the work.**

**Construction phasing and staging will not be paid for separately but shall be included in the work.**

- END OF SECTION -




# Cover Page

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1: Cover
2: General Notes
3-11: Base Bid
12: Details

**Approved By:**

Tyler Trojan, P.E.
Civil Engineer III

*The City of* **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Manhole: Base Bid

**1**

## GENERAL NOTES
## (ALL CONSTRUCTION)

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE CURRENT DESIGN AND CONSTRUCTION STANDARDS OF THE CITY OF LOUISVILLE AND THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS, STANDARDS, AND CONTRACT SPECIFICATIONS AS APPROVED BY THE CITY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.

2. THE CONTRACTOR SHALL MAINTAIN ONE RECORD COPY OF ALL DRAWINGS WHICH ARE TO BE READILY AVAILABLE TO THE ENGINEER AT ALL TIMES. THE FINAL RECORD DRAWINGS (AS-BUILTS) SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL PAYMENT. "AS-CONSTRUCTED" DRAWINGS ARE TO BE SUPPLIED BY THE CONTRACTOR TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE. DRAWINGS SHALL SHOW LOCATIONS OF ALL FITTINGS, VALVES, AND HYDRANTS FOR WATER LINES CONSTRUCTED; DISTANCES BETWEEN MANHOLES AND LOCATION OF SERVICE WYES OR TEES FOR SANITARY SEWER CONSTRUCTION; AND DISTANCES BETWEEN MANHOLES, INLETS, AND END SECTIONS FOR STORM SEWER CONSTRUCTION.

3. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARDS, SPECIFICATIONS, PERMITS, BONDS, ETC. WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK. THE CONTRACTOR, ALONG WITH ALL SUBCONTRACTORS SHALL BE LICENSED IN THE CITY OF LOUISVILE. CONTRACTOR SHALL SUBMIT A LIST OF ALL SUBCONTRACTORS INVOLVED IN THE PROJECT AND THEIR LICENSE NUMBERS TO THE ENGINEER. THE CONTRACTOR SHALL OBTAIN A RIGHT OF WAY PERMIT FROM THE CITY OF LOUISVILLE PUBLIC WORKS DEPARTMENT FOR THE PROJECT. A COPY OF THE RIGHT OF WAY PERMIT SHALL BE ON SITE AT ALL TIMES AND THE CONTRACTOR SHALL FORWARD A COPY TO ALL SUBCONTRACTORS.

4. IF WATER IS REQUIRED FOR THE PROJECT, THE CONTRACTOR SHALL OBTAIN A BULK WATER PERMIT FROM THE CITY OF LOUISVILLE PUBLIC WORKS DEPARTMENT IN ACCORDANCE WITH THE PERMIT REQUIREMENTS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING STREETS, CURBS,SIDEWALKS, BUILDINGS, DRIVEWAYS, ALLEYS, LAWNS, PARKING LOTS, ETC. ADJACENT TO THE PROJECT FROM DAMAGE BY THE CONTRACTOR. ANY DAMAGES CAUSED BY THE CONTRACTORS OPERATIONS SHALL BE RECONSTRUCTED OR REPAIRED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

6. THE CONTRACTOR SHALL PROVIDE A DAILY CLEANUP OF THE SITE INCLUDING BUT NOT LIMITED TO REMOVAL OF ALL TRASH AND DEBRIS AND REMOVAL OF MUD, DIRT, ETC. FROM SIDEWALK AND PAVEMENT SURFACES WITHIN AND ADJACENT TO THE SITE. CLEANUP WILL INCLUDE SWEEPING ADJACENT SURFACES ACCESSIBLE TO THE GENERAL PUBLIC.

7. THE CONTRACTOR SHALL NOT LEAVE ANY RESIDENCES AND/OR BUSINESSES WITHOUT WATER OR OTHER UTILITY SERVICE UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER.

8. THE CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS/RESIDENTS TO PHASE WORK SUCH THAT EMERGENCY ACCESS IS PROVIDED AT ALL TIMES AND RESIDENCE ACCESS IS AVAILABLE DURING NON-WORKING HOURS.

9. THE RIGHT OF WAY LINES SHOWN ON THE PLANS ARE SHOWN FOR INFORMATION ONLY. A PROPERTY SURVEY WAS NOT COMPLETED TO LOCATE THE ACTUAL RIGHT OF WAY LINE.LOCATION SHOWN IS APPROXIMATE ONLY.

10. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED BY THE ENGINEER. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY ENGINEER AND PROJECT ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS OR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO CONSTRUCTION.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CITY ENGINEER AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP, THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER 48 HOURS PRIOR TO RESTART.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE LOUISVILLE FIRE DEPARTMENT, LOUISVILLE POLICE DEPARTMENT, AND BOULDER COUNTY EMERGENCY RESPONSE OF ALL STREET CLOSINGS AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

14. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. ALL WORK PERFORMED IN THE AREA OF PUBLIC UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THESE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION PRIOR TO COMMENCEMENT OF THE IMPROVEMENTS DESCRIBED IN THE PROJECT. THE CONTRACTOR SHALL PROTECT, AT HIS OWN EXPENSE, ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR THEIR REPAIR IF THEY ARE DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL UTILITY NOTIFICATION CENTER OF COLORADO (1-800-922-1987) or (811). CALL (2) BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

## GENERAL NOTES
## (SANITARY SEWER MAIN CONSTRUCTION)

1. AFTER LINING OF THE SANITARY SEWER MAINS, THE CONTRACTOR SHALL SUPPLY A TV VIDEO, DVD FORMAT OF THE SEWER MAIN.

2. THE CONTRACTOR SHALL AT ALL TIMES COORDINATE HIS WORK WITH THE CITY OF LOUISVILLE. WHEN IT IS NECESSARY TO CLOSE EXISTING PORTIONS OF A WATER OR SEWER SYSTEM DUE TO CONSTRUCTION OPERATIONS, AT LEAST 48 HOURS PRIOR NOTIFICATION MUST BE GIVEN THE ENGINEER. ALL WATER VALVES THAT ARE IN SERVICE SHALL ONLY BE OPERATED BY THE CITY. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO MINIMIZE INCONVENIENCE TO THE PUBLIC DUE TO DISCONNECTED UTILITY SERVICES.

3. SHOULD IT BECOME NECESSARY TO TEMPORARILY DISCONNECT ANY UTILITY, THE CONTRACTOR SHALL FIRST OBTAIN THE APPROVAL OF THE ENGINEER AND PROVIDE NOTIFICATION IN WRITING 48 HOURS IN ADVANCE TO THE UTILITY CUSTOMER REGARDING ANY DISCONNECTION OF SERVICE. SUCH UTILITY SHALL THEN BE DISCONNECTED AFTER 9:00 A.M. WITH A MAXIMUM 4 HOUR SHUTDOWN, AND SHALL BE RESTORED BY 4:00 P.M. THE SAME DAY.

4. IF THE CONTRACTOR'S OPERATIONS REQUIRE OR CAUSE THE UTILITY SERVICE TO BE DISCONNECTED BEYOND THE LIMITS STATED ABOVE, HE SHALL MAKE ARRANGEMENTS TO PROVIDE TEMPORARY UTILITY SERVICE. IN THE EVENT A UTILITY IS DISCONNECTED BEYOND THE HOURS STATED ABOVE, THE ENGINEER SHALL HAVE THE AUTHORITY TO ORDER A TEMPORARY UTILITY SERVICE INSTALLED BY A THIRD PARTY AT THE CONTRACTOR'S EXPENSE.

5. DRAWINGS ARE NOT INTENDED TO BE SCALED, BUT ARE SUPPLIED FOR GENERAL INFORMATION TO THE CONTRACTOR.

6. SANITARY SEWER SERVICE LINE AND TAP LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SANITARY SEWER TAPS AND SERVICES DURING CONSTRUCTION.

## GENERAL NOTES
## (TRAFFIC CONTROL)

1. ACCESS TO PRIVATE PROPERTY SHALL BE MAINTAINED DURING NON-CONSTRUCTION PERIODS UNLESS SPECIAL PROVISIONS ARE MADE WITH THE PROPERTY OWNER.

2. NO CONSTRUCTION ACTIVITIES OR EQUIPMENT SHALL BE ALLOWED TO OBSTRUCT ANY TRAVELED ROADWAY, WITHOUT PRIOR APPROVAL OF THE CITY. ALL EQUIPMENT ON, AND USE OF ANY PUBLIC ROADWAY SHALL BE SUBJECT TO ALL APPLICABLE LAWS REGULATING THE USE OF SUCH ROADWAYS

3. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED AND ANCHORED (WEIGHTED) IN PLACE. WEIGHTS FOR TEMPORARY MOUNTING SHALL BE SAND BAGS. NO ROCKS, ASPHALT, OR CONCRETE CHUNKS, OR OTHER DEBRIS WILL BE ALLOWED. ALL SIGNS SHALL BE MAINTAINED IN GOOD CONDITION AND CLEAN AT ALL TIMES.

4. TRAFFIC CONTROL PLANS SHALL BE SUBMITTED FOR ALL WORK AREAS AND REVIEWED BY THE CITY PRIOR TO THE START OF CONSTRUCTION. TRAFFIC CONTROL PLANS SHALL BE PREPARED BY AN ATSSA CERTIFIED WORK SITE SAFETY SUPERVISOR.

5. TRAFFIC CONTROL DEVICES USED AT NIGHT SHALL BE EQUIPPED WITH WARNING LIGHTS.

6. IN ORDER TO BETTER FACILITATE THE CLOSURE OF CERTAIN ROADWAYS, THE USE OF TYPE III BARRICADES IN CONJUNCTION WITH TYPE I BARRICADES OR DRUMS SHALL BE ALLOWED.

## GENERAL NOTES
## (BEST MANAGEMENT PRACTICES FOR STORM WATER MANAGEMENT)

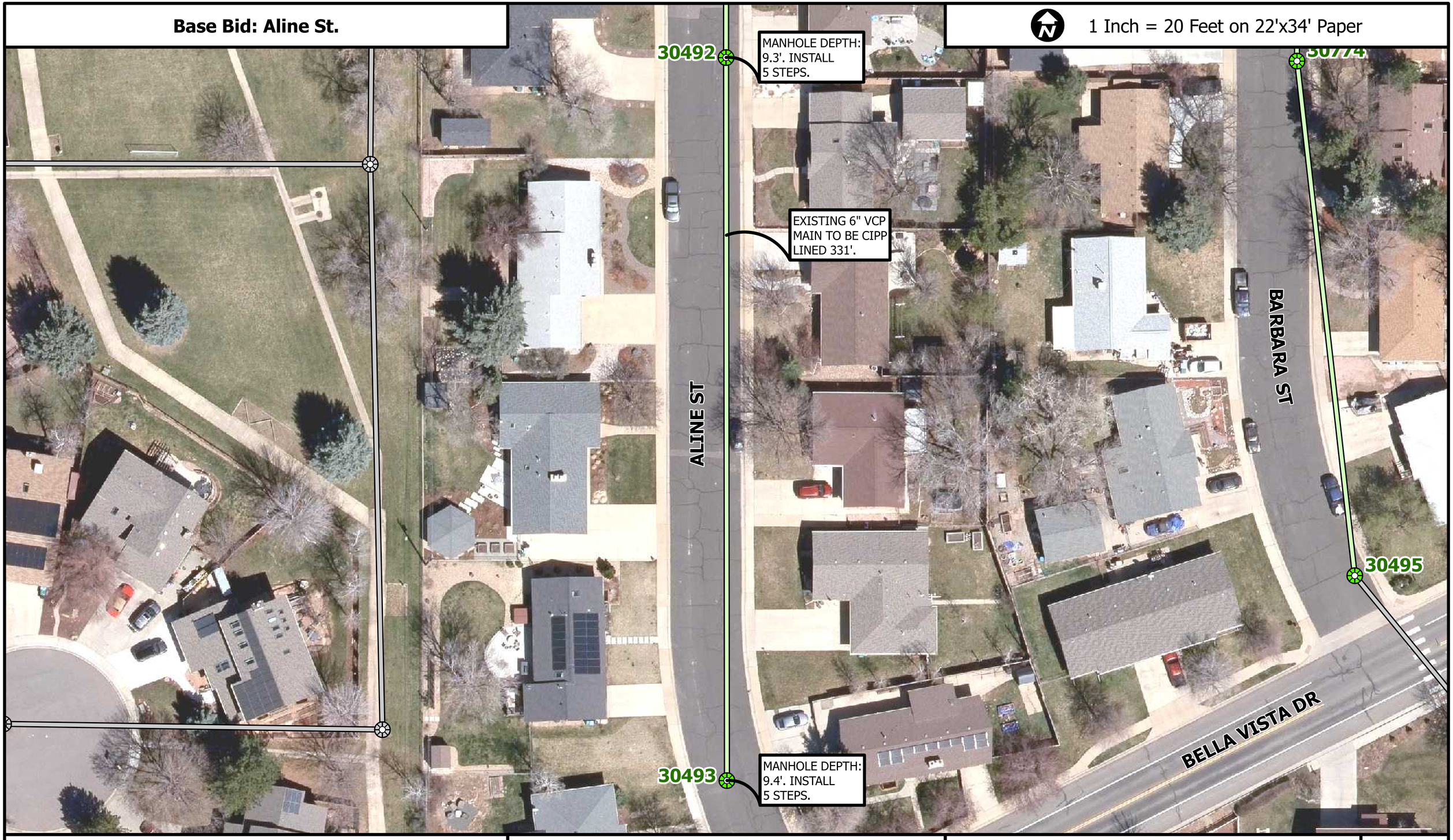
1. SEDIMENT CONTROL SHALL BE PROVIDED AT STORM SEWER INLETS USING CURB SOCKS WITH 1-1/2" CLEAN GRAVEL AND 1/2" STEEL MESH. IMPLEMENTING THESE MEASURES SHOULD MINIMIZE NUISANCE SILT AND SEDIMENTATION EXITING THE SITE AND PREVENT CLOGGING EXISTING STORM SEWERS AND STREET GUTTERS. ADDITIONAL EROSION CONTROL MAY NEED TO BE INSTALLED IN THE STREET FLOW LINE (CURB SOCKS) AS REQUIRED BY THE ENGINEER.

2. APPLICATION OF THESE BMPS FOR STORMWATER MANAGEMENT ARE FOR CONSTRUCTION PERIODS AND ARE CONSIDERED TEMPORARY. POST-CONSTRUCTION STORMWATER MANAGEMENT IS PROVIDED THROUGH STORM COLLECTION SYSTEM.

3. CONSTRUCTION DEWATERING OR TRENCH EXCAVATION DEWATERING IS NOT PERMITTED TO BE DISCHARGED TO THE STORM SEWER SYSTEM.DEWATERING SHALL BE CAPTURED ON-SITE AND PROPERLY DISPOSED PER STATE REGULATIONS. CONTRACTOR SHALL OBTAIN AN APPROVED DISCHARGE PERMIT FROM THE STATE HEALTH DEPARTMENT FOR ANY GROUNDWATER DEWATERING.

## Base Bid: Aline St.

1 Inch = 20 Feet on 22'x34' Paper




| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 30493 - 30492 | CIPP | 6" | VCP | 331' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

*The City of* **Louisville, Colorado**

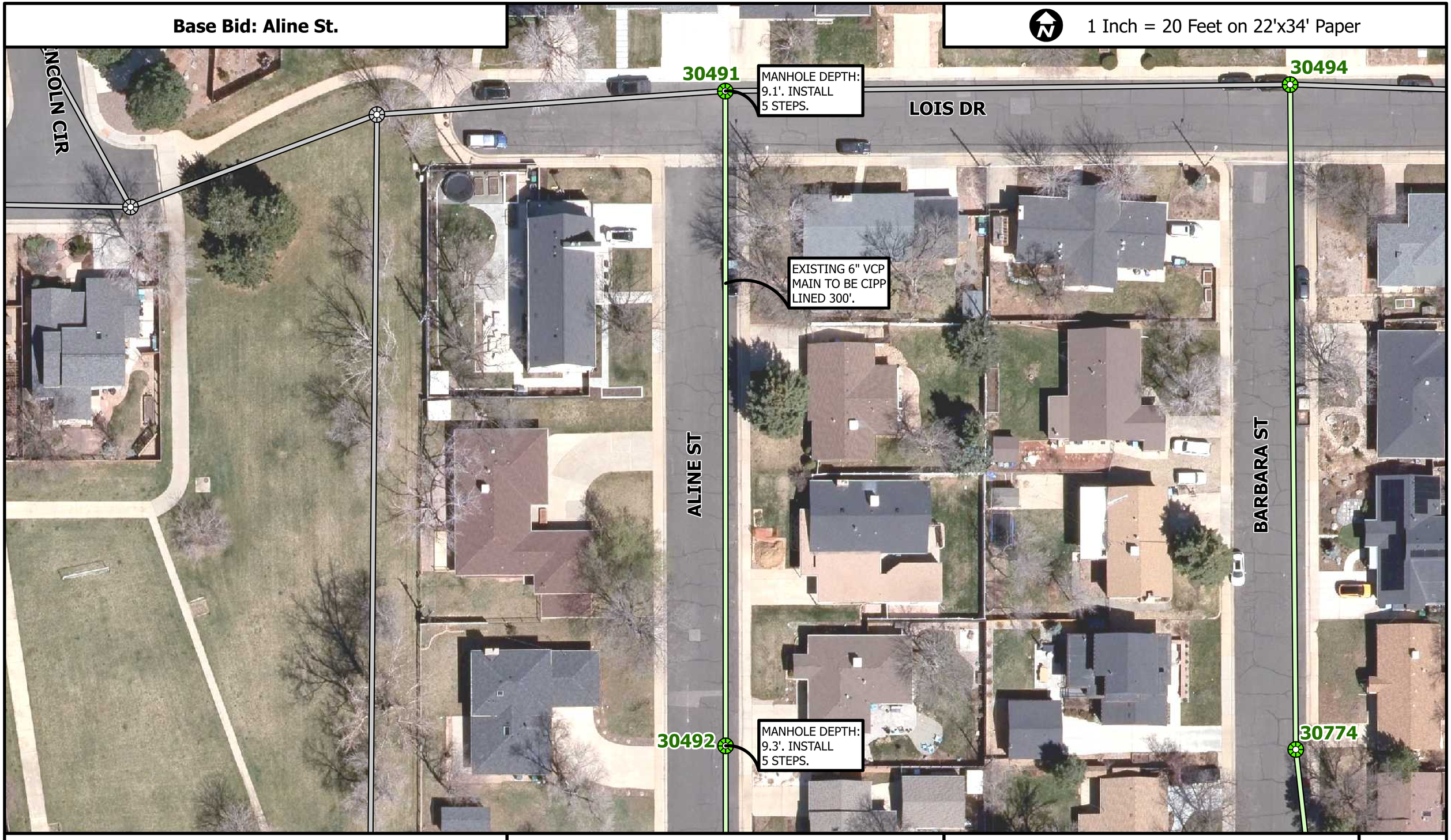
2026 Sanitary Sewer CIPP

Gravity Main: Base Bid
Gravity Main: Other
Manhole: Base Bid
Manhole: Other

**3**

**Base Bid: Aline St.**

1 Inch = 20 Feet on 22'x34' Paper




| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 30492 - 30491 | CIPP | 6" | VCP | 300' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

The City of **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Gravity Main: Other

Manhole: Base Bid

Manhole: Other

**4**

**Base Bid: Barbara St.**

1 Inch = 15 Feet on 22'x34' Paper

30774

MANHOLE DEPTH: 9.0'. INSTALL 5 STEPS.

BARBARA ST

ROSE ST

EXISTING 6" VCP MAIN TO BE CIPP LINED 237'.

BELLA VISTA DR

30495

MANHOLE DEPTH: 8.9'. INSTALL 5 STEPS.

| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 30495 - 30774 | CIPP | 6" | VCP | 237' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

The City of **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Gravity Main: Other

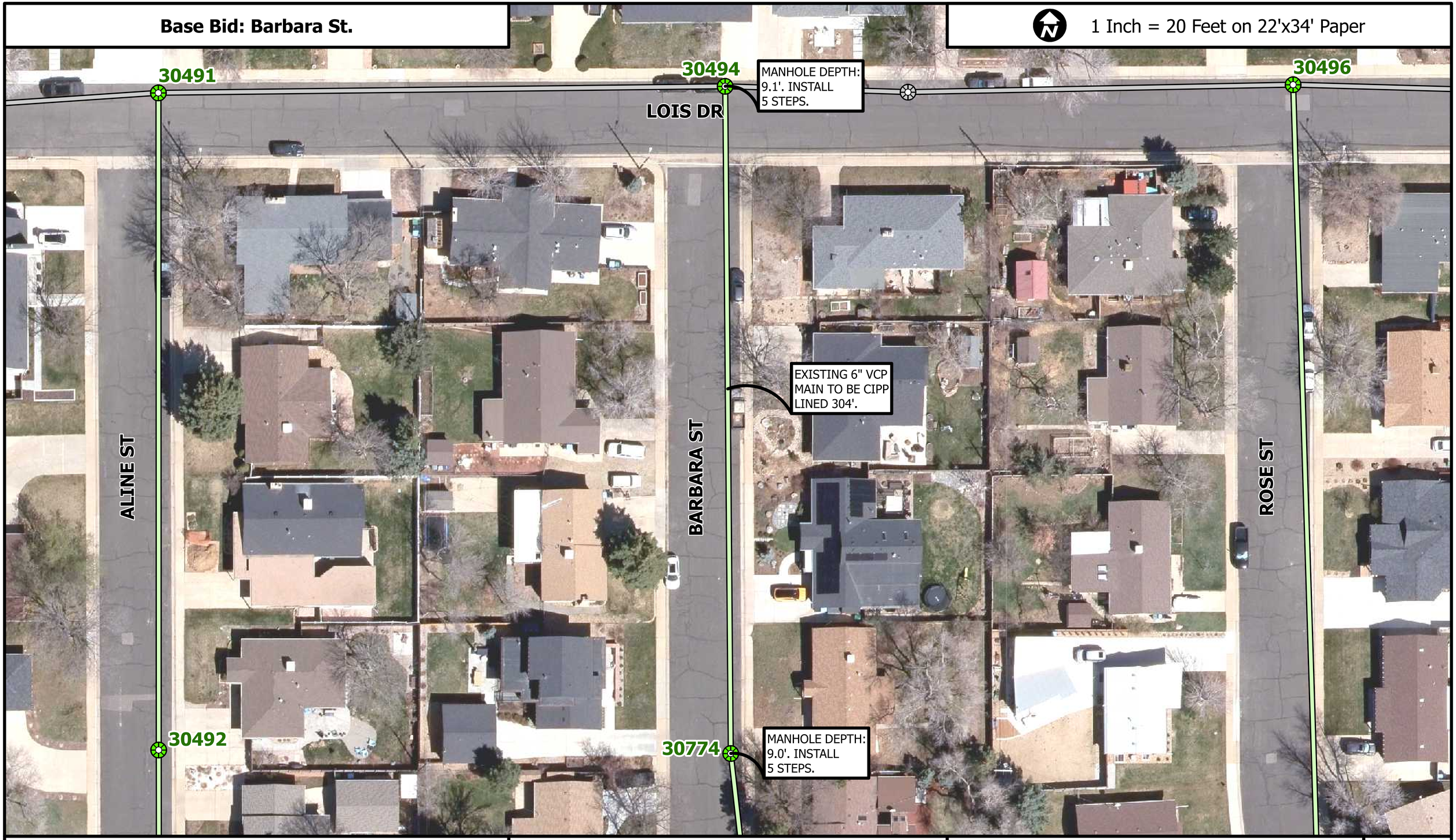
Manhole: Base Bid

Manhole: Other

5

**Base Bid: Barbara St.**

1 Inch = 20 Feet on 22'x34' Paper




| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 30774 - 30494 | CIPP | 6" | VCP | 304' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

The City of **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Gravity Main: Other

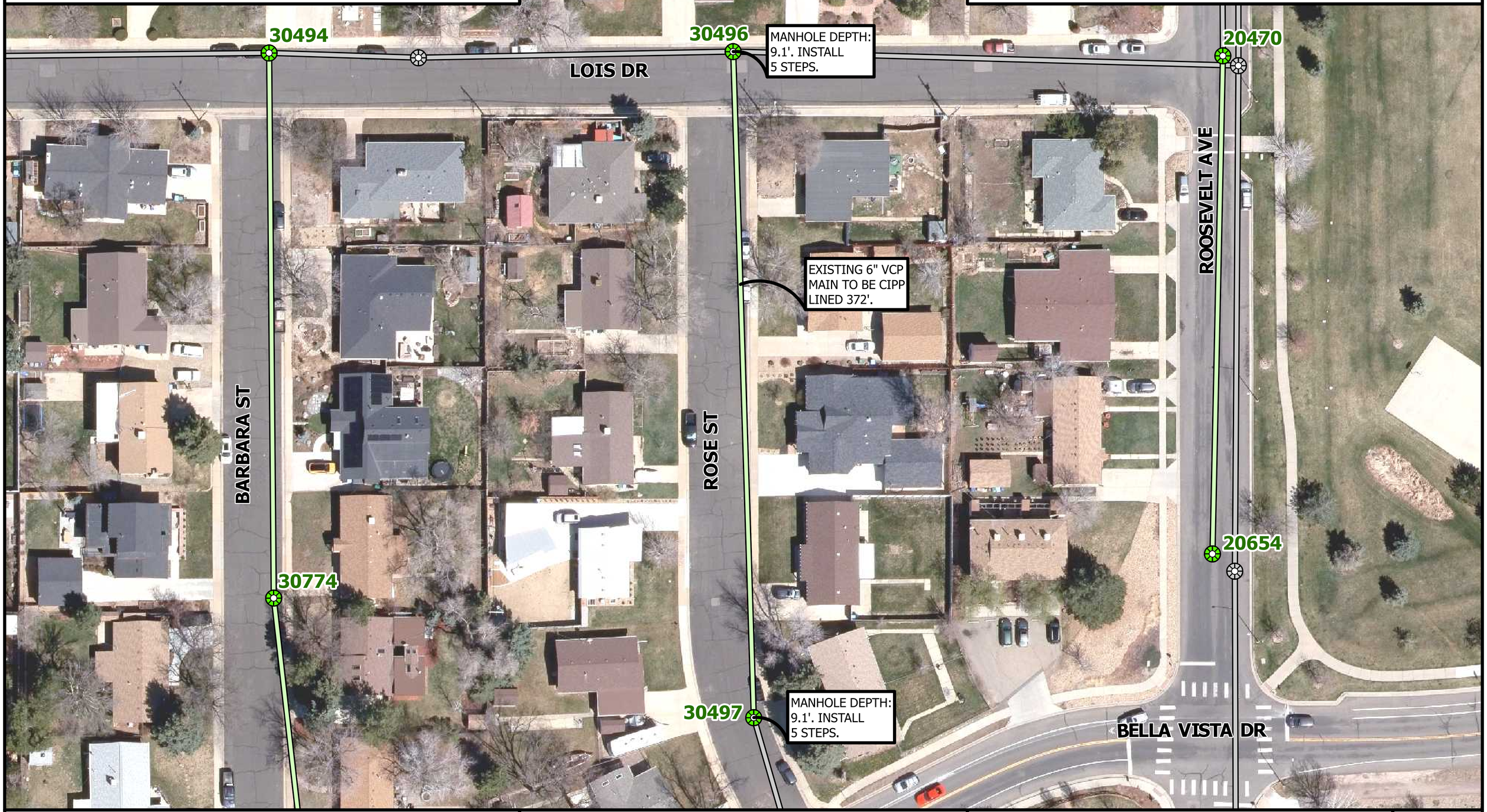
Manhole: Base Bid

Manhole: Other

**6**

**Base Bid: Rose St.**

1 Inch = 25 Feet on 22'x34' Paper




| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 30497 - 30496 | CIPP | 6" | VCP | 372' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

The City of **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Gravity Main: Other

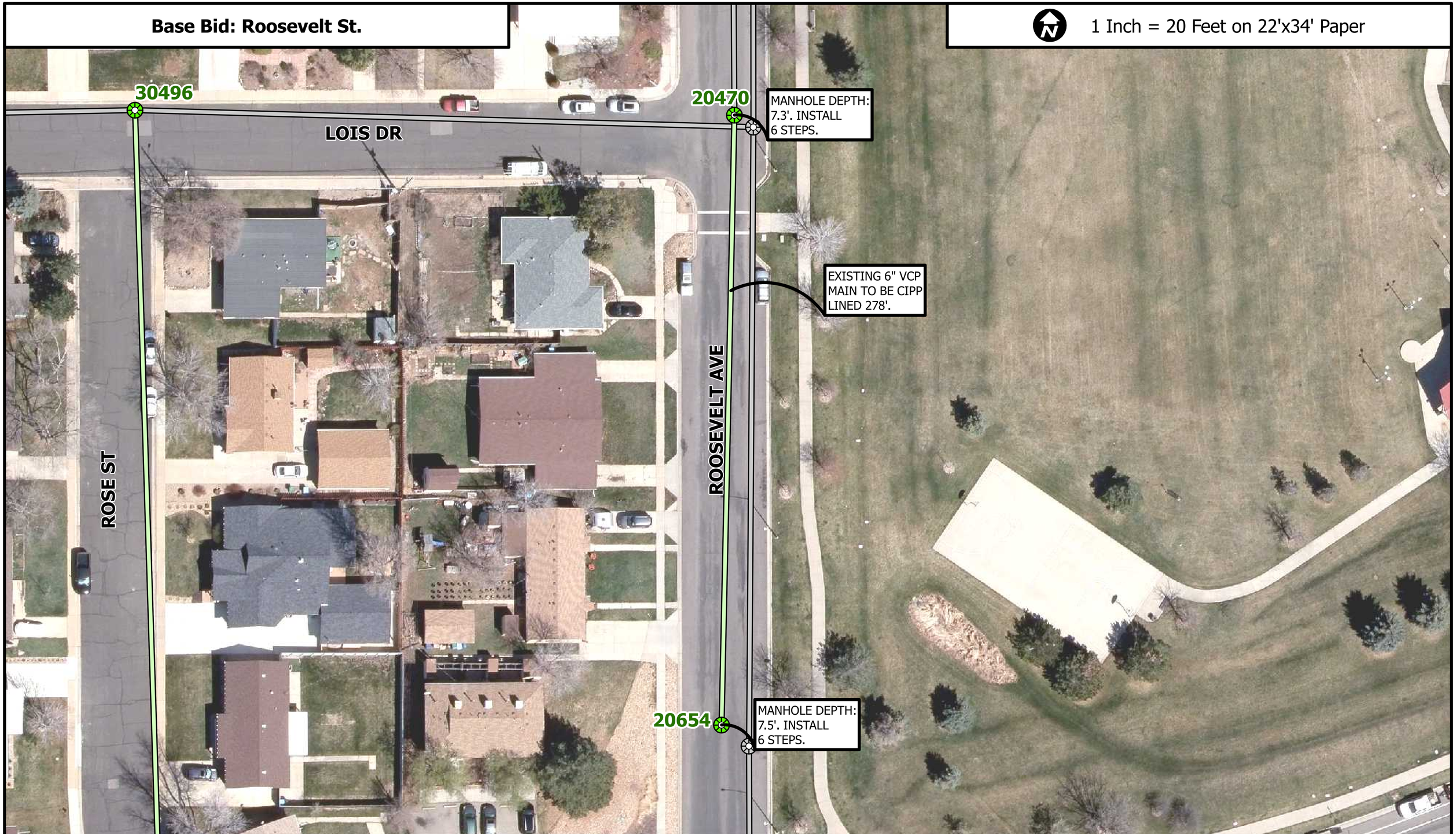
Manhole: Base Bid

Manhole: Other

**7**

**Base Bid: Roosevelt St.**

1 Inch = 20 Feet on 22'x34' Paper




| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 20654 - 20470 | CIPP | 6" | VCP | 278' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

*The City of* **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid
Gravity Main: Other
Manhole: Base Bid
Manhole: Other

**8**

**Base Bid: Harper St.**

1 Inch = 10 Feet on 22'x34' Paper

EXISTING 6" VCP MAIN TO BE CIPP LINED 199'.

20524

20523

HARPER ST

MANHOLE DEPTH: 8.5'. INSTALL 6 STEPS.

MANHOLE DEPTH: 8.6'. INSTALL 3 STEPS.

FRONT ST

| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 20524 - 20523 | CIPP | 6" | VCP | 199' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

The City of **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Gravity Main: Other

Manhole: Base Bid

Manhole: Other

**9**

**Base Bid: Harper St.**

1 Inch = 10 Feet on 22'x34' Paper

20523

MANHOLE DEPTH: 8.6'. INSTALL 3 STEPS.

EXISTING 6" VCP MAIN TO BE CIPP LINED 180'.

HARPER ST

20522

MANHOLE DEPTH: 9.5'. INSTALL 7 STEPS.

CANNON ST

| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 20523 - 20522 | CIPP | 6" | VCP | 180' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

*The City of* **Louisville, Colorado**

2026 Sanitary Sewer CIPP

Gravity Main: Base Bid

Gravity Main: Other

Manhole: Base Bid

Manhole: Other

**10**

**Base Bid: Harper St.**

1 Inch = 15 Feet on 22'x34' Paper

EXISTING 6" VCP MAIN TO BE CIPP LINED 418'.

20522

20521

HARPER ST

MANHOLE DEPTH: 9.5'. INSTALL 7 STEPS.

MANHOLE DEPTH: 8.1'. INSTALL 4 STEPS.

CANNON ST

| GRAVITY MAIN | CIP METHOD | DIAMETER | MATERIAL | LENGTH |
|---|---|---|---|---|
| 20522 - 20521 | CIPP | 6" | VCP | 418' |

**TAP FACTORIES**

Unknown: Contractor Must Locate

The City of **Louisville, Colorado**

2026 Sanitary Sewer CIPP

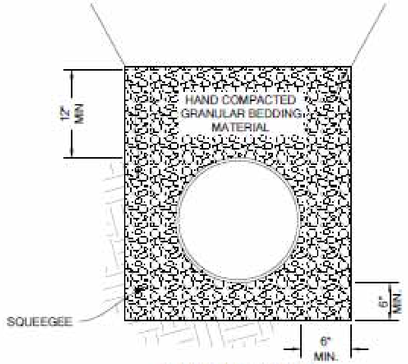
Gravity Main: Base Bid

Gravity Main: Other

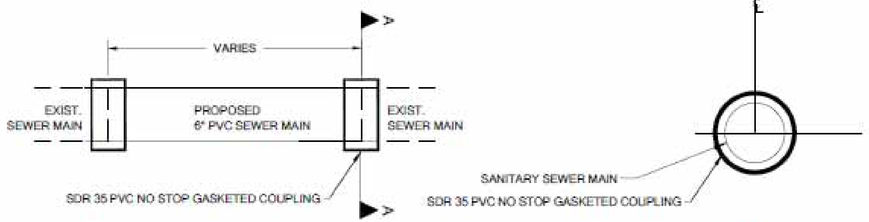
Manhole: Base Bid

Manhole: Other

**11**



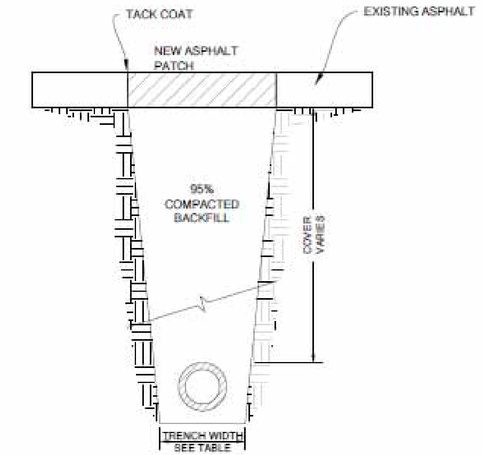

TYPICAL SAN. SEWER
GRANULAR BEDDING SECTION




PLAN

SECTION A-A

SANITARY SEWER POINT REPAIR AND
REPLACEMENT

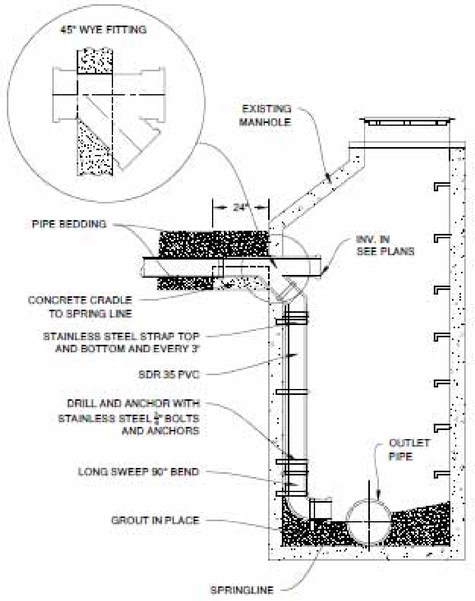



NOTES:

1. TRENCH TO BE SLOPED OR BRACED AND SHORED AS REQUIRED.
2. ASPHALT PATCH IN LIFTS AND COMPACT TO 95% MIN.

| PIPE DIAMETER | 6" | 8" | 12" |
|---|---|---|---|
| MINIMUM WIDTH | 1' 10" | 2' 0" | 2' 4" |
| MAXIMUM WIDTH | 2' 6" | 2' 8" | 3' 0" |

TYPICAL TRENCH PATCH SECTION




INTERIOR DROP MANHOLE

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 5.C.**

**Subject:** Resolution No. 36, Series 2026 — A Resolution Approving a Professional Services Agreement with AECOM Technical Services, Inc.

**Date:** April 21, 2026

**Prepared By:** Taylor McCauley, Civil Engineer III

**Presented By:** Kurt Kowar, Director

**Summary:**
Staff is recommending approval of a professional services agreement with AECOM Technical Services, Inc. for the Internal Decarbonization Project – Electrification/Energy Efficiencies (IDP - E/EE) Phase 1 – Electrical Load Evaluation.

**Background / Prior Discussions:**
IDP - E/EE focuses on implementation of energy efficiencies, electrification of existing equipment, and installation of solar arrays at various City facilities to help meet the City's climate action goals.

This project is the next step in the City's decarbonization goals following 4 years of planning efforts summarized as:

- 2022 – Internal Decarbonization Plan added to City Council Work Plan
- 2023 – City Council adopted the Decarbonization Strategic Roadmap (Roadmap)
- 2024 – City Council adopted municipal climate action goals:
    - 100% carbon-free electricity sources by 2025
    - Reduce greenhouse gas emissions 60% by 2030
    - Carbon neutrality by 2050

The project has been broken into phases. Phase 1 (today's approval) will be an assessment of current electrical infrastructure to determine future electrification needs. This assessment will inform Phase 2 (future approval) for the design of upsized electrical infrastructure, equipment electrification, solar arrays, and energy efficiency implementation. Phase 3 (future approval) will be for construction and installation of the scope designed in Phase 2.

Results and outcomes from Phase 1 will drive potential project scope changes and subsequent budgetary changes.

Phase 1 is anticipated to take 6 months to complete. Phase 2 is expected to begin in early 2027 and an estimated schedule will be determined after Phase 1 is complete. The Phase 3 schedule cannot currently be estimated as it will be informed by Phase 2.

All three phases are part of the near-term scope as defined in the 2023 Roadmap. Mid-term and long-term scope items will be reevaluated during these phases and incorporated into the 6-year Capital Improvement Program during the 2028 budget process.

Approximately $4.8M in grant funding has been awarded to support IDP - E/EE. The original grant scope may require modification depending on the information determined in Phase 1. As a result, the total grant funding amount can be subject to change. Below is a breakdown of awarded grants:

| GRANT SOURCE | GRANT NAME | MATCH |
|---|---|---|
| Department of Local Affairs (DOLA) | Energy/Mineral Impact Assistant Fund (EIAF) Grant | 30% match up to $2,500,000 |
| Colorado Energy Office (CEO) | High Efficiency Electric Heating and Appliances (HEEHA) Grant | 50% match up to $1,592,000 |
| | Public Building Electrification Grant (PBEG) | 50% match up to $677,500 |

Note that this project is part of the larger Citywide Internal Decarbonization Plan aimed at meeting the City's climate action goals, which includes the EV Charger Implementation Project and Emergency Backup Generator Implementation Project. A high level overview of these projects is detailed in the table below:

| | IDP E/EE (Phase 1, 2, and 3) | EV CHARGER IMPLEMENTATION | EMERGENCY BACKUP GENERATOR IMPLEMENTATION |
|---|---|---|---|
| **SCOPE** | Electrical load analysis, solar, electrification, and energy efficiency installation | Fleet and public EVC installation | Electrical load analysis, emergency backup generator installation |
| **FACILITIES** | • Art Center<br>• Austin-Neihoff House<br>• City Hall<br>• City Services Facility<br>• Howard Berry Water Treatment Plant (WTP) - Phase 2 Only<br>• Public Library (Solar)<br>• Police and Municipal Building (Solar) - Phase 2 Only<br>• Recreation and Senior Center (Solar) - Phase 2 Only<br>• Sid Copeland Water Treatment Plant (WTP)<br>• Wastewater Treatment Plant (WWTP) | • Art Center<br>• Austin Neihoff House<br>• City Services Facility<br>• Howard Berry WTP<br>• Public Library<br>• Police and Municipal Building<br>• Recreation and Senior Center<br>• Sid Copeland WTP<br>• WWTP<br><br>**Note: Locations subject to change depending on available funding and electrical feasibility** | Replace Existing Generator:<br>• Police and Municipal Building<br>• Howard Berry Water Treatment Plant<br><br>Install New Generator:<br>• Recreation and Senior Center |

| | | | |
|---|---|---|---|
| **FUNDING** | City Match (Capital Fund, Water Fund)<br>DOLA Grant<br>CEO Grants<br><br>**Note: Phase 1 is City funded only.** | City Match (Capital Fund)<br>CEO Grants<br>Xcel Energy Rebates | City Match (Capital Fund, Water Fund)<br>Federal Emergency Management<br>Agency (FEMA) Grant |

**Development Proposal:**
N/A

**Analysis:**
The City released an RFP requesting pricing, schedules, and a detailed scope of work for the Phase 1 electrical load evaluation and Phase 2, which includes electrification of end-of-life gas-powered equipment, energy efficiency implementation to increase fuel savings and decrease energy costs, and solar array implementation. The detailed scope included in the attached RFP is subject to change depending on outcomes from Phase 1. The facilities to be evaluated during Phase 1 are:

- Art Center
- Austin-Neihoff
- City Hall
- City Services
- Public Library
- Sid Copeland Water Treatment Plant
- Wastewater Treatment Plant

The City received six proposals on September 12, 2026. Five proposals were for the entire IDP - E/EE scope and one was for a solar array implementation only option. The Phase 1 bidders and their original proposal fees are as follows:

| FIRM | PHASE 1 PROPOSAL FEE |
|---|---|
| AECOM | $676,403 |
| Dewberry | $83,936 |
| IMEG | $231,000 |
| Michael Baker | $488,954 |
| PEC | $142,700 |

Proposals were evaluated, and all Phase 1 bidders were invited to interview with Public Works and Sustainability staff, resulting in a shortlist of:

- AECOM
- IMEG

Staff aligned and negotiated scope with the shortlisted bidders. Revised fees and hourly breakdowns are as follows:

| | AECOM | IMEG |
|---|---|---|
| Total Fee | $373,335 | $231,000 |
| Total Hours | 1,852 hours | 982 hours |
| Hourly Rate | $202 / hour | $253 / hour |

A second round of interviews was held for the shortlisted consultants. These interviews included the original selection committee and added facility stakeholders from the Recreation and Senior Center, Library, Police Department, Water and Wastewater Plants.

The selection committee and facility stakeholders evaluated the shortlisted consultants based on their interviews and final adjusted fees and hourly breakdowns. AECOM was selected as the recommended consultant to execute Phase 1 of IDP - E/EE.

**Council Work Plan:**

This project directly supports the Council Work Plan priorities:

- Environmental Sustainability: Reducing municipal greenhouse gas emissions and advancing clean energy goals
- Climate Leadership: Implementing the Internal Decarbonization Plan and achieving long-term carbon neutrality targets

The project has been evaluated through an environmental sustainability lens and supports long-term climate resilience. Equity considerations include improved public facility performance, reduction in greenhouse gas emissions, and long-term cost savings.

**Fiscal Impact:**

Phases 1, 2 and 3 have a combined budget of $5,835,293 (including $4.5M in grant funding) between the following project accounts:

- 301191-620162
- 301191-620163
- 301191-620164
- 301191-620165
- 501498-620166
- 501498-620168
- 502499-620171

The recommended consultant’s fee for Phase 1 is $374,335. This scope will be 100% City funded as Phase 1 does not involve activities eligible under the grants. The fee will

be split proportionately across the decarbonization budgets for each facility that will be evaluated:

- Art Center
- Austin-Neihoff
- City Hall
- City Services
- Public Library
- Sid Copeland Water Treatment Plant
- Wastewater Treatment Plant

**Alternatives:**
Alternative 1: Council does not approve the consultant agreement

- Result: Delay in project implementation and potential risk to grant funding timelines and project costs due to inflation

Alternative 2: Alternate consultant selected

- Result: Restart contract negotiations and project start delays

**Recommendation:**
Staff recommends the approval of the selected consultant, AECOM Technical Services, Inc. for Phase 1 of the Internal Decarbonization Project – Electrification/Energy Efficiencies.

**Attachments:**
1. Resolution No. 36, Series 2026
2. Internal Decarbonization Project - E/EE RFP
3. Consultant Proposals Compiled
4. Signed Contract - AECOM

**RESOLUTION NO. 36**
**SERIES 2026**

**A RESOLUTION APPROVING A PROFESSIONAL SERVICES AGREEMENT WITH AECOM TECHNICAL SERVICES, INC.**

**WHEREAS,** a Professional Services Agreement has been proposed between the City and AECOM Technical Services, Inc. for engineering services related to the City's Internal Decarbonization Project – Electrification/Energy Efficiencies (IDP - E/EE) Phase 1 – Electrical Load Evaluation; and

**WHEREAS,** by this Resolution, the City Council desires to approve such Agreement.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** The City Council hereby approves the Agreement by and between the City and AECOM Technical Services for Consulting Services (the "Agreement") in substantially the same form as the copy of such Agreement accompanying this Resolution.

**Section 2.** The Mayor is hereby authorized to execute the Agreement on behalf of the City, and the Mayor is hereby further authorized to negotiate and approve such revisions to the Agreement as the Mayor determines are necessary or desirable for the protection of the City, so long as the essential terms and conditions of the Agreement are not altered.

PASSED AND ADOPTED this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

City of Louisville

COLORADO • SINCE 1878

**Request for Proposal for:**

# Internal Decarbonization Project

**Electrification/Energy Efficiencies**

**August 2025**

**City of Louisville**
**749 Main Street**
**Louisville CO 80027**

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# INTRODUCTION

The City of Louisville (City) is inviting proposals from highly qualified Consultants for a phased, citywide decarbonization project.

- Phase 1 – Electrical Load Evaluation of City Facilities
- Phase 2 – Electrification/Energy Efficiency (E/EE) Implementation

This project is part of the City's larger Internal Decarbonization Plan (IDP). The high-level goals of this plan are to meet all of Louisville's municipal electrical needs with 100% carbon-free sources, to reduce emissions 60% by 2030, and to become carbon neutral by 2050.

## PROJECT BACKGROUND

The City prepared an engineering mechanical and economic analysis for each of its municipal buildings and associated fleet and equipment. This strategic roadmap, Attachment A, outlines actions needed for the electrification and decarbonization of all City buildings, fleet equipment, and operations by 2030. Fleet electrification, electric vehicle (EV) charging infrastructure, and generator install/replacement are not part of the scope of this RFP, but are separate projects being carried out as part of the IDP. The selected consultant for this RFP must work with the awarded consultants, contractors, and vendors of the following projects through final engineering to ensure the cohesive delivery of the IDP:

- Emergency Backup Generator Implementation
- EV Charger (EVC) Installation

It should be noted that the EVCs to be installed at the City Services facility will be included on the backup generator, so they must be considered in the electrical load evaluation for this location. No other City facilities require EVCs on backup power.

To fund portions of this project, the City applied for and was awarded grants from the Colorado Department of Local Affairs (DOLA) and the Colorado Energy Office (CEO). The CEO grants are the High Efficiency Electric Heating and Appliances (HEEHA) grant and the Public Building Electrification (PBEG) grant. Grant documentation for DOLA, HEEHA, and PBEG can be found in Attachment B, Attachment C, and Attachment D respectively. A summary of the E/EE grant funding sources and match are detailed in Table 1.

**Table 1. E/EE Grant Funding Sources**

| GRANT | FUNDING |
|---|---|
| DOLA | 30% Match up to $2,500,000 |
| CEO - HEEHA | 50% Match up to $1,592,000 |
| CEO - PBEG | 50% Match up to $677,500 |

A summary of the IDP projects scope, location, and funding sources is detailed in Table 2.

**Table 2. IDP Project Breakdown**

| | E/EE (PROJECT HEREIN) | EV CHARGERS | EMERGENCY BACKUP GENERATORS |
|---|---|---|---|
| SCOPE | Electrical load analysis, solar, electrification, and energy efficiency install | Fleet and public EVC install | Electrical load analysis, emergency backup generator install |
| LOCATIONS | • Art Center<br>• Austin-Neihoff House<br>• City Hall<br>• City Services Facility<br>• Howard Berry Water Treatment Plant (WTP)<br>• Public Library (Solar)<br>• Police and Municipal Building (Solar)<br>• Recreation and Senior Center (Solar)<br>• Sid Copeland Water Treatment Plant<br>• Wastewater Treatment Plant (WWTP) | • Art Center<br>• Austin Neihoff House<br>• City Services Facility<br>• Howard Berry WTP<br>• Public Library<br>• Police and Municipal Building<br>• Recreation and Senior Center<br>• Sid Copeland WTP<br>• WWTP | Replace:<br>• Police and Municipal Building<br>• Howard Berry WTP<br><br>Install New:<br>• Recreation and Senior Center |
| FUNDING | DOLA<br>HEEHA (CEO)<br>PBEG (CEO) | Fleet-ZERO (CEO)<br>Charge Ahead CO (CEO)<br>EVSI/EVSE (Xcel) | Federal Emergency Management Agency (FEMA) |

## OBJECTIVE

Consultant services will consist of necessary work to perform the technical analysis, design, construction, and engineering services as identified in the scope of work for all engineering disciplines, including electrical, structural, mechanical, etc., as needed for each site. Services include, but are not limited to, design, permitting, and construction phase services. The project must meet Louisville design criteria and industry standards.

It is assumed that a majority of the electrical load analysis, Phase 1, will be completed in 2025. A majority of Phase 2, E/EE implementation, will be completed in 2026. Construction activities are anticipated to be completed in 2027.

Phase 1 of this project will be completed first as a separate task as this deliverable will inform the implementation of Phase 2.

# SCOPE OF SERVICES

## PHASE 1 – ELECTRICAL LOAD EVALUATION

The consultant shall evaluate the existing electrical systems at the City facilities listed in Table 3 to determine existing capacity and existing maximum load, and the future load needed to meet or exceed the electrical demand for all equipment installations from the City's strategic roadmap in Attachment A. Additionally, based on the electrification portion of the E/EE scope, the consultant will determine if these electrification upgrades require any electrical service improvements to support the new load.

**Tasks**

- Existing Backup System Assessment
    - Assess the performance and working conditions of the existing backup systems.
    - Meet with building maintenance staff for an overview of systems conditions
    - Review existing electrical system points of connection, meters, panels, and subpanels
    - Memorialize each facility's general building, power platform, and electrical distribution layout
    - Document the existing related mechanical, electrical, and plumbing (MEP) layout
    - Document any major deficiencies or remarks
- Power Needs Assessment
    - Review and document the inventory of current equipment and apparatus in-place which relies on electrical power.
    - Interview City staff responsible for management of the respective operations at each facility to determine current power needs.
    - Determine future power demands based on new equipment from E/EE scope or facility expansion.
    - Establish each facility's power needs based on a backup power system to meet the full power demands of the entire operational programs housed at each facility.
    - Develop probable cost at each facility and set up a meeting with the City Project Manager and other essential City staff to discuss probable costs.
    - Sizing recommendations based on existing and future power demands.

**Deliverables**

- Meeting minutes from each meeting and site visit
- Draft report detailing findings from backup system and power needs assessments
    - Include drawings of facilities, buildings, MEP systems, and generator layouts.
- Final report incorporating comments from the City
- Comment response matrix

**Table 3. Electrical Load Evaluation Facilities**

| LOCATION[1] | ADDRESS |
|---|---|
| Art Center | 801 Grant Ave<br>Louisville, CO 80027 |
| Austin-Neihoff House (White House) | 717 Main St<br>Louisville, CO 80027 |
| City Hall[2] | 749 Main St<br>Louisville, CO 80027 |
| City Services Facility[3] | 739 104th St<br>Louisville, CO 80027 |
| Public Library | 951 Spruce St<br>Louisville, CO 80027 |
| Sid Copeland Water Treatment Plant | 1995 Washington Ave<br>Louisville, CO 80027 |
| Wastewater Treatment Plant | 1601 Empire Rd<br>Louisville, CO 80027 |

Notes:

1. The electrical load evaluations for the City's Police and Municipal Building, Recreation and Senior Center, and Howard Berry Water Treatment Plant are included in the scope of the Emergency Backup Generator RFP. Awarded consultant to coordinate with awarded party for generator project.
2. City Hall not included in Phase 2 E/EE scope.
3. EV chargers as part of EVC project to be included on generator power at City Services.

## PHASE 2 – E/EE IMPLEMENTATION

The contractor shall prepare design documents for the implementation of solar arrays, electrification of equipment, and energy efficiency upgrades including building infrastructure upgrades as determined in Phase 1. A detailed breakdown of the E/EE scope is included in Table 4. Note that the scope in this table is preliminary and subject to change as the project progresses.

**Table 4. E/EE Preliminary Scope**

| LOCATION | SOLAR SCOPE | ELECTRIFICATION SCOPE | ENERGY EFFICIENCY SCOPE |
|---|---|---|---|
| ART CENTER | - | - | Envelope Air Sealing<br>Wall Insulation<br>Window Replacement |
| AUSTIN NEIHOFF HOUSE | - | Infrastructure 300A Upgrade<br>2T Residential ASHP<br>HVAC Ductwork and Piping | Window Sealing |
| CITY SERVICES FACILITY | - | - | Advanced Plug Load Reduction<br>Compressed Air Leaks<br>Controls Optimization/Retrocommissioning<br>Envelope Air Sealing |
| HOWARD BERRY WTP | - | - | LED Replacement Lighting<br>Light Controls/Vacancy Sensors |
| PUBLIC LIBRARY | 128kW PV Array | (2) 50-ton Heat Pump RTU<br>Electric DHW<br>Associated Controls, Conduit, Piping, and Electrical | Advanced Plug Load Reduction<br>Controls Optimization/Retrocommissioning<br>Duct Air Sealing/Insulation<br>Envelope Air Sealing<br>Snow Melt System Recommissioning<br>Variable Frequency Drives<br>Light Controls/Vacancy Sensors |
| POLICE AND MUNICIPAL BUILDING | 257kW PV Array | (2) 30-ton Heat Pump RTU<br>Electric Unit Heater<br>HVAC Electrical and Piping<br>Associated Controls, Conduit, Piping, Electrical | Advanced Plug Load Reduction<br>Controls Optimization/Retrocommissioning<br>Duct Air Sealing/Insulation<br>Envelope Air Sealing |
| RECREATION AND SENIOR CENTER | 380kW PV Array | (2) 3-ton Heat Pump RTU<br>(2) 4-ton Heat Pump RTU<br>(2) 5-ton Heat Pump RTU<br>(3) 6-ton Heat Pump RTU<br>7.5-ton Heat Pump RTU<br>10-ton Heat Pump RTU<br>(2) 15-ton Heat Pump RTU<br>(2) ERV<br>Pool NDHU<br>Associated Controls, Conduit, Piping, Electrical | Advanced Plug Load Reduction<br>Controls Optimization/Retrocommissioning<br>Envelope Air Sealing<br>Light Controls/Vacancy Sensors<br>Sauna Scheduling<br>Window Replacement<br>Weather Stripping<br>Window Glazing Upgrades |
| SID COPELAND WTP | - | 3-ton Heat Wheel RTU<br>Associated Controls, Conduit, Piping, Electrical | Envelope Air Sealing<br>Lighting Controls/Vacancy Sensors<br>LED Replacement Lighting |
| WWTP | - | - | Envelope Air Sealing<br>Lighting Controls/Vacancy Sensors |

It should be noted that the E/EE scope at the following locations relies on the electrical load evaluation completed as part of the generator RFP. Design for these sites cannot begin until the evaluations are complete.

- Howard Berry WTP
- Police and Municipal Building
- Recreation and Senior Center

**Tasks**

- Solar Power Design
    - Develop design drawings for installation of solar arrays.
    - Develop specifications for solar arrays and related equipment including typical operating and maintenance procedures, layouts showing outside equipment access to transfer switches, required hardware, devices, and electrical/electronic connections.
    - Fine tune cost estimates including equipment, hardware, building modification, and installation and construction costs.
- E/EE Design
    - Develop design drawings for electrification and energy efficiency upgrades
    - Develop specifications for electrification and energy efficiency upgrades including typical operating and maintenance procedures, required hardware, devices, and electrical/electronic connections
    - Prepare cost estimates for electrification and energy efficiency upgrades including equipment, hardware, building modification, and installation and construction costs.
- Construction
    - Prepare a Construction Bid Package
    - Attend pre-bid meeting
    - Advise the City on the appropriate response to bidder's questions.
    - Log questions and responses to bidders' questions regarding the bid documents
    - Evaluate need for addendum to bid documents in response to bidders' questions and prepare an addendum if required.
    - Attend the pre-construction meeting, job walk, and site visits as required over the course of construction.
    - Respond to requests for information (RFI) and submittals regarding plans and specifications.
- External Party Management
    - Communicate and coordinate with Xcel for electrical service upgrades as needed
    - Grant management for DOLA, HEEHA, and PBEG including monthly status report summaries

**Deliverables**

- Conceptual Plans, Specifications List, Preliminary Cost Estimate in PDF format and Word and Excel format as applicable.
- 60% Construction Drawings, Specifications List, and Cost Estimate, Comment Response Matrix in PDF format and CAD, Word, and Excel format as applicable
- 90% Construction Drawings, Specifications, and Cost Estimate, Comment Response Matrix in PDF format and CAD, Word, and Excel format as applicable
- 100% Construction Drawings, Specifications, and Cost Estimate, Comment Response Matrix in PDF format and CAD, Word, and Excel format as applicable
- DOLA, HEEHA, and PBEG Grant reporting materials including monthly status updates.
- Construction Bid Package
- Construction Bid Addenda, as necessary
- Log of construction bidder inquiries
- Log RFIs and track submittal progress and reviews
- Field design recommendations

## PERMITTING

The Consultant must produce plans and specifications that incorporate State and local building code requirements, air emission standards, and any other applicable code requirements. The Consultant shall fully manage and obtain all required plan checks, reviews and permits. This will include determining required environmental and safety equipment, and any operational procedures which may be required to be implemented.

Agencies and other 3rd parties that the design consultant needs to coordinate with and/or obtain approvals and permits from include City of Louisville Building Department/Building Official and City of Louisville Community Development Dept and Utility Company, City of Louisville Environmental Compliance Department and other applicable stakeholders.

**Tasks**

- Maintain a contacts log of agencies and 3rd parties that are contacted.
- Submit 90% plans for plan check to City of Louisville Building Department and other agencies as required for review and approval. Respond to comments and obtain final approvals.
- Keep a log attributing probable costs of any legally required equipment or operation procedures for each facility.

**Deliverables**

- Provide the City Project Manager with access to the contacts log on an ongoing basis during this task.
- Log of recommended hardware, safety equipment, and procedures to operate the new backup power systems.
- All required permits for construction.
- Once all tasks are completed, transmit logs and records to the City Project Manager which shall include relevant meeting minutes, relevant agency rosters, etc.

## PROJECT MANAGEMENT

The Consultant Project Manager shall fully manage the development and coordination of the power systems needs assessment and subsequent development of engineering design and specification documents, including, but not limited to, ensuring coordination of all conceptual layouts, plans, estimated costs, coordination and ensuring conformance with the City of Louisville Building Department, Utility Companies, and State and local agencies.

Consultant shall supervise, coordinate, monitor and design review for conformance with City Standards, policies, and procedures. The Consultant shall be responsible for project administration and coordination efforts.

**Tasks**

- Maintain continuous communication with the City Project Manager and coordination of project design/layout development, meetings with City and all affected parties identified

by City staff, utility coordination, State and outside agency coordination, cost estimation, quality control, and scheduling.

- Set-up and manage meetings for assessment of each facility's existing backup power generator system, establishing the power needs of each facility, clarifying legal requirements, restrictions, necessary code upgrades, etc.
- Communicate conceptual layouts as needed for the facility's building, utility rooms, general access, MEP layout and proposed changes needed.
- Communicate and substantiate MEP system required changes if any.
- Communicate and coordinate the design drawings and technical specifications for the equipment and backup power facilities.
- Coordinate development of cost estimates so that full backup power is provided.
- Provide a Monthly Project Status Report on the status of each project tasks development phase.
- Prepare an agenda and meeting minutes with an action item matrix to distribute to the City, and other attendees or organizations, before and after each meeting, respectively.
- Ensure project delivery progresses on schedule and within budget.
- Manage project schedules and project reporting for each sub-project.

**Deliverables**

- Detailed project schedule updated on a monthly basis
- Meeting agendas
- Meeting minutes including attendees, and action item matrix
- Monthly project reports

## STANDARD TERMS AND CONDITIONS

When preparing a proposal for submission in response to this RFP, consultants should be aware of the following terms and conditions which have been established by the City of Louisville:

- This request for proposals is not an offer to contract. The provisions in this RFP and any purchasing policies or procedures of the City are solely for the fiscal responsibility of the City, and confer no rights, duties or entitlements to any party submitting proposals. The City of Louisville reserves the right to reject any and all proposals, to consider alternatives, to waive any informalities and irregularities, to abandon the project and this RFP at any time, and to re-solicit proposals.

- Consultant acknowledges that any potential expenditure incurred by selected firm outside the current fiscal year is contingent upon appropriation, budgeting, and availability of specific funds for such proposed expenditure. The project needs to estimate a timeline for each period – six to nine months. The project should have a determined starting date and end within a year.

- The City of Louisville reserves the right to conduct such investigations of and discussions with those who have submitted proposals or other entities, as they deem necessary or

appropriate to assist in the evaluation of any proposal or to secure maximum clarification and completeness of any proposal.

- The successful proposer shall be required to sign a contract with the City in a form provided by and acceptable to the City. The consultant shall be an independent contractor of the City.

- The City of Louisville assumes no responsibility for payment of any expenses incurred by any proponent as part of the RFP process.

- The following criteria will be used to evaluate all proposals:
    - The consultant's interest in the services which are the subject of this RFP, as well as their understanding of the scope of such services and the specific requirements of the City of Louisville.
    - The reputation, experience, and efficiency of the consultant.
    - The ability of the consultant to provide quality services within time and funding constraints.
    - The general organization of the proposal: Special consideration will be given to submittals which are appropriate, address the goals; and provide in a clear and concise format the requested information.
    - Other selection factors within this RFP or the City's purchasing policies, or that City determines are relevant to consideration of the best interests of the City.

- All responses to this RFP become the property of the City upon receipt and regardless of selection or rejection, and will not be returned, except that the City may return late responses submitted after the response deadline. Any trade secrets or confidential commercial or financial information submitted with any response is subject to potential disclosure, and submitting it constitutes proposer's waiver of any recourse against the City in respect to disclosure and proposer's agreement to indemnify the City for any costs, legal fees or expenses incurred in relation to any proceeding concerning disclosure of such information. Any trade secrets or confidential commercial or financial information submitted with a response shall be clearly segregated and marked; provided; however, that neither cost information nor the total RFP will be considered proprietary. The City will notify the vendor of any request for disclosure of information so segregated and marked that may be subject to nondisclosure, and it will be the responsibility of the vendor to object and to pursue any legal actions pursuant to Colorado law. A vendor shall notify the City within 24 hours of notification by City of request for disclosure of the vendor's objections to disclosure and the vendor's intent to pursue lawful protection under Colorado law.

## PROPOSAL REQUIREMENTS

The consultant is encouraged to follow the outline and page distribution, as outlined below. Difficulty in finding desired information may be considered as non-responsive with a corresponding score. Brevity and clarity in explaining your key concepts are encouraged.
It is recommended that the proposal be prepared in a 10 or 12 point font only. If a smaller font is used, it may reflect negatively on your scores. A page for the submittal is a standard 8 ½ x 11 inch sheet and printed on one side only. Bidders are encouraged to submit their proposal on two-sided format, rather than one-sided only.

Proposal should contain the following elements:

- Cover or Introductory Letter (two (2) pages – 8½ x 11 inch paper)
- Project Team (five (5) pages – 8½ x 11 inch paper)
- A Work Plan Section (eight (8) pages – 8½ x 11 inch paper)
- The Commendation Section (five (5) pages – 8½ x 11 inch paper)
- Fee Proposal (two (2) pages – 8½ x 11 inch paper)
- References (five (5) pages – 8½ x 11 inch paper)

This format is recommended, not required. Deviation that impairs clarity of proposal may impact selection score.

## CONTENT

The following is a general description to aid you in preparing the proposal. The discussion of the specific elements should be determined by your interpretation of the specific project. The listed elements are presented to help you determine the discussion content. The selection committee will evaluate your interpretation of the most important factors to address for this project to arrive at its rating.

1. Cover Letter

- Include the project title.
- Include a certification that the information and data submitted is true and complete to the best knowledge of the individual signing the letter.
- Include the name, email address, telephone and fax number of the individual to contact regarding their proposal.
- City of Louisville requires an original signature signed in ink, by a representative of the firm fully authorized to submit proposals and sign contracts on the firm's behalf. The letter shall include a statement to that effect.

2. Project Team

- Identify your Project Principal, Project Manager, Key Staff and any Sub-consultants
- Present a brief discussion of the firm's size, team's qualifications and experience related to this project.
- Include the level of involvement and availability of key staff members with existing and upcoming project workloads.
- Include experience on similar projects as a team.
- Include a list of current and past projects completed within the past five years with the City of Louisville or other Local Agencies. Include a name, telephone number, and email address of the owner's Project Manager for every project listed and describe your firm's role for all the projects listed. Demonstrate your firm's ability to control costs, meet schedules, and provide quality work on the listed projects.
- Include unique knowledge of team members related to this project.
- Include length of time with the firm for each key team member.

3. Work Plan

- Describe a clear understanding of the project goals and briefly describe the actions you plan to take to achieve these goals.
- Include a list of deliverables required on the project.
- Describe issues you see as critical and possible solutions.

4. Commendation Section

Letters commendation or awards for similar previous work completed within the last five years. These letters should be of reasonable length and pertinent to the project.

5. Fee Proposal

- Provide breakdown of costs including all insurances, labor and incidentals required to complete the work. Fee proposal shall be divided into the tasks outlined in the Scope of Services. An hourly rate sheet is requested.

No Proposal may be withdrawn within a period of sixty (60) days after the proposal deadline. The City reserves the right to award the contract by sections, to reject any or all proposals, and to waive any informalities and irregularities therein.

Proposals should be prepared and submitted using the provided instructions which address the needs outlined herein. Proposals will be accepted until **5:00 PM Mountain Time on Friday, September 12th, 2025**. Late proposals will not be accepted. Proposals shall be submitted electronically via email to:

**Taylor McCauley**
**Civil Engineer III**
Office: 303-335-4616
Cell: 408-896-0370
tmccauley@louisvilleco.gov

A mandatory Pre-Proposal meeting will be held on **Monday, August 25th at 10:00 a.m. beginning at Louisville City Hall located at 749 Main Street, Louisville, CO 80027.** Please reserve a timeslot of 4 hours for this meeting.

In addition to the written electronic submission, the City reserves the right to request an interview with some or all of the proposers.

All costs incurred in preparing for, printing, and delivering a submittal, along with any costs associated with travel or time spent in interviews or negotiation with the City are solely the responsibility of the submitter. The City is not liable for any costs incurred prior to issuance of a legally executed contract and/or purchase order.

All submittals become the property of the City, a matter of public record, and will not be returned. Proprietary information included in submittals must be clearly identified and will be protected, if possible. Unit pricing and total cost information will not be considered proprietary.

All material submitted regarding this RFP becomes the property of the City of Louisville and will only be returned to the proposer at the City's option. The City of Louisville has the right to use any or all ideas presented in reply to this RFP. Disqualification of proposer does not eliminate this right.

## TIMELINE

The City reserves the right to modify the proposal submittal and acceptance timeline outlined in Table 5 at any time at its sole discretion.

**Table 5. Proposal Submittal and Acceptance Timeline**

| Milestone | Date |
|---|---|
| Publication of Advertisement | Monday, August 18th, 2025 |
| Pre-Bid Meeting | Monday, August 25th, 2025 @ 10:00 a.m. |
| Inquiry Deadline | Friday, August 29th, 2025 @ 5:00 p.m. |
| Proposal Due Date | Friday, September 12th @ 5:00 p.m. |
| Notice of Award | Estimated October/November 2025 |

## CONTRACT

A sample copy of the Agreement and exhibits is included in Attachment E. In addition, the following documents must be submitted with the proposal:

1. Schedule of Subcontractors/consultants (if any)

Prospective Consultants must meet the following minimum qualifications:

- Minimum Insurance Requirements: The Consultant must provide proof of insurance as required in the attached Professional Services Agreement.

## INQUIRIES

Prospective submitters may make written inquiries by e-mail before the inquiry deadline concerning this Request for Proposal. Inquiries will also be accepted at the pre-proposal meeting. An addendum will be released to all pre-proposal meeting attendees with any required clarifications or revisions to this request or the associated construction documents within two days of the Inquiry Deadline. Prospective proposers are advised to contact the City prior to the inquiry deadline to ensure they are included in any addendum posting.

Inquires may be sent to:

**Taylor McCauley**
**Civil Engineer III**
**Email address**: tmccauley@louisvilleco.gov
**Phone Office**: 303-335-4616
**Phone Cell**: 408-896-0370

## SELECTION CRITERIA

Proposals will only be accepted for Consultants who attended the mandatory pre-proposal conference. Proposals that are considered competitive will be evaluated by an evaluation team. The City reserves the right to select the proposal that is most advantageous to the City, even if it is not the least expensive.

# Attachment A: Strategic Roadmap

# Internal Decarbonization Plan
## Final Report



## CITY OF LOUISVILLE

**LOUISVILLE, COLORADO**
**OCTOBER 4, 2023**

City of Louisville
COLORADO • SINCE 1878

McKinstry
For The Life Of Your Building

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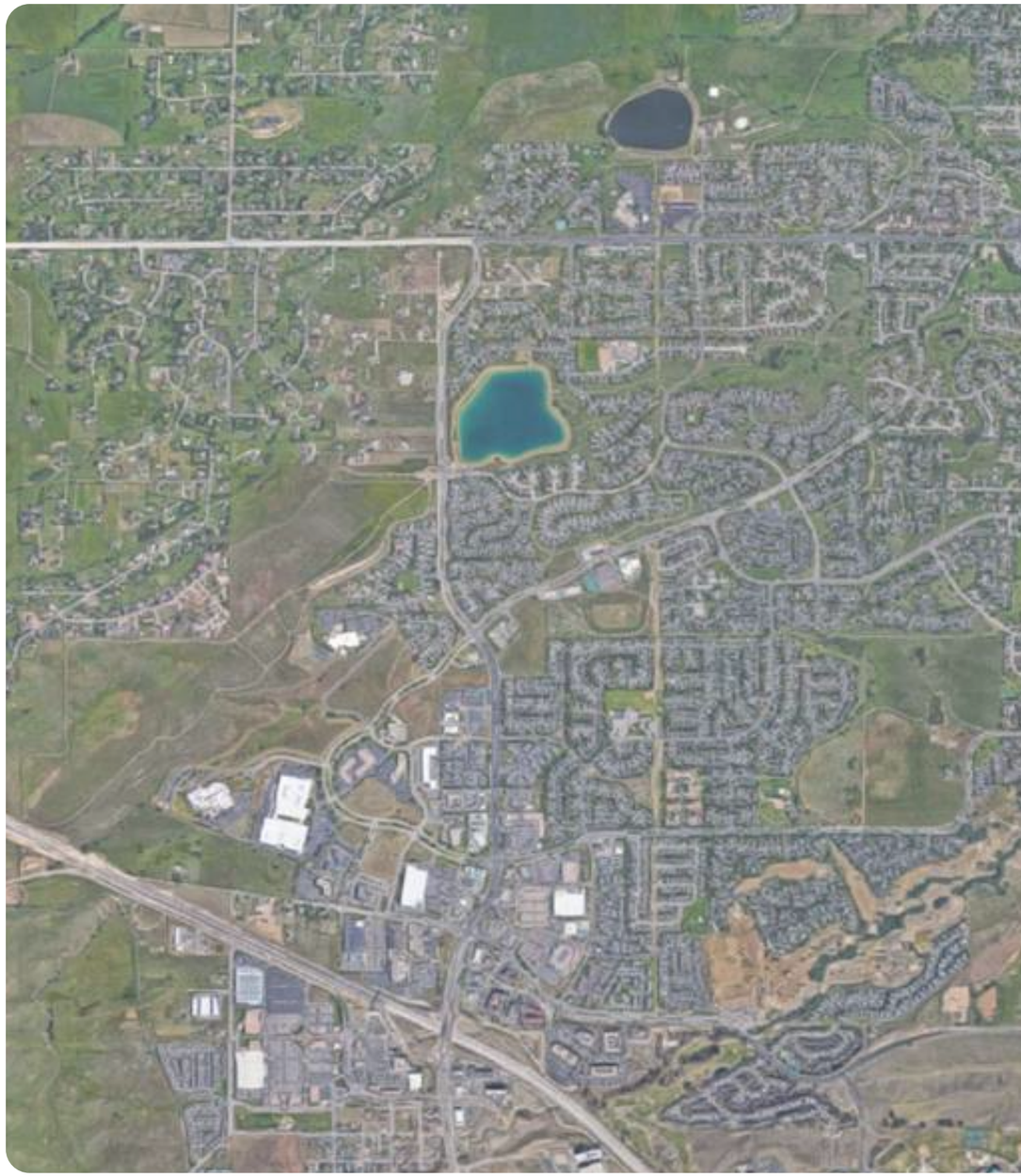
APPENDIX


| Date | Version History |
|---|---|
| 8/8/2023 | Final Report Issued |
| 9/19/2023 | V2 - Revision |
| 10/4/2023 | V3 - Revision |

# **Table of Contents** Abbreviations

| Abbreviation | Definition |
|---|---|
| AHU | Air Handling Unit |
| ASHP | Air Source Heat Pump |
| AWHP | Air to Water Heat Pump |
| CO2 | Carbon Dioxide |
| CO2e | Carbon Dioxide Equivalent |
| CHW | Chilled Water |
| DHW | Domestic Hot Water |
| dT or DeltaT | Temperature Difference |
| ERV | Energy Recover Ventilator |
| EUI | Energy Use Intensity |
| EV | Electric Vehicle |
| FCA | Facility Condition Assessment |
| GC | General Contractor |
| GSHP | Ground Source Heat Pump |
| HHW | Heating Hot Water |
| HPWH | Heat Pump Water Heater |
| HVAC | Heating Ventilation Air Conditioning |
| IRA | Inflation Reduction Act |
| ITC | Investment Tax Credit |

| Abbreviation | Definition |
|---|---|
| kVA | Kilovolt-Ampere |
| kW | Kilowatt |
| kWh | Kilowatt-Hour |
| kWp | Kilowatt Peak |
| LED | Light Emitting Diode |
| MAU | Makeup Air Unit |
| MW | Mega Watt |
| NDHU | Natatorium Dehumidification Unit |
| PV | Photovoltaic |
| RCx | Retro Commissioning |
| ROM | Rough-Order-of-Magnitude |
| RTU | Rooftop Unit |
| SCC | Social Cost of Carbon |
| SHW | Service Hot Water |
| VAV | Variable Air Volume |
| VRF | Variable Refrigerant Flow |
| WWHP | Water to Water Heat Pump |



## Background

In August of 2019, City Council passed Resolution 25, Series 2019, which set clean energy and carbon emission reduction goals for the municipality and larger community, including:

- **Meeting 100% of Louisville's municipal electric needs with 100% carbon-free sources by 2025**
- **Reducing core municipal greenhouse gas emissions annually below the 2016 baseline through 2025.**

The City of Louisville also adopted Resolution 25-2019 (Setting Clean Energy and Carbon Emission Reduction Goals), and a Sustainability Action Plan (adopted in October 6, 2020). On December 30, 2021, the massive Marshall Fire raged in portions of the Front Range, destroying 550 homes and businesses in Louisville alone. Climate change, which much of the fire is attributed to, became very real to the City, which had already been establishing decarbonization targets. The fire accelerated the City's sense of urgency to act to eliminate its own carbon footprint.

In response to this urgency, in summer and fall 2022, the City contracted for the creation of a study, analysis, and strategic roadmap for electrification and decarbonization of 100% of City buildings, fleet, equipment and operations* by 2030 (as part of this study, an alternative completion target was determined). **This document is the outcome of that effort.**

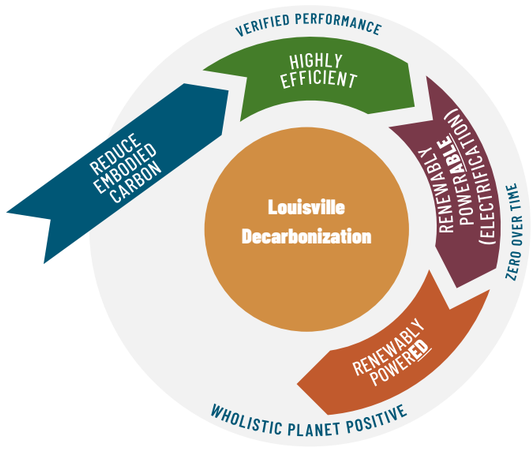
**Environmental, Community, and Financial Stewardship and Leadership**

Louisville is already aggressively pursuing a path to decarbonization of its own operations through efficiency and renewable electricity. This roadmap establishes a pathway to complete decarbonization, including: additional efficiency measures, renewables, and electrification of buildings, vehicles, and miscellaneous equipment. Louisville will be one of the first jurisdictions in the United States to aggressively embark on decarbonized operations. By taking responsibility for its carbon and climate impacts, Louisville is an exemplar to its own residents as well as the broader world. On a more focused level, the specific efforts Louisville is taking provide a "show and tell" opportunity for decarbonization through communications to City residents and beyond.

**Note this roadmap does not include decarbonization for water and wastewater process loads, purchasing, solid waste/recycling/composting, or street lighting. It also does not include equipment that is used via third-party contracts.*

## What is Involved in Decarbonization

What is decarbonization? It is the process of eliminating all activities that generate CO2 and other greenhouse gases (in aggregate, known as CO2e -equivalent). Today, the city's operations (buildings, fleet, miscellaneous equipment) generate 3,400 metric tons of CO2e annually, which is equivalent to the carbon generated by 430 homes in a year.




**Eliminating Louisville's carbon footprint requires focus on four main areas:**

**Embodied Carbon** Retrofitting existing buildings, rather than tearing down and building new zero carbon buildings, reduces the carbon inherent in the construction process.

**Efficiency & Load Reduction** Reducing building energy use, and thereby reducing carbon emissions, reduces the amount of renewable energy needed for total decarbonization.

**Renewably Powerable** Reducing on-site fossil fuel burning via electrification allows the building to be powered by renewable sources.

**Renewably Powered**
Optimizing the mix of available renewable zero-carbon sources leads to decarbonization at the best value for the City of Louisville.

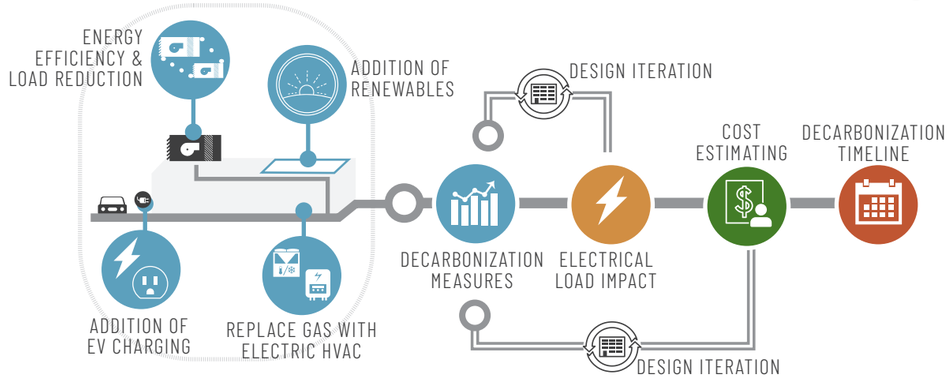
***Note that these activities aren't necessarily implemented sequentially – this plan identifies the most cost-effective and high-value phasing plan for implementation .***

## Core Principles

There are a number of big picture principles and concepts that further illuminate this plan:

- **Be fiscally responsible and avoid replacing equipment before it is worn out.** Allocate the replacement budget to the decarbonized alternative instead, which will typically save 25-50% of the capital cost. Also work within the context of existing equipment and reuse existing systems wherever possible. Completely tearing out and replacing systems has higher embodied carbon, is usually more costly, and always more disruptive.
- **Use proven technologies.** Full zero carbon performance can be achieved via current technologies. Louisville needs results and should not be a guinea pig for untested technologies.
- **Provide the greatest value for least cost.** Full decarbonization, particularly electrification, is expensive. It is critical to pursue the various financial incentives available at the local, state, and federal level. In addition, many decarbonization measures can provide co-benefits, providing value streams that offset costs.
- **Zero carbon power.** Louisville acquires 100% renewable electricity through utility purchase programs, so all electrical uses are assumed to emit zero carbon. However, reducing energy and electrical load has other financial benefits and related co-benefits.

**Louisville Decarbonization Process Diagram**




## Key Findings

**Clear, full, decarbonization pathways exist for all City buildings and its fleet.** In most cases these approaches are based on retrofitting the existing HVAC systems, not gutting the building entirely.

**Efficiency and load reduction strategies often have lower life-cycle costs than current electricity costs.** These are outlined in greater detail in the individual building reports and are recommended for immediate implementation.

**Hybrid building electrification is an excellent near and mid-term approach.** Hybrid mechanical heating systems, which utilize electricity as the primary heating source and natural gas as a backup, achieve the decarbonization "sweet spot" via substantial carbon reductions (i.e. 75%+) while reducing overall costs up to 50%.

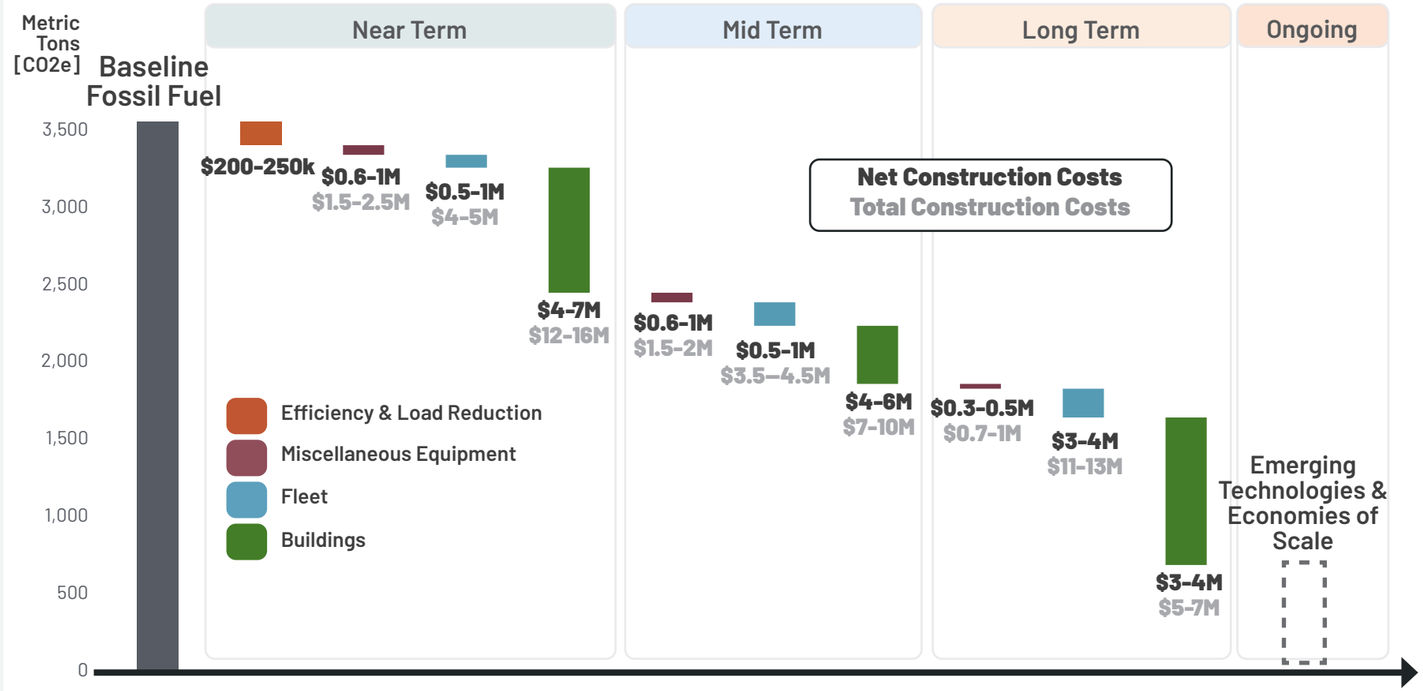
**City-owned renewable electricity generation will reduce utility costs and provide greater benefit to the Louisville community.** Substantial opportunities exist for on-site renewable electricity. A combination of Inflation Reduction Act and Xcel Energy incentives make this a very attractive option for the City and result in on-site renewable electricity being cheaper than utility-provided electricity. In addition, on-site renewables provide additional resiliency and signal the City's commitment to decarbonization

## Key Recommendations

Based on the findings above and detailed findings throughout this report, a formal adoption of the City's decarbonization target is recommended:

- **100% Decarbonization by 2040**
- **Retain 100% Renewable Electricity** (underway)
- **Decarbonization Plan Progress Update Every 5-7 Years**

## Fossil Fuel Emissions

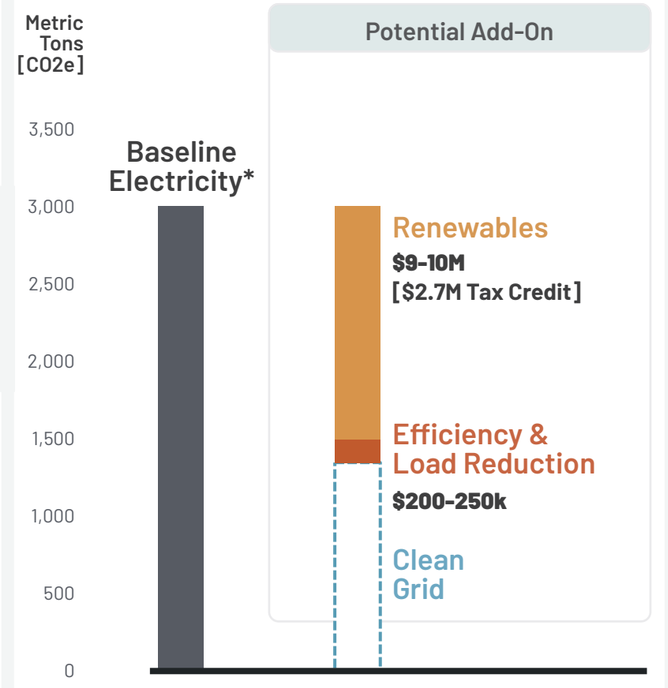



***The Suggested phasing is based on preferred order of operations and remaining equipment life.***

Efficiency & Load Reduction & Renewables reduce electricity that would need to be offset by nearly **50%**.

Emerging technologies & economies of scale will help bring Louisville to **Zero Carbon** emissions.

## Electricity Emissions




### Cost Summary Table

| | |
|---|---|
| **Total Construction Costs** | **~$51M** |
| **Total Like-for-Like Construction Costs** (costs that the City would continue to pay) | **(~$27M)** |
| **Lifecycle Utility Cost Savings** (Utility, Fleet, Solar) | **($7M)** |
| **Total Grants** | **($3M-13M)** |
| **Total Net Cost of Decarbonization** (varies based on final grant awards) | **$4M-14M** |

Notes:

**Total Construction Costs:** Total **turnkey** construction costs needed for budgetary purposes. **Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.**

**Total Like-for-Like Construction Costs:** The **turnkey** "business as usual" costs for replacing existing fossil fuel equipment with similar fossil fuel equipment. Costs were derived from a combination of the City's CIP budget and detailed cost estimating of equipment replacement as the comparison scenario.

**Net Construction Costs:** (Total Construction Costs) - (Total Like-for-Like Construction Costs)

**Total Net Cost of Decarbonization:** (Total Construction Costs) - (Total Like-for-Like Construction Costs) - (Total Project Savings + Total Grants)

**Turnkey Costs:** Include design, engineering, construction management, project management, and commissioning.

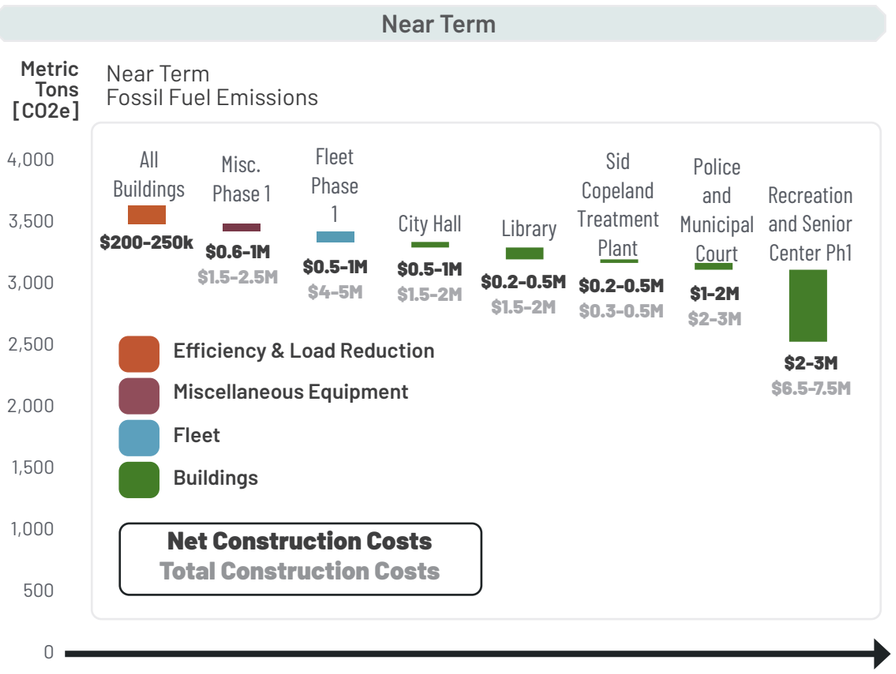
Building costs include costs associated with EV charging (chargers and electrical infrastructure upgrades)

*Assumes 2023 Xcel Grid Mix

| Savings Summary by Measure | Life Cycle Carbon Reduced | Baseline Carbon % Reduction | Baseline Electricity Offset |
|---|---|---|---|
| Building Hybrid Electrification | 34,000 tonnes | 60% | - |
| Fleet Electrification | 6,500 tonnes | 12% | - |
| Miscellaneous Electrification | 2,500 tonnes | 4% | - |
| Efficiency & Load Reduction | 2,400 tonnes | 4% | 5% |
| Renewables | - | - | 45% |
| **Total** | **45,400 tonnes** | **82%** | **50%** |

# Decarbonization Implementation Plan | Near Term Plan

## Near Term Roadmap




## Near Term Projects

**Efficiency & Load Reduction**

All Buildings

**Renewables**

(2.5) MW

(8) Sites

Evaluate Xcel renewable purchase needed for 100% offset after installation.

**Miscellaneous Electrification**

Replace ~40% of remaining gas equipment

**Fleet Electrification**

(62) Vehicles
(36) ICE - Internal Combustion*
(26) EV - Electric Vehicle

**Building Hybrid Electrification & EV Charging**

**City Hall**

(2) Heat Pump RTUs
(17) VAVs
(1) ERV + ASHP
(7) EV Chargers

**Library**

(3) Heat Pump RTUs
(1) Electric DHW
(9) EV Chargers

**Sid Copeland Water Treatment**

(1) Heat Pump RTUs
(7) Electric Unit Heaters
(3) EV Chargers

**Police & Municipal Court**

(3) Heat Pump RTUs
(7) Electric Unit Heaters
(6) EV Chargers

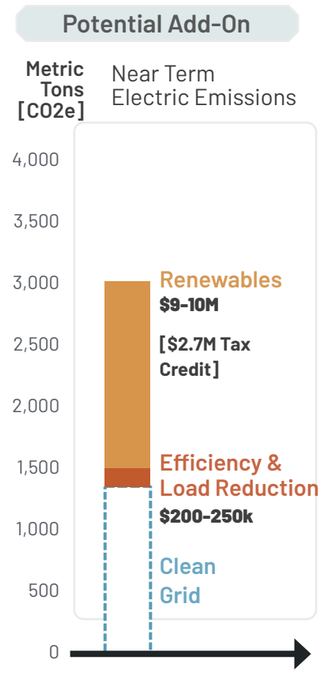
**Recreation & Senior Center Ph1**

(13) Heat Pump RTUs
(1) Pool NDHU
(5) EV Chargers

**Part of the fleet, including police vehicles, do not currently have a viable EV replacement that will be market-ready before the existing vehicles need replacement. Therefore, some ICE's are still necessary for the initial phases of this plan.*

*See the appendices of the building audit reports for detailed descriptions of scope for each decarbonization measure.*

## Add-On




## Near Term Implementation Notes

**Renewable Phasing**

Renewables are recommended to be implemented right away to take advantage of existing federal and state funding options.

**Efficiency & Load Reduction Phasing**

Efficiency & load reduction measures are recommended to be implemented right away to realize any potential downsizing for mechanical and electrical systems as buildings are upgraded in the future.

**Recreation Center Phasing**

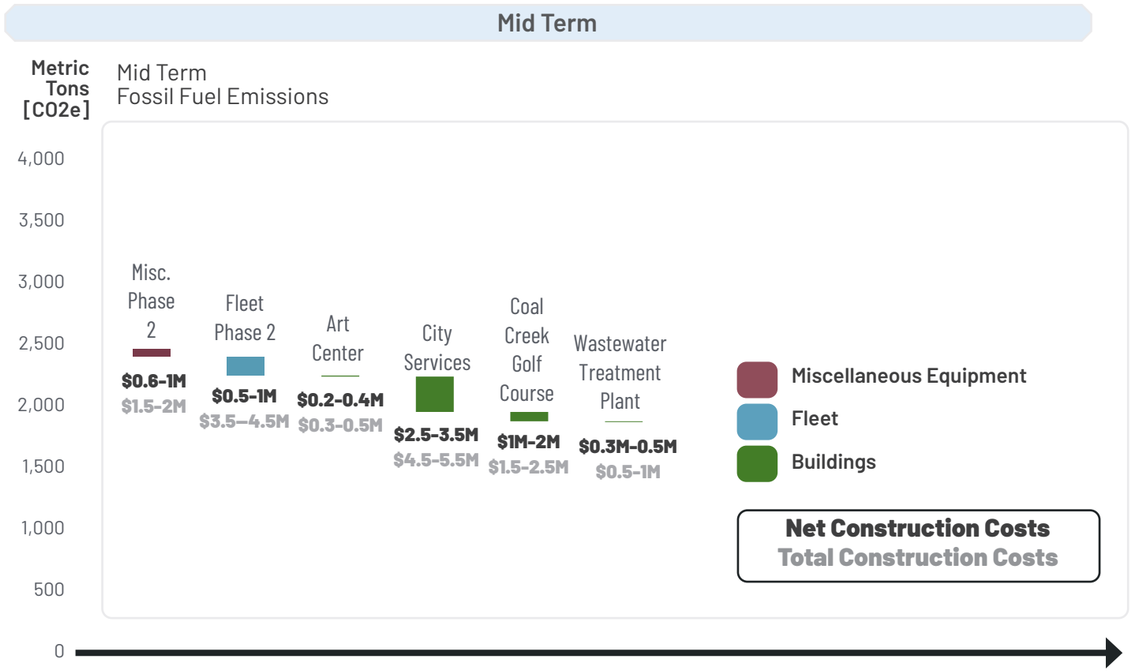
The Recreation & Senior Center measures are split into two phases. The first phase addresses the majority of the RTUs that are near end-of-life and one of the pool natatorium dehumidification units (NDHUs).

## Near Term Summary Table

| Measures | Life Cycle Carbon Reduced [tonnes] | Total Construction Costs* | Total Like-for-Like Construction Costs* | Net Construction Costs* |
|---|---|---|---|---|
| Building Hybrid Electrification | 13,000 | $12-16M | $8.1-9M | $3.9-7M |
| Fleet Electrification | 1,300 | $4-5M | $3.5-4M | $0.5-1M |
| Miscellaneous Electrification | 1,000 | $1.5-2.5M | $0.9-1.5M | $0.6-1M |
| Efficiency & Load Reduction | 2,400 | $0.4-0.5M | - | $0.4-0.5M |
| Renewables | - | $9-10M | - | $9-10M |
| **Total** | **17,700** | **$27-34M** | **$13-15M** | **$14-20M** |

**Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.*

## Mid Term Roadmap




## Mid Term Projects

### Building Hybrid Electrification & EV Charging

**Coal Creek Golf Course**

(1) Heat Pump RTUs
(2) ERV + ASHP
Kitchen Electrification
(4) Electric Unit Heaters
(3) EV Chargers

**Art Center**

(1) ERV + ASHP

**Wastewater Treatment Plant**

(1) ASHP
(1) Electric Unit Heaters
(1) Electric DHW
(2) EV Chargers

**City Services**

(1) ERV + WC VRF System
(1) AHU Coil Retrofit
(1) Hydronic AWHP
(1) Electric Hotsy Washer
(~50) Electric Unit Heaters
(1) Electric DHW
(28) EV Chargers

### Fleet Electrification

(35) Vehicles
(11) ICE - Internal Combustion
(24) EV - Electric Vehicle

### Miscellaneous Electrification

Replace ~40% of remaining gas equipment

*See the appendices of the building audit reports for detailed descriptions of scope for each decarbonization measure.*

## Mid Term Implementation Notes

**City Services**

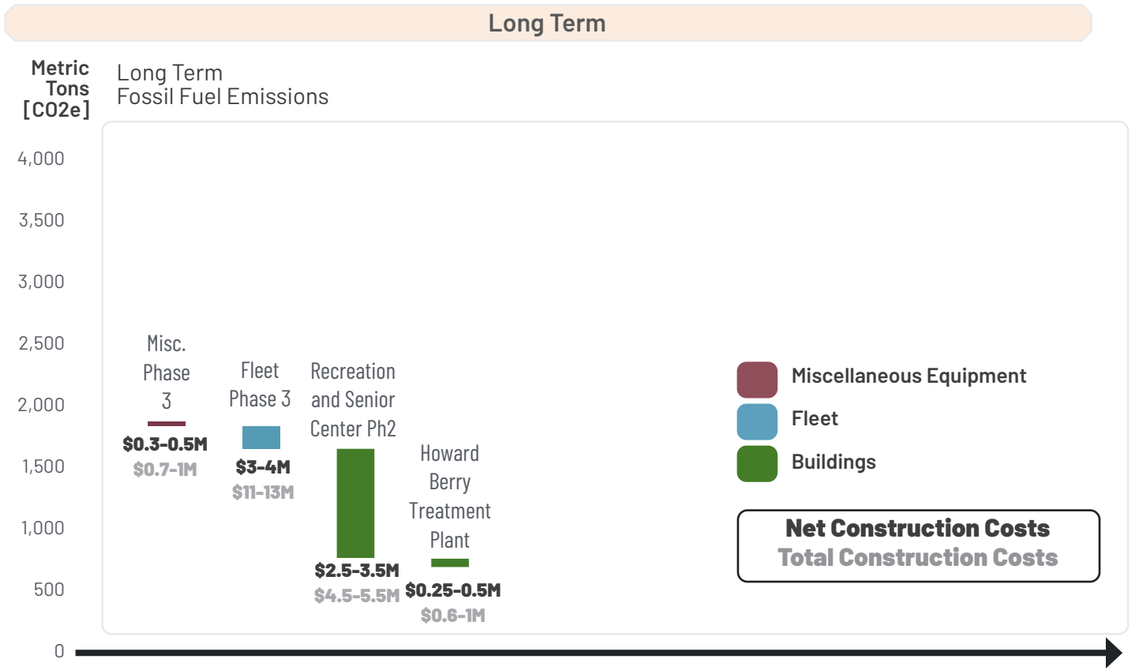
Significant upgrades occur at the City Services building where both major building electrification upgrades and EV Charging upgrades are proposed. EV charging scope at City Services is the largest as it will be the home to the majority of the city's fleet.

## Mid Term Summary Table

| Measures | Life Cycle Carbon Reduced [tonnes] | Total Construction Costs* | Total Like-for-Like Construction Costs* | Net Construction Costs* |
|---|---|---|---|---|
| Building Hybrid Electrification | 6,000 | $6.8-10.1M | $2.8-3.7M | $4-6.4M |
| Fleet Electrification | 2,400 | $3.5-4.5M | $3-3.5M | $0.5-1M |
| Miscellaneous Electrification | 1,000 | $1.5-2M | $0.9-1M | $0.6-1M |
| Efficiency & Load Reduction | - | - | - | - |
| Renewables | - | - | - | - |
| **Total** | **9,400** | **$12-17M** | **$7-8M** | **$5-8M** |

*Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.

## Long Term Roadmap




## Long Term Projects

**Building Hybrid Electrification & EV Charging**

**Howard Berry Treatment Plant**

(1) Electric MAU
(2) Electric Unit Heaters

**Recreation & Senior Center Ph2**

(1) Pool NDHU
(6) Pool Heat Pump Water Heaters
(1) DHW Heat Pump

**Fleet Electrification**

(116) vehicles
(1) ICE - Internal Combustion
(115) EV - Electric Vehicle
(68) 2031-2035
(48) 2036-2040

**Miscellaneous Electrification**

Replace ~20% of remaining gas equipment

*See the appendices of the building audit reports for detailed descriptions of scope for each decarbonization measure.*

## Long Term Implementation Notes

**Recreation & Senior Center**

The remaining Recreation & Senior Center upgrades are completed during this phase. Note that the remaining gas RTUs are not electrified due to existing electrical capacity. Re-evaluate existing electrical capacity at the time of this study to see if additional RTUs can be electrified.

## Long Term Summary Table

| Measures | Life Cycle Carbon Reduced [tonnes] | Total Construction Costs* | Total Like-for-Like Construction Costs* | Net Construction Costs* |
|---|---|---|---|---|
| Building Hybrid Electrification | 15,000 | $5-7M | $2.3-3M | $2.8-4M |
| Fleet Electrification | 3,000 | $11-13M | $8.5-9M | $2.5-4M |
| Miscellaneous Electrification | 500 | $0.7-1M | $0.4-0.5M | $0.3-0.5M |
| Efficiency & Load Reduction | - | - | - | - |
| Renewables | - | - | - | - |
| **Total** | **18,500** | **$17-21M** | **$11-13M** | **$6-9M** |

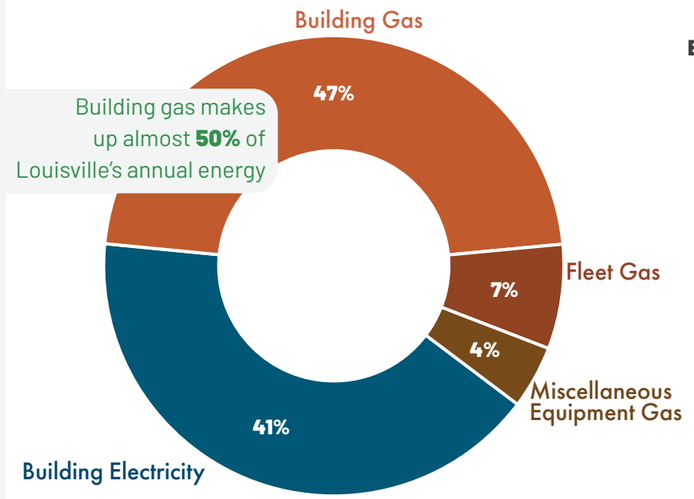
*Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.

## Energy vs Carbon

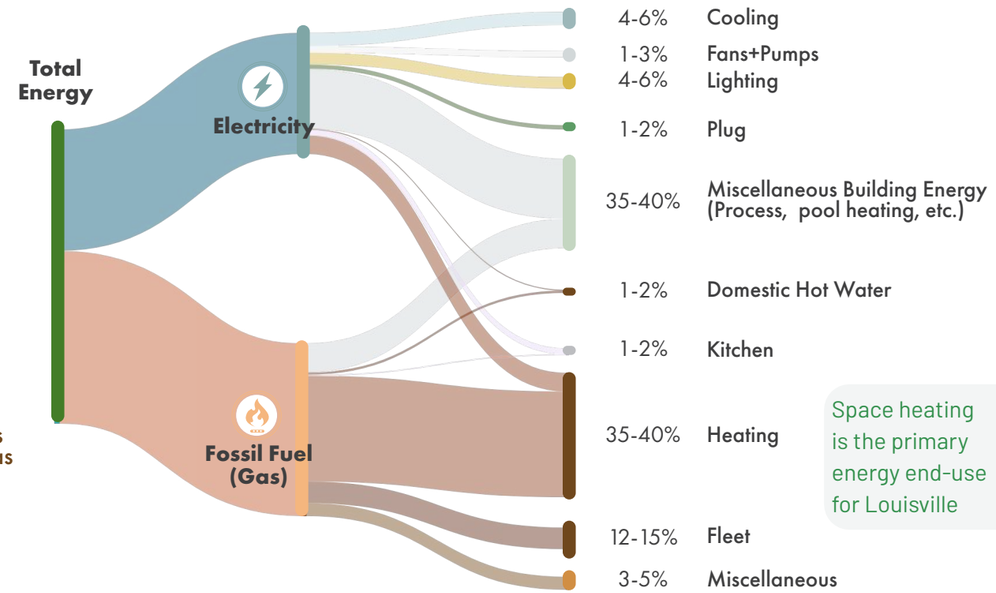
Energy use and carbon emissions are sometimes used interchangeably, but they are quite different. Carbon emissions come from burning fossil fuels – those burnt fossil fuels provide energy to buildings. Energy can also be provided to buildings via zero-carbon sources, such as renewables.

The City of Louisville participates in programs to offset their existing electrical consumption with renewable sources. **Therefore, for the purposes of this study the total carbon emissions at Louisville will be solely driven by on-site fossil fuel combustion and emissions associated with electric consumption will be zero.**

## Energy End-Use

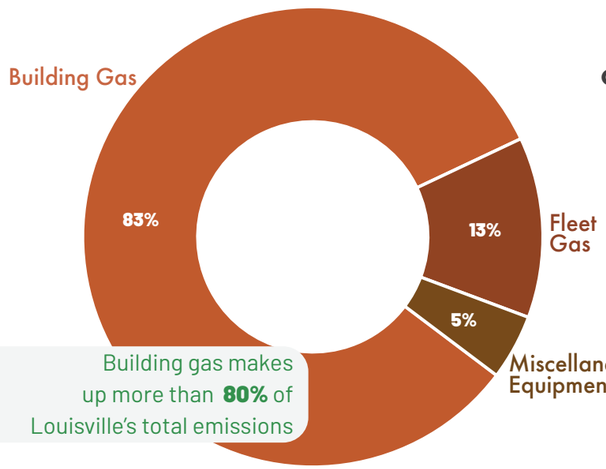



Building gas makes up almost **50%** of Louisville's annual energy

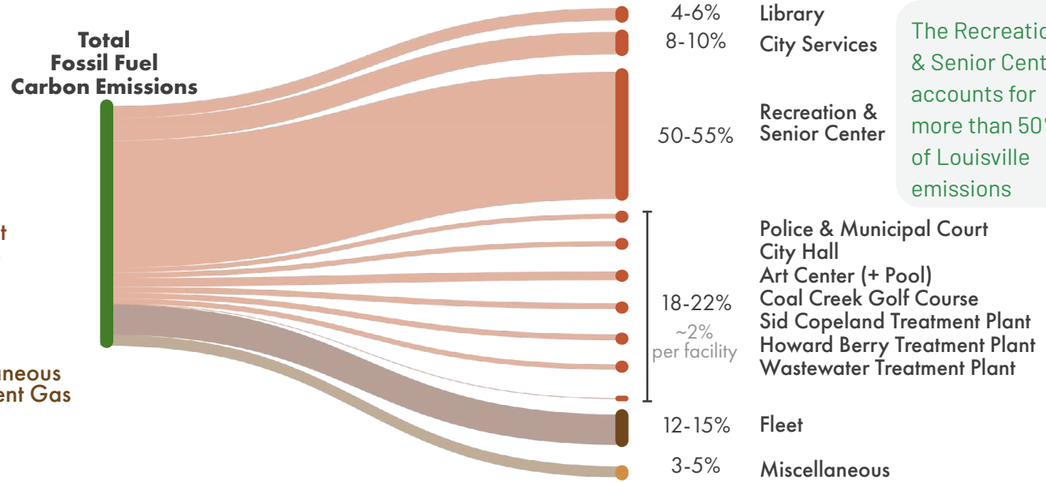



Space heating is the primary energy end-use for Louisville

## Fossil Fuel Carbon Emission End-Use




Building gas makes up more than **80%** of Louisville's total emissions




The Recreation & Senior Center accounts for more than 50% of Louisville emissions

## Cost of Zero Carbon Electricity

The City's decarbonization approach is predicated on 100% renewable electricity. Given this, the question becomes, **what is the best source of renewable power for the Louisville's operations?**

The table to the right summarizes the cost of zero carbon electricity. **Based on this assessment, acquisition of renewable electricity over time is recommended to follow the following prioritization:**

- **Decrease electrical demand through efficiency & load reduction.**
- **On-site renewables**
- **Renewable percentage inherent in standard Xcel electricity over time**
- **Xcel windsource**

Based on this hierarchy, and given the City's current use of Xcel standard and Windsource electricity, this plan identifies the best opportunities for efficiency and on-site renewables for the City.



| Type | $/kWh | Pros | Cons |
|---|---|---|---|
| **Efficiency & Load Reduction** | **0.04 $ / kWh** | • Reduces islanded electricity demand during power outages<br>• Sometimes includes co-benefits<br>• Avoids line loss of utility scale solar<br>• Avoids solar/wind impacts of utility scale renewables | • Some facility disruption; contracting time/process |
| **On-site Renewables** | **0.065 $ / kWh** (assumes 25.5% IRA direct payment) | • Demonstrate decarbonization to local Louisville community and encourage others to do same<br>• Avoid solar sprawl at scale - avoiding impacts to rural areas<br>• Enable immediate accrual of energy benefits<br>• 25% of cost incentive available through Inflation Reduction Act<br>• Production incentives available from Xcel with REC sale<br>• Avoid electrical energy loss due to transmitting power over long distances<br>• When on-site renewables are a small percentage of the total usage of facility – such as Louisville's on-site opportunities - most solar electricity would be self used and thus not negatively impact grid<br>• Enable future resiliency through addition of batteries and storage | • Requires maintenance (cost included in cost per kwh to left)<br>• Best installed in conjunction with roof replacement, limiting time window<br>• Can only provide portion of needed renewable electricity |
| **Standard Xcel Electricity** | **0.065-0.070 $ / kWh** | • Provides some renewable electricity inherent in mix, increasing over time<br>• More expensive than on-site solar per kwh<br>• Ease of implementation, will occur on its own over time –no need for contracting for on-site renewable installation | • Possibility of Xcel not meeting promised renewable target/uncertainty/longer uptake<br>• Solar and wind sprawl/impacts in rural/farming areas<br>• Line loss/less efficient<br>• Doesn't support resiliency |
| **Xcel Windsource** | **0.07-0.08 $ / kWh** (base rate + 0.015 $/kWh) | • Enables immediate provision of 100% renewable electricity; not subject to allocation<br>• Ease of implementation –no need for contracting for on-site renewable installation<br>• Contractually guaranteed renewable source | • Most expensive source of renewables<br>• Avian and aesthetic impacts of wind turbines<br>• Line loss/less efficient<br>• Doesn't support islandability |
| Xcel Renewable Direct* | **0.065-0.070 $ / kWh** | • Approximate cost parity with standard grid electricity<br>• If can be obtained, enables immediate acquisition of renewable power | • Not currently available<br>• Limited availability, subject to new renewable projects<br>• Solar and wind sprawl/impacts in rural/farming areas<br>• Line loss/less efficient<br>• Doesn't support resiliency |

**Renewable Direct is only available occasionally based on subscription. There is a current waiting list to join.*

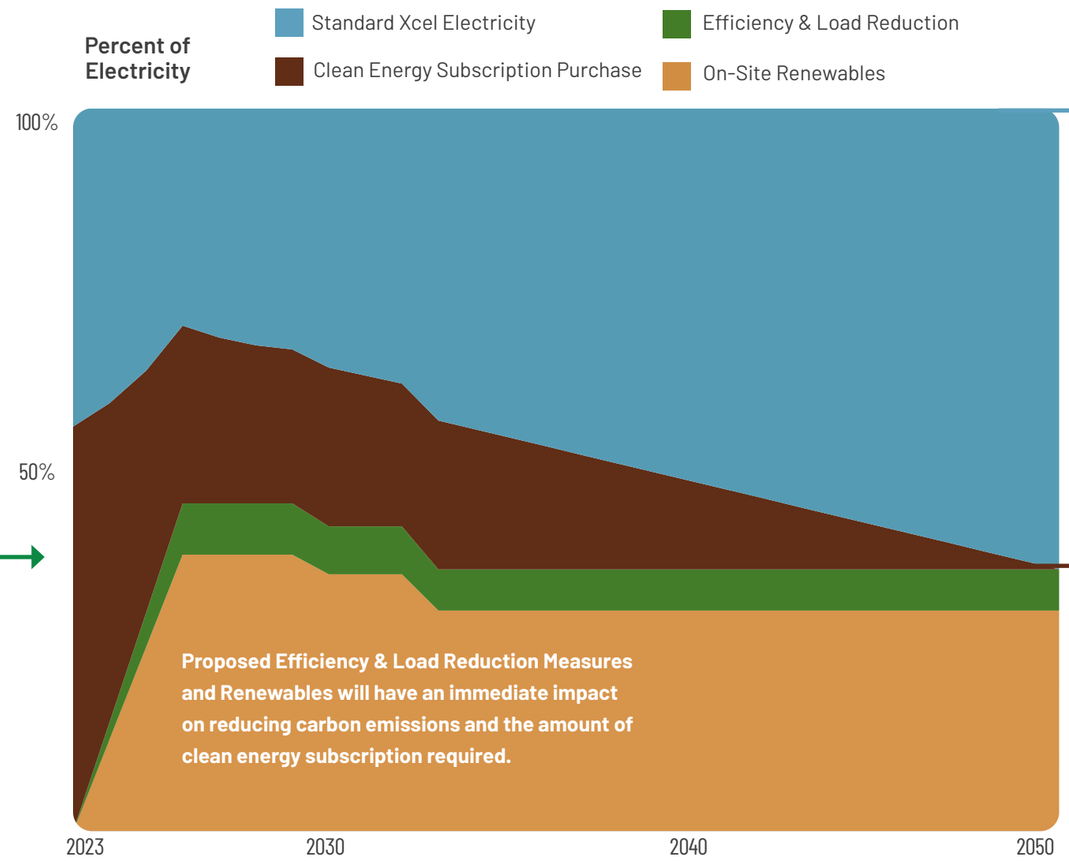
## Zero Carbon Electricity Strategy

The City of Louisville will utilize a toolbox of strategies to successfully electrify and decarbonize emissions associated with on-site fossil fuel combustion. With an electric utility grid that still has fossil fuel emissions embedded, load reduction and renewables will be key in a quick carbon emissions decrease. Additionally, Xcel's commitment to achieve a 100% carbon free grid by 2050 will play a large role in the decarbonization effects of electrification over time. Combining all these strategies will eliminate the need for Clean Energy Subscriptions over time. The following strategies support the assumption that emissions associated with electric consumption will be zero.

Louisville currently **acquires more than 50% of its clean electricity through a clean energy subscription.**

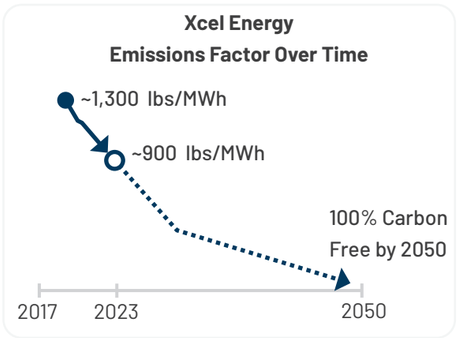
The rest of the city's electricity is from clean grid sources.

### Zero Carbon Electricity Over Time [2023-2050]




#### Decreasing Carbon Emissions Factors

Available carbon-free clean energy from the grid will increase as the fossil fuel carbon emissions factor decreases, eventually to zero in 2050.

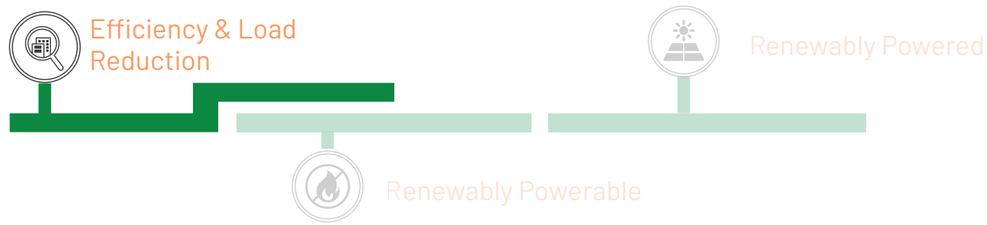



#### Reducing Clean Energy Subscriptions

With a reduced load, renewables and 100% carbon free grid, the need for Clean Energy Subscriptions will be eliminated.

## Efficiency & Load Reduction

The recent shift towards decarbonization still operates on the core foundation of reducing building's overall energy use. Measures can have two functions: reducing annual energy/carbon consumption and reducing peak building demand load. These measures are often incentivized by Xcel and may have shorter paybacks. Recommended measures throughout the city are summarized in the table below. See the appendices of the building audit reports for detailed descriptions of scope for each measure.




| Load | Carbon | Measure | Art Center | City Hall | City Services | Coal Creek Golf Course | Library | Sid Copeland Treatment Plant | Police and Municipal Court | Recreation and Senior Center | Howard Berry Treatment Plant | Wastewater Treatment Plant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ■ | ■ | **GLAZING UPGRADES**<br>Upgrade glazing units where failing/single-pane glazing still exists. | ● | ● | | | | | | ● | | |
| □ | ■ | **HVAC OCCUPANCY SENSORS**<br>Provide occupancy sensors for HVAC setback. | | | | | | | ● | | | |
| ■ | ■ | **POOL COVER**<br>Provide pool cover for reduced evaporation losses. | | | | | | | | ● | | |
| □ | ■ | **PUMP VFDS**<br>Provide variable speed for pumping systems. | | | | | ● | | | | | |
| □ | ■ | **CONTROLS OPTIMIZATION / RETRO-COMMISSIONING (RCX)**<br>Optimization of existing controls sequence and operation. | ● | ● | ● | | ● | | ● | ● | | |
| □ | ■ | **SCHEDULE SAUNA**<br>Provide temperature scheduling of Sauna during unoccupied hours. | | | | | | | | ● | | |
| ■ | ■ | **DUCT AIR SEALING/INSULATION**<br>Provide duct air sealing for leaky duct systems. | | | | | ● | | | | | |
| ■ | ■ | **ENVELOPE AIR SEALING**<br>Provide envelope air sealing for leaky buildings. | ● | ● | ● | ● | ● | ● | ● | ● | | ● |
| □ | ■ | **LIGHTING CONTROLS/VACANCY SENSORS**<br>Upgrade lighting controls for vacancy sensors. | | ● | | ● | ● | ● | ● | ● | ● | ● |
| □ | ■ | **ADVANCED PLUG LOAD REDUCTION**<br>Plug load reduction systems. | | ● | ● | ● | ● | | ● | ● | | |
| ■ | ■ | **LED LIGHTING**<br>Upgrade lighting to LED. | | ● | | | | ● | | | ● | |
| □ | ■ | **COMPRESSED AIR LEAKS**<br>Provide commissioning to compressed air system to resolve any leaks. | | | ● | ● | | | | | | |
| ■ | ■ | **ENVELOPE INSULATION**<br>Provide envelope insulation upgrades where no-insulation or poor insulation exists. | | | | ● | | | | | | |

## Why Are We Electrifying?

A powerful tool towards decarbonization is "electrification", which has become a big movement not just in the construction industry, but also in most industries of our society. There are a few driving principles behind this movement:

Electricity is currently produced using a range of sources:
- Carbon emitting fossil fuels – natural gas, coal, oil
- Zero-carbon sources – hydro-power, nuclear, wind, solar, etc.

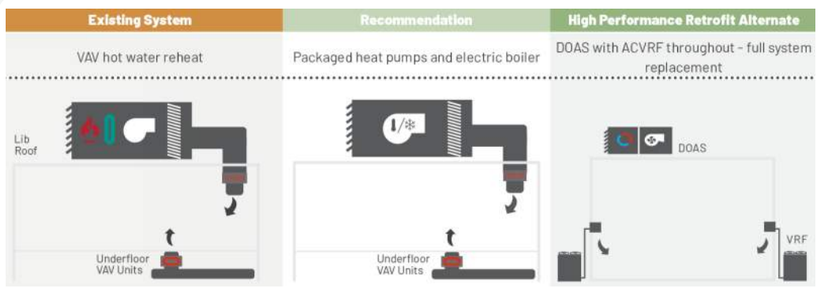
Natural gas inherently emits carbon when burned, meaning gas-based heating sources will always emit carbon

The power grid is shifting away from fossil fuels and towards zero-carbon sources, due to a variety of factors including economic, regulatory, and societal

Electrifying our heating systems means their carbon emissions will drop as the grid continues to add more renewables, eventually dropping to zero

The first step for electrifying space and water heating system was to evaluate various system options. Options were evaluated at each building site, where considerations like energy and carbon savings, incremental cost impact, complexity of design, and additional other factors were all considered when making a recommendation. **Please see the individual building audit reports for additional detail.**

### HVAC System Matrix Example




## Full Electrification vs Hybrid Electrification: Space & Water Heating Systems

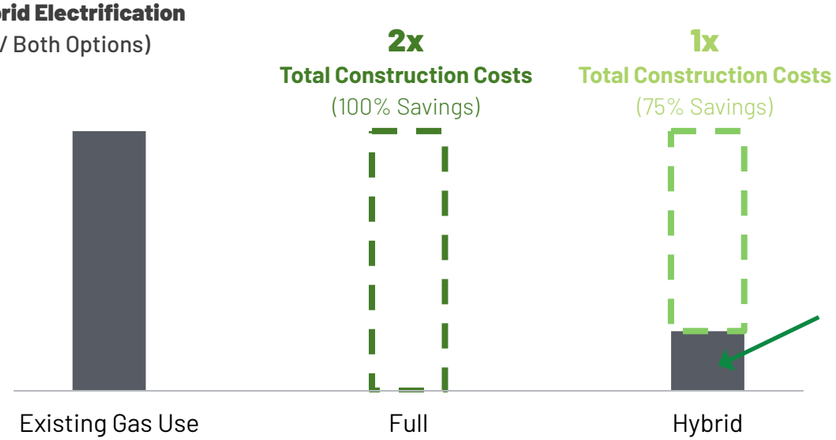
Heating is the single largest source of carbon emissions by Louisville, through burning of natural gas in boilers and furnaces. Heat pumps offer an incredible opportunity to both electrify and save energy, since they run on electricity and are also ~2-3x more efficient than natural gas based heating.

However, while heat pump-based heating is an excellent tool for building electrification, today's technology still requires supplemental heating for the coldest days. In general, it can be expensive to electrify the "last 10%" peak, because the system is sized for the coldest day of the year, which rarely occurs.

Hybrid heat pump/natural gas peaking systems are a useful tool for sensible and cost-effective decarbonization, as they strike a balance between carbon reduction, construction costs, and utility demand costs. For fully electrified heating systems, that supplemental heating would be provided by electric resistance heating, which is capable of low temperature operation. However, in most facilities this approach results in two negative consequences: a costly electrical service upgrade is required, and operating expenses increase due to high peak electrical draw and resulting Xcel demand charges. In many cases, using gas as the peaking fuel source on the coldest day will mitigate need for an electrical upgrade while still achieving significant carbon reductions. The decarbonization "sweet spot" is a heat pump system that meets most of the annual heating demand, supplemented by a gas system to meet the rare coldest days. This results in substantial carbon reductions (i.e. 75%+) while reducing overall costs up to 50%. Retaining the gas supplemental heating until the next replacement cycle in the late 2030s enables:

1. Potential technology evolution, such as 100% heat pump heating even on coldest days, renewable fuel cells, and/or strategic and accessible use of bio-gas for peaking boilers.
2. Developments in demand shifting technology (e.g. batteries), resulting in lower demand charges.
3. Changes in relative cost of natural gas vs. electricity, increasingly favoring electricity.
4. Full utilization of useful life of natural gas equipment.

**Full vs Hybrid Electrification**
(At Sites w/ Both Options)




Hybrid solutions do not make sense at some sites due to existing electrical capacity and expected future loads. In these cases, **full electrification** is recommended.

The last 25% of gas usage is **~4x more expensive** to electrify than the first 75%.

## Additional Considerations

**Heating Capacity Oversizing**

For the most part,  electrified heating system capacities were sized similarly to the existing fossil fuel equipment. As these projects enter the detailed design phase, there is opportunity to minimize electrical impact by identifying equipment that can be downsized. This is particularly impactful in spaces that have freeze protection heating.

**Structural Impacts**

Some of the proposed measures have an impact on the existing building structural system. These impacts have been included in the construction costs and are detailed in the building audit reports.

**Staged Mechanical Electrification**

In general, Building Electrical Code requires electrical service to be sized based on nameplate power data for mechanical equipment. Thus, if all mechanical equipment is electrified at the same time, the electrical service upgrade would need to match the total nameplate power. This can lead to oversized electrical systems as mechanical systems are often oversized. For example, the Recreation & Senior Center existing nameplate load is calculated at 2,200 Amps, but utility data shows the actual demand peaking at 550 Amps.

As an alternate approach, Electrical Code also allows for the use of metering data to determine the actual power draw of the equipment; the actual data is then used to determine whether an electrical service upgrade is needed. A staged approach would install a couple electrified units and trend the new electrical load; if the power draw of the mechanical equipment is proven to be less than the nameplate, then additional load could be added to the existing service. This process would be repeated until either the service needs to be upgraded or all units are electrified.

## Building Electrical System Considerations

**Battery System**

Use of battery systems is growing across the building industry, both for resiliency and demand reduction purposes. However, batteries are not suited for every situation. A 250 kW battery system was evaluated for the Recreation and Senior Center, mostly for demand reduction and load shifting purposes. However, the high first cost was unable to offset the annual demand cost reductions, and resulted in a payback longer than the measure life. While this option is currently not included in this plan,  it could become a viable option in the future as the technology improves and becomes more cost-effective.

**Backup Power**

Throughout this study, the impacts to existing backup power systems were evaluated where buildings already had generators. In general, it is recommended to continue using fossil fuel-based generators (e.g. propane) instead of using batteries. Since these units very rarely run, the added cost of batteries is not justifiable. Additional information is available for each building in the building audit reports.

## Net Cost of Electrification

The total cost is the total amount that will need to be allocated for budgetary purposes. The net cost represents the total cost minus the replacement cost that would've been spent to replace the existing units with like-for-like fossil fuel units. Note that there is a significant net cost premium for full electrification due to electrical upgrades.

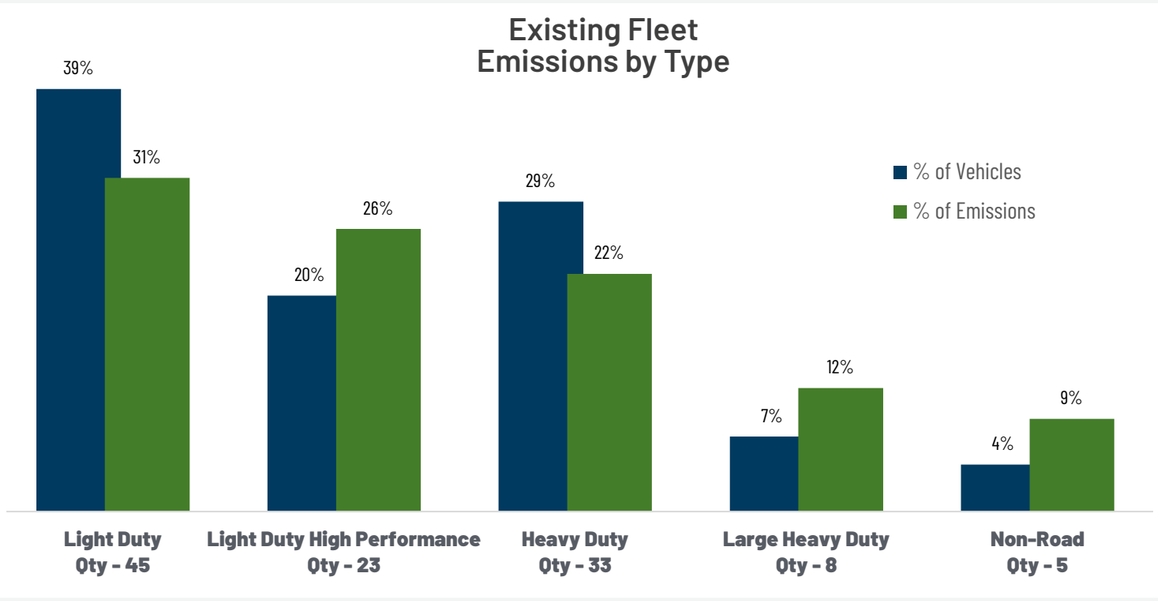


## Existing Fleet

The City of Louisville provided data from 2022 for their fleet vehicles. Vehicles utilized by the city were divided into five categories.

1. **Light duty vehicles –** Light duty vehicles make up the majority of the vehicles the city owns. They typically encompass any normal passenger vehicle such as sedans, SUVs, light pickup trucks, and minivans. This vehicle is mostly used for transporting people and small amounts of cargo.
2. **Light duty high performance vehicles** – This category incorporates mainly police vehicles. These vehicles are similar to the light duty vehicles but have been altered for higher performance due to specific police requirements.
3. **Heavy duty vehicles –** Heavy duty vehicles mostly incorporate large pickup trucks. These vehicles are used for hauling and towing heavy loads.
4. **Large heavy duty vehicles* –** This category is for the large snow plows and street sweepers. These vehicles typically are only used seasonally and have a varying work load that is dependent on the weather.
5. **Non-road vehicles* –** These vehicles are typically construction type vehicles. There usage is usually measured in hours of operation instead of miles.

**There are not currently market-ready EV alternatives for these categories.*




*Please refer to the appendix for additional details on fleet electrification*

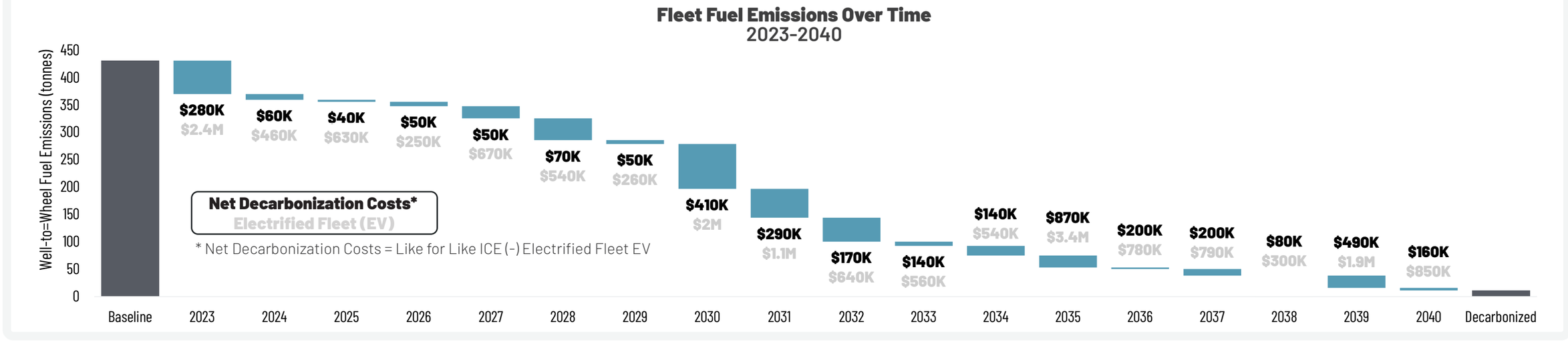
| Department | Vehicle Category 1 | 2 | 3 | 4 | 5 | Total |
|---|---|---|---|---|---|---|
| | Light Duty | Light Duty High Performance | Heavy Duty | Large Heavy Duty | Non-Road | [#] |
| Building Inspection | 3 | | | | | **3** |
| Code Enforcement | 2 | | | | | **2** |
| Engineering | 4 | | | | | **4** |
| Facilities | 3 | | 1 | | | **4** |
| Finance | 2 | | | | | **2** |
| Parks | 10 | | 12 | | | **22** |
| Police | 7 | 23 | | | | **30** |
| Rec Center | 1 | | 2 | | | **3** |
| Streets | | | 4 | 5 | 2 | **11** |
| Utilities | 2 | | 10 | 2 | 3 | **17** |
| Water Treatment | 4 | | 1 | | | **5** |
| Waste Water Treatment | 3 | | 1 | | | **4** |
| Open Space | 4 | | 2 | 1 | | **7** |
| **Grand Total** | **45** | **23** | **33** | **8** | **5** | **114** |

## Existing Fleet Emissions

Based on vehicle-specific annual usage, fleet emissions were calculated using publicly-available data from the Environmental Protection Agency. Three key factors contribute to a vehicle's annual CO2 emissions: average miles driven/hours operated, fuel efficiency, and CO2 emissions factor of fuel source. Emissions data is well-to-wheel, meaning it captures to complete life-cycle emissions associated with extraction, production and consumption of fuel.

## Fleet Conversion Plan

Transitioning from internal combustion engine (ICE) vehicles to EVs can substantially lower overall carbon emissions. It is recommend that the City replace vehicles with EVs after the current vehicle has met its replacement criteria. Early replacement is not assumed in the analysis – simply a year-over-year swap with an EV once the vehicle reaches the appropriate mileage or service life based on the vehicle type (i.e. 12yr/120,000 for most light duty vehicles).




### Vehicle Availability

Not all vehicles in the City's fleet have suitable replacements commercially available. The current EV market is dominated by light duty vehicles, with emerging options in pickup and SUV categories. There currently are no manufactures that outfit an EV for police vehicle use. However, the market is rapidly changing so over the course of the next 5 years new innovation and demand should allow for police patrol vehicles to comes to market. Some vehicles will need to be replaced before there is an EV equivalent on the market, in those cases it is assumed that a new ICE vehicle will be purchased and then will be replaced with an EV in the next cycle. It is assumed all type 2 vehicles (mostly police patrol vehicles) will not have an EV equivalent until 2027 and all type 3, 4, and 5 vehicles until 2030.

### Summary of Financial Metrics

EVs have a higher initial capital cost, but lower fuel and maintenance costs than ICE vehicles. Fueling vehicles using electricity is approximately 25% the cost of gasoline. Maintenance costs are 50-75% of gasoline equivalents. Some of the initial cost is offset by federal incentives. Over time, initial costs for EVs are also trending downward as production volumes increase and battery costs decreases.

Over the next 17 years, the Total Cost of Ownership (TCO) of replacing vehicles with EVs would be comparable with ICE vehicles. The amount of CO2 emissions saved would be ~9 million lb. Analysis assumes 2.5% inflation, electric rate inflation of 2.44%, and cost escalation of 2.65%. Initial cost is inclusive of federal incentives for EVs (both passenger and heavy duty).

**Fleet Conversion Life-Cycle Cost Analysis (2023-2040)**

| Scenario | Vehicle [$] | Fuel [$] | Maintenance [$] | Total [$] | 2023-2040 Life-cycle Emissions [Tonnes $CO^2e$] | Decarbonized Reduction from Baseline in 2040 [%] |
|---|---|---|---|---|---|---|
| Like-for-Like (ICE) | $14.5M | $3.9M | $1.6M | $20M | **7,300** | **-** |
| Electrified Fleet** (EV) | $18.0M | $1.7M | $1.2M | $21M | **3,100**** | **97%** |

**Costs & Emissions are based on the fleet conversion happening over time and account for both costs and emissions associated with the existing ICE vehicles before they are electrified.

## Charging Infrastructure

### Overview

Fleet electrification requires infrastructure to charge vehicles to they can be used in daily operations. In addition, there is a desire to provide public charging for electric vehicles to encourage residents to drive EVs themselves. **The costs associated with this infrastructure are included in the building decarbonization costs.** This includes any electrical service upgrades needed to accommodate the new electrical demand. Refer to the Building Audit reports for site specific information on EV Charging infrastructure and it's impacts. Fleet charging should occur almost entirely on-site at City facilities. Charging at publicly accessible stations is much higher cost and adds operational uncertainly.

### Charging Power

Charging stations are available in a range of power levels. Level 2 and 3 charging are the most appropriate for fleet use. Level 2 outputs AC power from 7-18kW, adding 15 to 40 miles of range per hour depending on the vehicles type and power level. Level 2 charging requires a 208 volt or 240 volt AC service. Level 3 outputs DC power at 25+ kW and typically requires a 480 volt AC service.

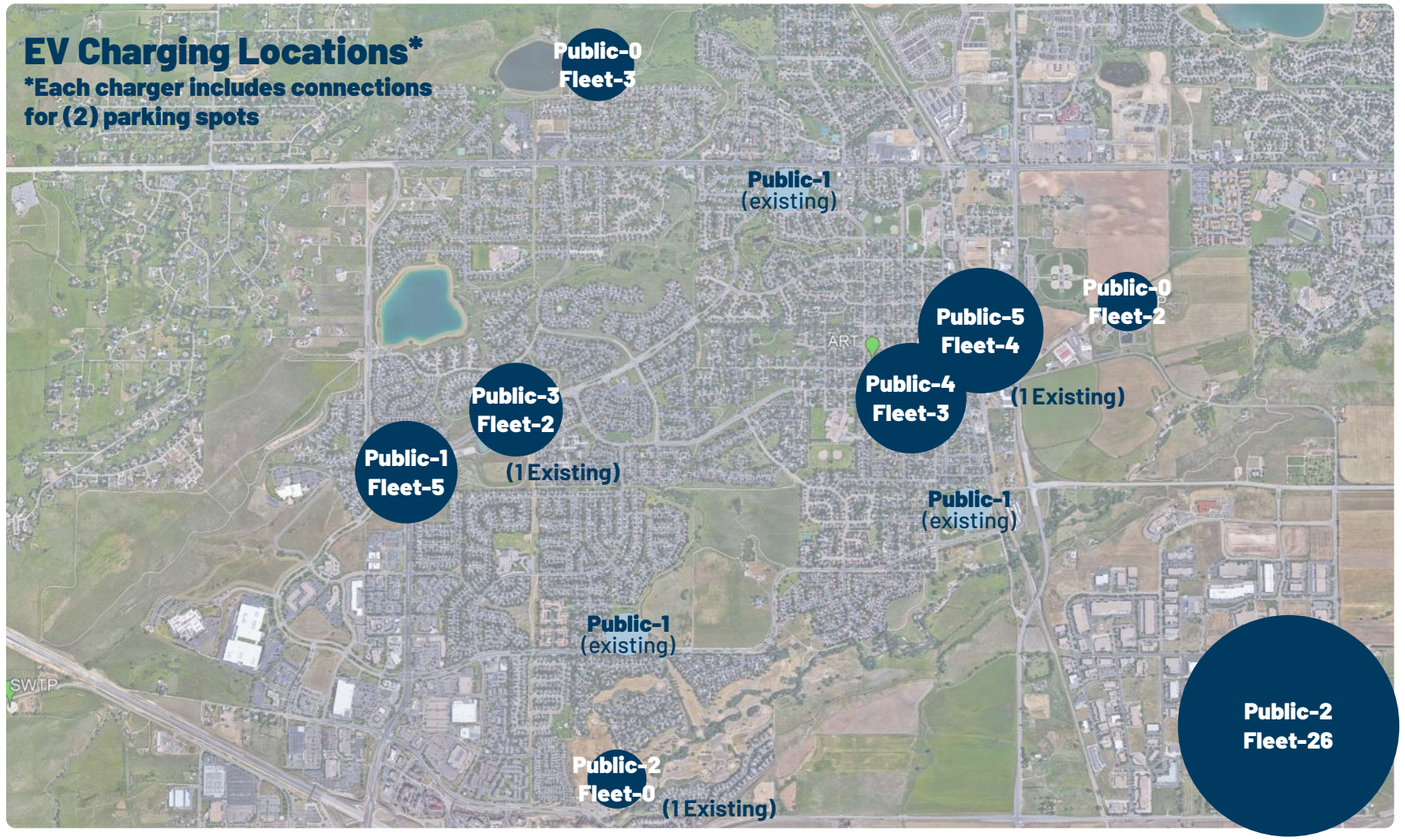
Primarily Level 2 charging for fleet use is recommended, as it provides good value for infrastructure investment when factoring in cost and time required to charge when compared to Level 3 chargers. Level 3 chargers can make sense when high use vehicles need quick recharging, though these chargers will cost more to install and incur a higher charging cost than level 2 chargers.

### Public Charging

It is recommended to install a small amount of charging intended to be used by City residents and the general public. These chargers are an important demonstration of the City's decarbonization efforts and provide a valuable city service for residents. These should be located where the intended use of a site aligns with public use.

| | # of EV Charging Parkings Spaces | | | |
|---|---|---|---|---|
| | Existing | New | | Total |
| | Public Charging | Public Charging | Fleet Charging | Public + Fleet Charging |
| **Facility** | [#] | [#] | [#] | [#] |
| Art Center | 0 | 0 | 0 | 0 |
| City Hall | 0 | 8 | 6 | 14 |
| City Services | 0 | 4 | 52 | 56 |
| Coal Creek Golf Course | 2 | 4 | 0 | 6 |
| Library | 2 | 10 | 8 | 20 |
| Sid Copeland Water Treatment Plant | 0 | 0 | 6 | 6 |
| Police and Municipal Court | 0 | 2 | 10 | 12 |
| Recreation and Senior Center | 2 | 6 | 4 | 12 |
| Howard Berry Water Treatment Plant | 0 | 0 | 0 | 0 |
| Wastewater Treatment Plant | 0 | 0 | 4 | 4 |
| **Total** | **6** | **34** | **90** | **130** |

*Each EV charger has two charging connections, meaning it provides charging for two parking spaces.*



## Miscellaneous Equipment Conversion Plan

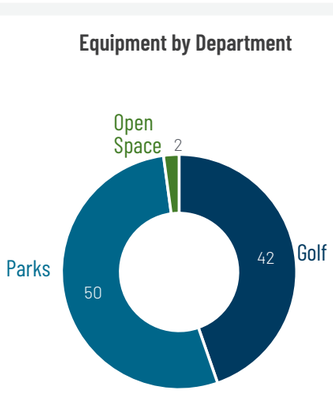
Small gasoline engines, like those in gas powered riding mowers and garden equipment, are fast becoming a significant contributor to smog forming air pollution. These small engines emit hundreds of times more pollutants per hour than automobile engines.

New lithium battery powered riding mowers, park equipment, and leaf blowers compete effectively compared to gasoline powered tools regarding power and performance, and have significantly longer operating run times than older electric models. On top of that, these new tools are quieter and will not produce the lingering gasoline smells that are an unhealthy indicator of the fumes and pollution that gasoline powered equipment produce.

### Current Equipment

The city currently has three departments that own the majority of the small engine vehicles and equipment: the golf department, parks and recreation, and open space.

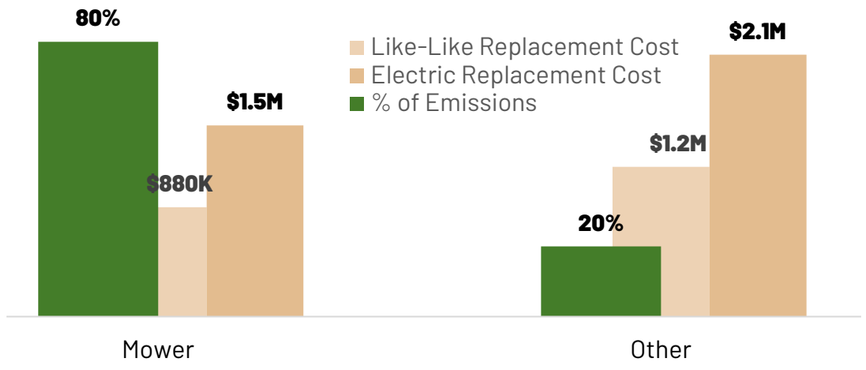
**Equipment by Department**




**Equipment by Type**

| Equipment | Qty | Equipment | Qty |
|---|---|---|---|
| ATV | 18 | Mower | 35 |
| Blower | 3 | Roller | 1 |
| Cart | 3 | Saw | 1 |
| Chainsaw | 2 | Skid | 5 |
| Chipper | 2 | Sprayer | 1 |
| Forklift | 1 | Tractor | 4 |
| Generator | 11 | Trimmer | 4 |
| Loader | 1 | Washer | 1 |

Lawn mowers account for **80%** of total emissions




### Small Engine Electrification

Most the small engine equipment type categories currently have electric equivalents available. The categories that do not or have very limited choices are, tractors, skid, loaders, chippers, and rollers. Some of these types of equipment are actively being developed. Additionally, in the mower category there are some specialty golf course lawn mowers that do not have a good electric choice.

Unfortunately, unlike the fleet electric vehicles, most of the electric lawn care equipment does not have battery warranty that matches the equipment warranty. As this technology matures, the warranties will get better.

Another large hurdle for this equipment is the cost of the electrified version. Most electric versions of the non-handheld equipment is about 1.75 times the cost of the gas version. Maintenance costs are lower, but not enough to offset the initial up front cost.

**It is recommended to replace existing equipment that is at the end of its life (most large equipment is replaced by the department every 8 years) with the electric equivalent.**

### Refueling & Charging

With the newest battery technology available, most of the larger equipment is able to operate during a typical work day. This equipment isn't designed for battery swap out in the field, so if the battery charge got low the operator would need to plug it in somewhere to charge or switch to a different piece of equipment. Typically they would need to switch to a different piece of equipment. The charging time for this equipment isn't fast enough to get a full charge in a reasonable amount of time. For smaller hand-held equipment, spare batteries can be carried along to change out when the charge gets low. Additional training may be required to get operators use to carrying around extra batteries that are fully charged. When the city switches the fleet vehicles to EV's, most work style trucks may have the ability to charge auxiliary devices like batteries for small hand held equipment. For most of this equipment it is recommended that everything be charged overnight as it is unlikely that anything would be able to be charged during the day and used that same day.

### Charging

Most small motor equipment will require at least a 120v 15amp circuit to charge. It is recommended that there is one dedicated plug for each piece of equipment. Additional electrical infrastructure will be needed to make charging plugs accessible to all equipment where it is stored.

### Battery Life

Battery technology is improving significantly year to year. Most batteries are lithium based and have longer life spans than the equipment. Depending on the manufacturer, the battery warranty may or may not match the typical equipment life. For small hand-held equipment, purchasing extra batteries will allow for longer use and does not add much cost. For larger equipment, the battery can be a significant part of the cost and having a second battery on hand will be cost prohibitive. In addition, the larger equipment isn't always designed for quick battery change outs. Similar to electric vehicles batteries for this type of equipment will eventually have warranty life greater than the cities typical use.

## Photovoltaics

Renewable energy plays the important role of offsetting remaining carbon emissions after building load reductions and electrification has been made. This can be handled through a variety of avenues – behind-the-meter systems, Community Solar Gardens, and utility subscriptions. Since City of Louisville already offsets its current electricity with renewable utility subscriptions, the focus was on customer-owned, behind-the-meter systems that would provide more value to the City of Louisville.

**On-site Versus Grid Purchase**

Some of the benefits of on-site solar vs renewables purchased from the grid are listed below.

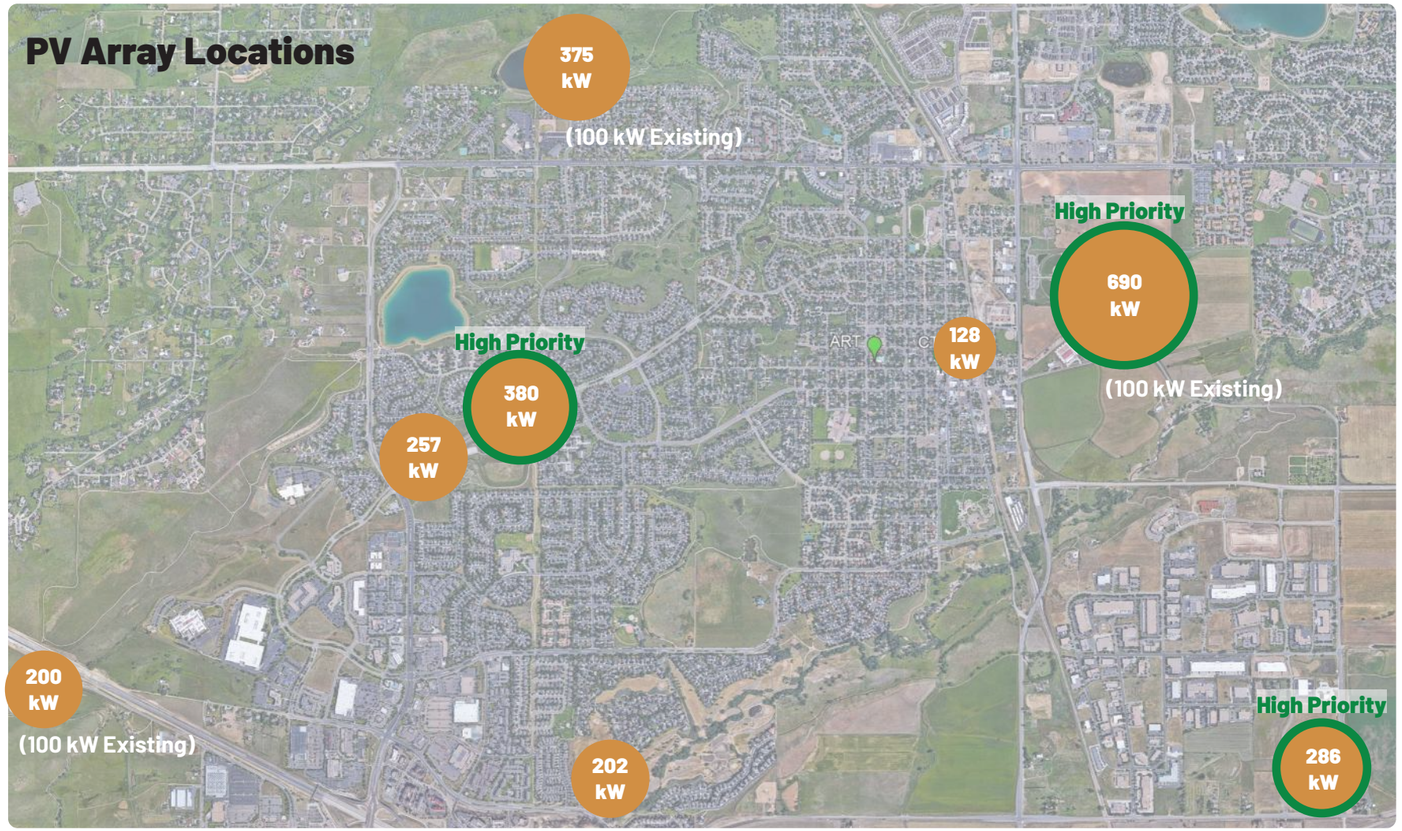
- Avoid solar sprawl at scale - avoiding offsetting of impacts to rural areas.
- Avoid electrical energy loss due to transmitting power over long distances.
- Dispersed approach is typically grid beneficial, especially when on-site renewables are a small percentage of the total usage of building - most solar on this bldg would be self used.
- Enable future resiliency through addition of batteries and storage.
- Demonstrate decarbonization to local Louisville community.

**High Priority Sites**

High priority sites were recommended based on the following considerations:

- Financial and technical feasibility
- Impact & considerations with land development

| | Proposed | | | |
|---|---|---|---|---|
| | Array Type | Array Size | Array Production | Cost Estimate |
| **Facility** | [-] | [kW] | [kWh/year] | [$] |
| Art Center | None | - | - | - |
| City Hall | None | - | - | - |
| **City Services** | **Ground** | **286** | **315,000** | **$870K** |
| Coal Creek Golf Course | Ground | 202 | 252,000 | $1.2M |
| Library | Roof | 128 | 174,000 | $520K |
| Sid Copeland Water Treatment Plant | Ground | 375 | 559,000 | $1.3M |
| Police and Municipal Court | Ground | 257 | 397,000 | $910K |
| **Recreation and Senior Center** | **Ground** | **380** | **569,000** | **$1.2M** |
| Howard Berry Water Treatment Plant | Ground | 200 | 302,000 | $750K |
| **Wastewater Treatment Plant** | **Ground** | **690** | **1,026,000** | **$2.1M** |
| **Total** | | | 3,593,000 | $8.8M |



## On-Site Design Considerations

**Where to create solar arrays: ground, rooftop, or parking canopies?**

The first constraint on system size is the available space on the property. Since ground mounted solar arrays are typically the least expensive, this is the first priority, followed by rooftop and then parking canopies. Solar systems benefit from economies of scale – generally, the larger the system, the cheaper it is per kW.

**Financial size optimization**

In some cases, it is possible to add more solar capacity than can be used by the facility. Typically, based on current regulations, this scenario would mean giving the value of this electricity back to the utility. All recommended on-site solar in this roadmap avoids significant amounts of such value "give back".

**Roof age**

Roof membranes and solar PV modules have similar lifespans, about 30 years. De-installation/re-installation of a solar system is costly, creating unviable economics in addition to unnecessary hassle for facilities management down the road. The PV array at the Library is the only recommended system that is roof-mounted. This array should be installed at the time of the Library roof replacement.

**Assumed useful life of solar**

The National Renewable Energy Laboratory estimates the operational lifespan of photovoltaic systems to be 25 to 40 years, and a recent study by the Lawrence Berkeley National Lab found that utility scale solar developers assume an average useful life of ~35 years. The financial pro forma included in this roadmap assumes a useful life of the ground and canopy mounted solar arrays of thirty years, and 25 years for roof mounted arrays (based on typical 25 year roof life). While this is longer than the warranty period, it is expected the arrays will be functional for this period and potentially beyond. A small output degradation is assumed over time, consistent with standard industry practice. Note the pro forma does assume micro-inverter replacement as part of solar operation and maintenance at year 15.



Credit: Jack's Solar Garden

**Agrivoltaics**

The co-location of ground mounted solar arrays and agriculture (such as community pea patches), or carbon sequestering/pollinator habitat restored native meadows, are a great holistic sustainability solution. All ground mount systems should have some component of agrivoltaics to further mitigate carbon whether it's drought resistant irrigation, pollinator habitats, or wild flowers.

**Planting plan for Denver Botanic Gardens Solar Array**

| | | |
|---|---|---|
| **Zone 1** Vegetable Production | **Zone 2** Pollinator Habitat Cover Crop Rotation | **Zone 3** Vegetable Production |
| **Zone 4** Pollinator Habitat Cover Crop Rotation | **Zone 5** Native Plant Seed Bank | **Zone 6** Vegetable Production |

**Potential future opportunities for larger-scaled Louisville owned renewables**

**Virtual net metering**

The State of Colorado recently adopted virtual net metering legislation, which potentially enables utility customers with multiple site portfolios to transfer the electricity value of solar production from one location to another. The details of this legislation are complex and still being understood, but over time, it may enable Louisville to look at larger scale opportunities, such as undeveloped land, open water, or park areas to be used for solar production .

**Water reservoir or sewage processing pond floating solar**

A specific opportunity for larger scale solar (which would require net metering to make financially feasible) is floating solar. An initial evaluation suggests that an array ~400kWdc could sit at the Sid Copeland Treatment Plant reservoir. Typically arrays need to be on the scale of 1-2MW or larger to cost-compete with ground mount options.

## Financial Considerations

The process of decarbonization doesn't occur in a vacuum, and other financial considerations beyond initial costs or utility savings come into play. Different financial scenarios or considerations impact how the cost of decarbonization might be viewed – these are the **additional avoided costs** discussed below. In addition, the process of electrification, in particular, can yield additional benefits– known as **co-benefits.** Where quantification is possible, it is provided, based on economic modeling derived from best and most recent available science. **All figures assume a value stream of the roadmap horizon of 2023 - 2040.**

### Additional Avoided Costs

**Estimated Avoided Future Carbon Emissions Penalties**

**$7,335,000**

**Avoided future carbon emissions penalties**

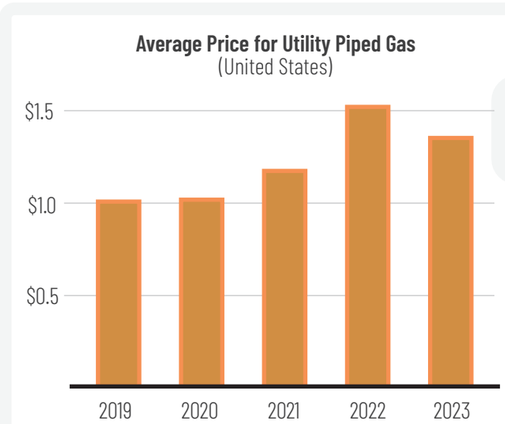
As climate change becomes an increasingly current (rather than future) reality, carbon emissions penalties are starting to be applied by leading organizations to internal operations, and by governing bodies as regulation. Colorado recently adopted HB21-1286, which establishes penalties for high Energy Use Intensity private sector buildings, and the City of Denver created Energize Denver, which has even more aggressive carbon penalties. Leading private sector firms, such as Microsoft, also apply an internal cost of carbon to lower immediate emissions and begin bending decision making to anticipate a more aggressive future carbon penalty regulatory environment. The Canadian Federal government recently adopted an internal decision making price of $261 CDN$/mton, and the EPA has draft rule of $261US. While these have yet to become actual regulatory penalties, they indicate a likely direction over time as climate change worsens. For this roadmap, an initial penalty stream based on the Colorado carbon price of $76/mton is applied from 2023-2027, moving to the draft EPA price for 2028-2040.

**Estimated Avoided Cost of Future Natural Gas Price Shock**

**$732,000**

**Natural gas price shocks**

Historically, natural gas has substantially greater price volatility than electricity, which isn't captured by typical escalation rates. The Russian invasion of Ukraine has put a spotlight on the potential for long term natural gas price instability – during 2022, natural gas prices increased by 50%, making previous natural gas escalation rate assumptions of 3-4% invalid. Many risk forecasters anticipate further natural gas instability based on volatility of many producing nations. This roadmap includes a scenario of a second natural gas price shock in 2030, mirroring the impact of the 2022 shock.




Natural gas prices went up **~50%** in 2022

*https://www.bls.gov/regions/west/news-release/averageenergyprices_seattle.*

**Value of Solar for Future Electric Micro-grid Backup Power**

**$900,000**

**Future electric micro-grid backup power**

Currently, emergency power is provided by backup fossil fuel powered generators. A decarbonized alternative, with potentially even greater resiliency, is electric batteries fueled by on-site solar. The cost of batteries for such systems is currently cost-prohibitive, but likely to drop in the future. Installing on-site solar as proposed for overall renewable power for the City has a dual benefit of helping enable future electrical islandability. The value of this is assumed at 10% of the overall cost of proposed on-site solar.

## Co-benefits

### Employee and visitor health and performance:
Air quality and Thermal comfort

The proposed decarbonization program will also enable improvement of ventilation and filtration systems that are part of HVAC systems being electrified. Demand control ventilation can be added and optimized to better filter media. Elimination of natural gas combustion removes any risk of noxious combustion gasses (NOx, SO2, CO) from malfunctioning exhausts, etc. Air sealing the buildings, which retains tempered indoor air, has the added benefit of excluding smog and wildfire smoke, as well as reducing mold – a substantial benefit. Finally, City Hall currently has very poor temperature control, with overheated and colder work areas. The new electrified and rezoned system will enable more comfortable work temperatures there.

**Value of Improved Employee and Visitor Health and Performance**

**$1,027,000**



### Employee retention – climate leadership

The cost of employee turnover (training, lost knowledge, etc.) is significant in any organization. Employees take pride in working for organizations which have integrity in reflecting their values. This value stream assumes a 2% reduction in employee turnover due to its expressed climate leadership.

**Value of Employee Retention Based on Climate Leadership**

**$714,000**



### Additional Co-benefits
[Not Quantified]

**Community Decarbonization Education & Leadership** Decarbonization is a signal to the community about the importance of the climate action goals the City has set. Specific elements such as heat pumps, renewables, and efficiency measures can be used for classes etc. to inform residents about zero carbon living.

**Eliminate Gas Explosion Potential** Natural gas is flammable gas that has risk of combustion. While the likelihood is statistically low, the potential cost and impact is extreme.

**Eliminate Gas Cooking Burns** Natural gas is currently used for cooking in the Golf Course Clubhouse. On-site combustion for cooking can lead to burns and injuries. Induction ranges and electric combi-ovens (which use infrared, microwave, steam, and heat together for great efficiency) reduce those risks.

**Louisville "Brand"** Louisville's decarbonization program is leading edge, and if desired, could be used for publicity and to enhance the City's reputation, with likely economic development benefits.

**Job Creation** Louisville's decarbonization work will result in local employment that would not otherwise occur in a business-as-usual scenario.





## Annual Operating Expense Impacts

**Electrification & Building Utility Cost Impact**
Electrification can lead to increased annual utility costs due to the existing utility rate structures, where electric demand charges are high and the cost per unit energy of electricity is typically higher than natural gas. Specifically for Xcel energy, electric demand charges ($/kW) are particularly high. This makes demand reduction strategies particularly important. Electric energy ($/kWh) charges for Xcel are lower than most utilities, but are still approximately 50% higher than gas on a $/kBtu basis.

**Building Demand Charges**
Hybrid gas systems will also provide value by reducing annual demand (kW) costs in comparison to an all-electric alternative. Gas-backup systems have the option to lockout the primary heating (heat pumps) when temperatures are lower to avoid potentially costly demand (kW) charges. This strategy can help alleviate some of the demand penalty associated with the all-electric option, but it will also incur slightly more energy usage and more fossil fuel combustion.

**Renewables**

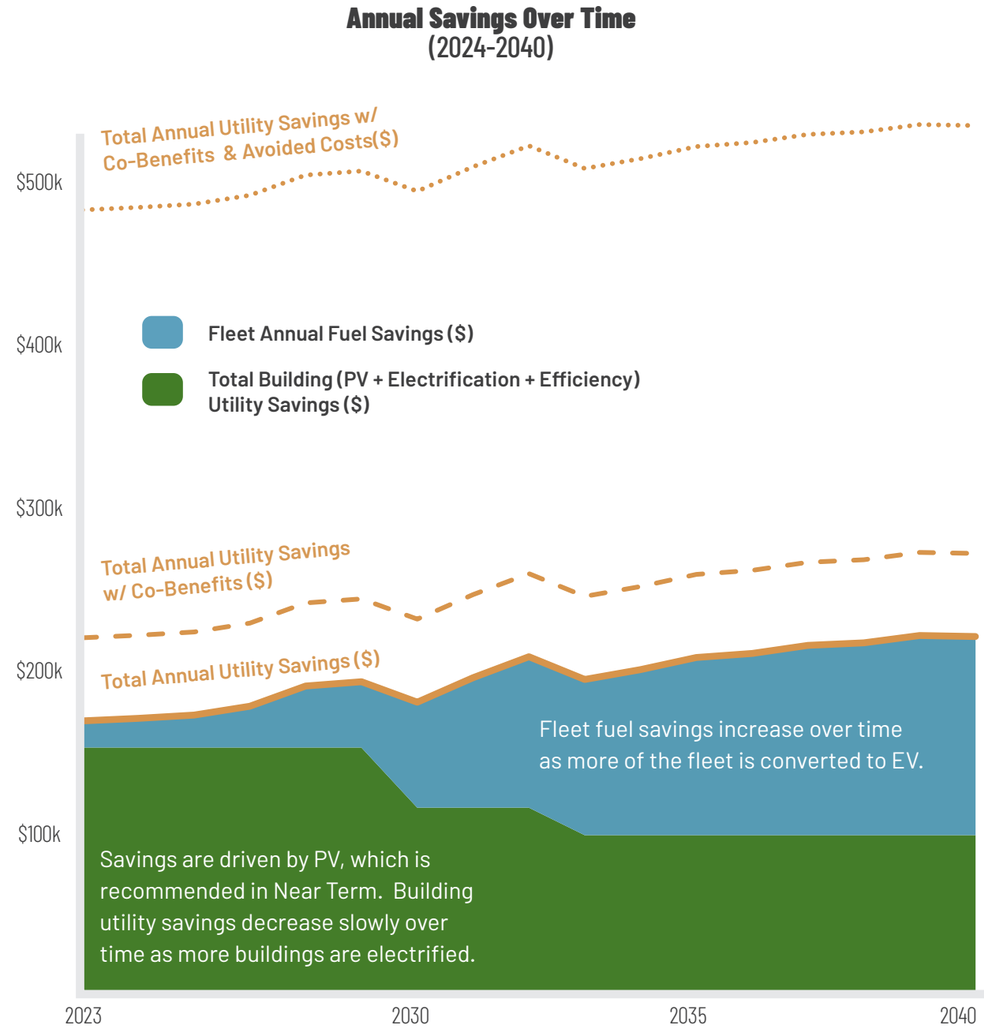
Renewable PV systems account for the majority of the utility cost savings at the building level. Adjusting utility rate schedules based on the recommended PV array was analyzed as part of this study.

**Efficiency &Load Reduction**

Efficiency & load reduction measures typically have positive utility savings as they do not involve fuel switching.

**Co-Benefits & Avoided Costs**

Additional benefits realized through the process of electrification. Annualized co-benefits and avoided costs are shown in the figure to the right.



## Funding Options

Funding is a critical piece of any decarbonization roadmap to ensure an implementation plan is successfully executed. Over the course of the project, several grant and stimulus funding opportunities were researched and identified along with capital and financing streams that are applicable to the implementation of the City's roadmap. In addition, interviews with the finance team were conducted, and funding workshops were held in March and May of 2023. Below is a list of applicable funding sources identified to help the City fund and implement the recommendations within the Internal Decarbonization Roadmap. All information below is based on research conducted during the year of the study. Grants and stimulus funding is likely to vary in future years.

### Grants and Stimulus Funding*

- Colorado Public Building Electrification Grant**
- Colorado High Efficiency Heating & Appliances Program
- Colorado Department of Local Affairs Grants
    - Energy and Mineral Impact Grant
    - Renewable Energy Grant
    - Climate Resiliency Challenge**
- State of Colorado Geothermal Grant
- Congressionally Directed Spending**
- FEMA Building Resilient Infrastructure and Communities (BRIC) grant
- Inflation Reduction Act
    - Investment Tax Credit – Direct Pay for renewable energy systems, battery storage
    - Grant programs for electric vehicles and electric vehicle charging
- US Department of Energy grants for municipalities
- Xcel rebates
- Mow Down Pollution Grant**
- Charge Ahead Colorado Grant**
- Colorado Fleet-Zero Emission Resource Opportunity ("Fleet-Zero")**

*The key to successful grant applications: the full application and submitted project needs to move the needle, be "shovel ready", compelling and create benefits for the community.

** Grants currently being applied for during the 2023-24 fiscal year for project implementation.

### Capital and Internal Funding

- Allocate dedicated stream of capital to sustainability during bi-annual budget cycle
- Internal borrowing from enterprise funds with additional capital availability.
    - City has experience with this method of funding projects
    - Some funds are heavily restricted
- Diverted operational/Capital Improvement Plan dollars
- Dedicated sustainability tax – with % earmarked towards municipal & community sustainability projects
    - Investigated in 2023 through Open Space tax extension discussions. Recommend re-investigating in future years.

### Financing Options

- **Tax Exempt Lease Purchase** – an installment purchase, conditional sale or lease by a public agency using the installed equipment as collateral and financed by an investor or bank.
- **Bond** - debt obligation issued by a public entity using the loan for public projects, such as constructing buildings, highways, or renovations.
- **Certificates of Participation (COP)** - is a type of financing where an investor purchases a share of lease revenues to secure financing for public sector projects.
- **Energy Performance Contracting** – a contracting and financing tool that leverages multiple sources of funding to construct energy savings projects for public sector agencies.
- **Energy-as-a-service** – a financing tool where a public agencies pays for an energy service without having to make any upfront capital investments and transfers ownership of the capital investment to a third party investor.
- **Infrastructure-as-a-service** - a financing tool where a public agencies pays for infrastructure via an on-going fee or lease payment without having to make any upfront capital investments and transfers ownership of the capital investment to a third party investor.

## Financial Analysis

A financial analysis was conducted to determine the true cost of decarbonization. This analysis reviewed the like-for-like costs to continue replacing equipment and fleet with the current gas version and compared it to the cost to electrify and decarbonize operations, mechanical equipment and fleet. All costs within this report are turnkey and include final design, engineering, procurement, construction management, and commissioning costs. The financial impact of the project to the City was calculated from 2024 through 2040. The like-for-like project costs were derived from a combination of the City's CIP budget and detailed cost estimating of turnkey like-for-like equipment replacement as the comparison scenario.

If the City were to continue replacing fleet and mechanical systems with like-for-like gas replacements, the total cost to the City through 2040 would be approximately $27M with no grants or anticipated utility cost savings. If the City were to electrify all fleet, mechanical equipment and operations, the cost would be approximately $51.1M including the recommendations of EV charging, load reduction measures, and renewable energy. Decarbonization would allow for the City to capture $7M in utility and fleet operational savings over the term, secure $3-13M in grants, incentives and stimulus funding, and help to mitigate the impacts of climate change on the community.

**Total Net Cost of Decarbonization =**
*Total Construction Costs - Total Like-for-Like Construction Costs - [Total Project Savings + Total Grants]*

The Summary Table to the right shows the net costs of decarbonization as $4.4M to $14.4M depending on the level of grants that the City is able to secure. The co-benefit and avoided costs are not included in this number and would provide an additional $10.6M in benefits to the City through 2040 for a total potential net savings of $6.2M over the business-as-usual or "like-for-like" replacement scenario. This number is calculated by taking the gross cost to decarbonize and subtracting out what the City would be spending anyways and the project savings and grants/stimulus.

**Summary Table**

| | |
|---|---|
| **Total Construction Costs** | **~$51M** |
| **Total Like-for-Like Construction Costs** (costs that the City would continue to pay) | **(~$27M)** |
| **Lifecycle Utility Cost Savings** (Utility, Fleet, Solar) | **($7M)** |
| **Total Grants** | **($3M-13M)** |
| **Total Net Cost of Decarbonization** (varies based on final grant awards) | **$4M-14M** |

It is recommended that the City do a more in depth financial analysis for each phase to produce a complete and final amortization schedule either internally or with a selected lender. The annual financial model to the right shows annual estimated costs, savings, capital allocation and a summary each year from 2024-2040.

**Annual Financial Model**

| Year | Total Construction Costs | Solar IRA Direct Pay (30%) | Total Grants | Annual Electrification Utility Cost Savings | Annual Efficiency Utility Cost Savings | Annual Solar Utility Cost Savings | Annual Fleet Utility Cost Savings | Total Like-for-Like Construction Costs | Total Net Cost of Decarbonization |
|---|---|---|---|---|---|---|---|---|---|
| 2024 | $23,979,948 | $0 | $8,000,000 | ($82,000) | $44,000 | $335,000 | $33,000 | $10,185,000 | $5,465,000 |
| 2025 | $629,972 | $2,692,000 | $100,000 | ($82,000) | $44,000 | $335,000 | $36,000 | $599,000 | ($3,094,000) |
| 2026 | $244,741 | $0 | $100,000 | ($82,000) | $44,000 | $335,000 | $40,000 | $201,000 | ($393,000) |
| 2027 | $661,949 | $0 | $100,000 | ($82,000) | $44,000 | $335,000 | $51,000 | $622,000 | ($408,000) |
| 2028 | $538,469 | $0 | $100,000 | ($82,000) | $44,000 | $335,000 | $76,000 | $469,000 | ($404,000) |
| 2029 | $255,583 | $0 | TBD | ($82,000) | $44,000 | $335,000 | $81,000 | $213,000 | ($335,000) |
| 2030 | $8,796,674 | $0 | TBD | ($157,000) | $44,000 | $335,000 | $130,000 | $4,253,000 | $4,191,000 |
| 2031 | $1,126,108 | $0 | TBD | ($157,000) | $44,000 | $335,000 | $160,000 | $843,000 | ($99,000) |
| 2032 | $638,869 | $0 | TBD | ($157,000) | $44,000 | $335,000 | $186,000 | $478,000 | ($247,000) |
| 2033 | $5,449,661 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $192,000 | $2,654,000 | $2,415,000 |
| 2034 | $537,051 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $204,000 | $402,000 | ($258,000) |
| 2035 | $3,440,025 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $219,000 | $2,574,000 | $458,000 |
| 2036 | $775,290 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $224,000 | $580,000 | ($218,000) |
| 2037 | $783,153 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $234,000 | $586,000 | ($226,000) |
| 2038 | $297,040 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $237,000 | $222,000 | ($351,000) |
| 2039 | $1,923,560 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $246,000 | $1,439,000 | $50,000 |
| 2040 | $847,035 | $0 | TBD | ($190,000) | $44,000 | $335,000 | $245,000 | $693,000 | ($280,000) |
| **Total** | **$50,925,129** | **$2,692,000** | **$8,400,000** | **($2,483,000)** | **$748,000** | **$5,695,000** | **$2,594,000** | **$27,013,000** | **$6,266,000** |

**Notes:**

**Total Construction Costs:** Total **turnkey** construction costs needed for budgetary purposes. **Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.**

**Total Like-for-Like Construction Costs:** The **turnkey** "business as usual" costs for replacing existing fossil fuel equipment with similar fossil fuel equipment. Costs were derived from a combination of the City's CIP budget and detailed cost estimating of equipment replacement as the comparison scenario.

**Turnkey Costs:** Include design, engineering, construction management, project management, and commissioning.

## Implementation Options

Delivery and implementation of the decarbonization plan is laid out through 2040. As part of this analysis, it is recommended that full decarbonization is pushed to 2040 due to technology barriers and the recommendation of not replacing fleet and equipment before the end of its useful life. Three primary methods are recommended for the City to consider for implementation of all phases of the roadmap and outlined below. Due to the complexity, uniqueness and scale of the recommendations, three larger phases or mobilizations are recommended for the implementation portion of the project to reduce the burden on staff, consolidate resources and gain cost efficiencies by scaling the project. The methods below are chosen to account for the metrics above and to lower the overall cost to the City through efficiencies and to reduce the amount of resources needed throughout each phase (versus a piecemeal approach).

### Energy Performance Contracting

This method utilizes a state-supported program through the Colorado Energy Office that has been used for over 200 projects within public agencies in the state of Colorado. Energy Service Companies are pre-qualified through the State to assist local governments within turnkey implementation of decarbonization projects for fleet and buildings. This approach allows for flexibility in project funding with the ability for the public agency to combine multiple funding avenues such as grants, stimulus, capital and third party financing. This approach is recommended for the larger, complex buildings that require renewable energy, load reduction measures, electrical upgrades, and mechanical electrification as a single project or construction mobilization such as at the City's recreation center. Energy performance contracting enables a jurisdiction, to "surge" a major decarbonization effort and avoid the quick ramp up/ramp down staffing impacts that would otherwise be required to manage such projects.

Further information can be found here: *https://energyoffice.colorado.gov/clean-energy-programs/clean-energy-financing/energy-performance-contracting*

***When to Use:***

**Ph1 Renewables**

**Ph1 Load Reduction**
All Buildings

**Ph. 1-3 Mechanical**
Larger Systems

***Some* EV Charging**

### Design-Build or Design-Bid-Build

Traditional method for construction projects where the City would project management and bid out individual scopes of work for design, construction or both. This is recommended for smaller, less complex buildings and scopes of work that require a simple like-for-like replacement of mechanical systems such as the Art Center.

***When to Use:***

**Smaller HVAC Systems**
Mid Term Art Center

### Self-Implementation

This method is recommended for scopes of work that the City can conduct internally if staff time and resources allow. This method is recommended for equipment replacements (golf carts, lawn mowers, etc) and EV charging infrastructure.

***When to Use:***

**EV Charging** **Fleet Purchase** **Misc. Equipment**




# Appendix

## Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

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# Appendix

## Final Report

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# Louisville Fleet

## Decarbonization Analysis and Assumptions

# Louisville Fleet Decarbonization

**Summary**

McKinstry analyzed the costs and emissions savings associated with Louisville converting their fleet to electric models at vehicle replacement, if a suitable vehicle was available. The incremental initial vehicle cost would be $4.3M, but the incremental cost on a lifecycle basis would only be $1M. The amount of CO2 emissions saved would be approximately 9 million lb. These numbers include 2.5% inflation, electric rate inflation of 2.44%, and gas/diesel cost escalation of 2.65%.

| | Vehicle replacement cost | Fuel Costs | Maintenance Costs | Total Cost | Total Emissions lb of co2 |
|---|---|---|---|---|---|
| Status Quo, keep buying ICE | $14,446,954 | $3,912,658 | $1,596,579 | $19,956,191 | 16,188,795 |
| Phasing in Evs | $18,104,994 | $1,710,455 | $1,178,767 | $20,994,216 | 6,936,913 |

**Overview**

As part of the decarbonization study, McKinstry analyzed Louisville's fleet vehicles for replacement with electric vehicle (EV) equivalents. Based on current technology, transitioning from internal combustion engine (ICE) vehicles to EVs can substantially lower overall carbon emissions. A caveat to consider in assessing the environmental impact of EVs is the variation of electricity generation sources in a given area. The state of Colorado relies mainly on coal and natural gas. However, the share of these fuel sources as a percentage of total generation is decreasing. Alternative energy sources such as wind and solar are increasing rapidly. By using additional onsite renewable energy sources and phasing in vehicle replacement it will be possible for Louisville's fleet to be entirely carbon free.

In the current vehicle market mainly light duty vehicles are being produced. There currently are no manufactures that outfits an EV for police vehicle use. The market is rapidly changing so over the course of the next 5 years new innovation and demand should allow for this use.

EVs typically have a higher initial capital cost to purchase or lease when compared to ICE vehicles, EVs can cost less in the long-term due to lower fuel costs, different maintenance requirements, and longer vehicle lives. Therefore, it is important to consider the entire lifespan of a vehicle when investing in fleet vehicles. There are also limiting factors of EVs to consider, such as range and power needs of certain fleet vehicles, as well as the near-constant changes in the electric vehicle and infrastructure technology.

Battery technology is changing rapidly, resulting in increased charge capacity and lower operating cost per mile. Many manufactures now offer eight year/100,000 mile warranties on their EV batteries (generally covering defects and workmanship), and some offers an ten year/100,000 mile warranty on battery capacity. Auto manufacturer warranties and charge capacity have generally reduced consumer concern about battery life and range. As a result, the analysis of total ownership cost does not account for the cost of EV battery replacement, assuming that municipal vehicles will be retired at the warranty expiration.

# Louisville Fleet Decarbonization

**Fleet Vehicle Type**

Vehicles utilized by the city were divided into five categories.

1. *Light duty vehicles* – Light duty vehicles make up the majority of the vehicles the city owns. They typically encompass any normal passenger vehicle such as sedans, SUVs, light pickup trucks, and minivans. This vehicle is mostly used for transporting people and small amounts of cargo
2. *Light duty high performance vehicles* – This category incorporates mainly police vehicles. These vehicles are similar to the light duty vehicles but have been altered for higher performance due to specific police requirements.
3. *Heavy duty vehicles* – Heavy duty vehicles mostly incorporate large pickup trucks. These vehicles are used for hauling and towing heaving loads.
4. *Large heavy duty vehicles* – This category is for the large snow plows and street sweeper. These vehicles typically are only used seasonally and have a varying work load that is dependent on the weather
5. *Non-road vehicles* – These vehicles are typically construction type vehicles. There usage is usually measured in hours of operation instead of miles.

| | Vehicle Category | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | Total |
| **Building Inspection** | 3 | | | | | 3 |
| **Code Enforcement** | 2 | | | | | 2 |
| **Engineering** | 4 | | | | | 4 |
| **Facilities** | 3 | | 1 | | | 4 |
| **Finance** | 2 | | | | | 2 |
| **Parks** | 10 | | 12 | | | 22 |
| **Police** | 7 | 23 | | | | 30 |
| **Rec Center** | 1 | | 2 | | | 3 |
| **Streets** | | | 4 | 5 | 2 | 11 |
| **Utilities** | 2 | | 10 | 2 | 3 | 17 |
| **WTP** | 4 | | 1 | | | 5 |
| **WWTP** | 3 | | 1 | | | 4 |
| **open space** | 4 | | 2 | 1 | | 7 |
| **Grand Total** | 45 | 23 | 33 | 8 | 5 | 114 |

# Louisville Fleet Decarbonization

**Fleet Vehicle Emissions**

Three key factors contribute to a vehicle's annual CO2 emissions: average miles driven/hours operated, fuel efficiency, and CO2 emissions factor of fuel source. Based on data provided by the City of Louisville, research from the Environmental Protection Agency, and various other public sources estimated Fleet vehicles emissions were calculated. Vehicle specific mile per gallon were used where available. For all heavy-duty vehicles, categories 3 and 4, mile per gallon data is not available and driver reported data from Fuelly.com was used. All category 5 data is based on estimated hours of use and typical gallons of fuel used per hour.

lb of CO2 per year based on average miles driven per year

| | Vehicle Category | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | Total |
| **Building Inspection** | 8,505 | | | | | 8,505 |
| **Code Enforcement** | 10,692 | | | | | 10,692 |
| **Engineering** | 15,814 | | | | | 15,814 |
| **Facilities** | 13,456 | | 9,263 | | | 22,719 |
| **Finance** | 1,640 | | | | | 1,640 |
| **Parks** | 128,631 | | 82,799 | 1,280 | | 212,709 |
| **Police/Admin** | 35,938 | 22,821 | | | | 58,760 |
| **Police/Detective** | 5,350 | | | | | 5,350 |
| **Police/Patrol** | | 228,640 | | | | 228,640 |
| **Rec Center** | 2,472 | | 2,768 | | | 5,240 |
| **Streets** | | | 40,176 | 86,453 | 63,994 | 190,622 |
| **Utilities** | 21,564 | | 72,880 | 23,043 | 17,578 | 135,065 |
| **Water/Waste Water** | 52,836 | | 3,691 | | | 56,526 |
| **Total** | 296,898 | 251,461 | 211,576 | 110,775 | 81,572 | 952,282 |

Louisville currently sources all of it electricity from renewable sources. Because of this choice, switching to all EVs would eliminate all source of emissions from its vehicle fleet.

**Fleet EV Conversion Costs**

EVs typically have lower fuel and maintenance costs than ICE vehicles, but higher capital costs. There is industry consensus that the cost of EVs are trending downward as production volumes increase and battery costs decreases. Capital costs can sometimes be offset by state and local incentives that encourage alternative fleet implementation through funding and technical assistance. However, it is difficult for municipalities to access many of these incentives. To conduct the cost analysis, capital costs were estimated using average cost of ICE and EV by vehicle class. Specifically, replacement costs for ICE vehicles were estimated using public sources such as Kelly Blue Book. For EV public sources, there are not vehicles for every class so an average cost for all EV was used. In addition heavy duty vehicles, large heavy duty vehicles, and construction non-road type vehicles do not have readily available EV comparables so a 50% premium was added to the EV costs. These assumptions can be further refined as additional information becomes available.

Fleet vehicle Class

| | | Vehicle class | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Department/Type** | **Model** | **2** | **7** | **8** | **9** | **11** | **13** | **14** | **15** | **16** | **17** |
| Building Inspection | Escape | | 2 | | | | | | | | |
| | F150 | | | | | | 1 | | | | |
| Code Enforcement | Colorado | | | 1 | | | | | | | |
| | Dakota | | | 1 | | | | | | | |
| Engineering | Colorado | | | 2 | | | | | | | |
| | Expedition | | | | | | | | 2 | | |
| Facilities | Civic | 1 | | | | | | | | | |
| | Colorado | | | 1 | | | | | | | |
| | F150 | | | | | | 1 | | | | |
| | Silverado 3/4 4X4 | | | | | | | | | 1 | |
| Finance | Bolt | | | | | | | 1 | | | |
| | Impalla | | | | 1 | | | | | | |
| Parks | 1500 | | | | | | | | | 1 | |
| | 2500 | | | | | | | | | 2 | |
| | 3500 | | | | | | | | | 1 | |
| | Colorado | | | 11 | | | | | | | |
| | Dakota | | | 2 | | | | | | | |
| | F250 | | | | | | | | | 2 | |
| | F350 | | | | | | | | | 4 | |
| | F550 | | | | | | | | | 1 | |
| | F750 | | | | | | | | | 1 | |
| | Silverado 3/4 4X4 | | | | | | | | | 3 | |
| | Tacoma | | | 1 | | | | | | | |
| Police/Admin | Caprice | | | | 1 | | | | | | |
| | Explorer | | 5 | | | | | | | | |
| Police/Detective | Caprice | | | | 1 | | | | | | |
| | Expedition | | | | | | | | 1 | | |
| Police/Patrol | Expedition | | | | | | | | 1 | | |
| | Explorer | | 21 | | | | | | | | |
| Rec Center | 2500 | | | | | | | | | 1 | |
| | Caravan | | | | | 1 | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | E350 | | | | | | | | | 1 | |
| Street | 600BAH | | | | | | | | | | 1 |
| | 2500 | | | | | | | | | 1 | |
| | Silverado 3/4 4X4 | | | | | | | | | 1 | |
| | F550 | | | | | | | | | 2 | |
| | 7400 | | | | | | | | | | 3 |
| | HV 513 6x4 | | | | | | | | | | 1 |
| | 624K | | | | | | | | | | 1 |
| | 624I | | | | | | | | | | 1 |
| Utilities | 2500 | | | | | | | | | 4 | |
| | 2500 | | | | | | | | | 2 | |
| | Colorado | | | 1 | | | | | | | |
| | F150 | | | | | | 1 | | | | |
| | F250 | | | | | | | | | 1 | |
| | F450 | | | | | | | | | 1 | |
| | MV607 | | | | | | | | | | 1 |
| | Silverado 3/4 4X4 | | | | | | | | | 1 | |
| | F550 | | | | | | | | | 1 | |
| | 410J | | | | | | | | | | 1 |
| | 410L | | | | | | | | | | 1 |
| | 7400 | | | | | | | | | | 1 |
| | 7400 | | | | | | | | | | 1 |
| WTP | Colorado | | | 1 | | | | | | | |
| | F150 | | | | | | 3 | | | | |
| | F250 | | | | | | | | | 1 | |
| WWTP | Colorado | | | 1 | | | | | | | |
| | Escape | | 1 | | | | | | | | |
| | F150 | | | | | | 1 | | | | |
| | F250 | | | | | | | | | 1 | |
| Grand Total | | 1 | 29 | 22 | 3 | 1 | 7 | 1 | 4 | 34 | 12 |

Even though there are not direct EV replacements for all classes of vehicles in the table above there are enough EV choices in the market that a comparable EV could be purchased. For vehicle classes 16 and 17 there are currently not EV options available. The market is rapidly changing and EV equivalents should be available in the market in the next 10 years. Please note that the EV cost reflects the averaged MSRP of a midsized crossover (Hyundai Kona) and full-sized pickup (Ford F150 Lightning). We have assumed that some portion of Louisville's existing F150s and Expeditions can be replaced by smaller electric fleet vehicles.

Vehicle class costs

| Class | Type | Average Cost |
|---|---|---|
| 1 | subcompact car | 23,156 |
| 2 | compact car | 25,954 |
| 3 | small/mid-size pickup truct | 28,911 |
| 4 | subcompact suv/crossover | 29,646 |
| 5 | Mid-size car | 31,211 |
| 6 | Hybrid energy car | 33,162 |

| | | |
|---|---|---|
| 7 | compact suv/crossover | 33,414 |
| 8 | Mid-size pickup truck | 41,311 |
| 9 | full-size car | 43,112 |
| 10 | mid-size SUV/crossover | 45,487 |
| 11 | minivan | 45,574 |
| 12 | van | 48,018 |
| 13 | full - size pickup truck | 60,022 |
| 14 | Electric vehicle | 47,430* |
| 15 | Full size SUV/crossover | 72,073 |
| 16 | Heavy Duty Truck | 75,861 |
| 17 | Construction Equipment | 155,670 |
| 18 | Electric Heavy Duty | 113,791.50 |
| 19 | Electric Construction | 233,505.00 |

For first cost comparison assuming all vehicles could be replaced with an EV equivalent the table below shows the estimated costs by departments for all vehicles in that department. It is expected that these costs will come down as the EV adoption rate increases.

**Fleet Maintenance Costs**

Due to a more streamlined vehicle system, EVs contain fewer moving components that are vulnerable for repair than in ICE vehicles. With over a dozen moving components, ICE vehicle repairs on the engine, transmission system and gearbox are likely over the vehicle's lifespan. In addition, brake system maintenance costs are about fifty percent less in EVs due to regenerative braking. Regenerative braking is the recovery of kinetic energy during braking. In ICE vehicles, the majority of kinetic energy is converted into heat and emitted unused into the environment during friction braking. EVs can use the electric motor to recover a portion of the kinetic energy for reuse. Regenerative braking provides an extended range while lowering fuel consumption and GHG emissions.

The table below compares maintenance cost of Louisville's vehicles in two different scenarios over the vehicles typical replacement schedule. Scenario one is status quo with all vehicles having internal combustion engines. The second scenario is all vehicles being converted to EV. Both of these scenarios assume the vehicle would be replaced due to age vs mileage, which in general holds true for most city vehicles.

In general the EV maintenance cost are about 75% of the ICE maintenance costs. Louisville currently does a lot of its own maintenance on all of its combustion engine vehicles. If the city starts to switch to EV additional training will be needed and this will likely add some additional cost until EV technicians become more prevalent in the workforce.

Vehicle Maintenance costs

| | Vehicle category | Quantity of each Type | Sum of average miles | Maintenance Cost All Combustion over vehicle Life | Maintenance Costs all EV |
|---|---|---|---|---|---|
| Building Inspection | 1 | 3 | 5,812 | $5,580 | $2,790 |

# Louisville Fleet Decarbonization

| | | | | | |
|---|---|---|---|---|---|
| Code Enforcement | 1 | 2 | 7,047 | $6,765 | $3,383 |
| Engineering | 1 | 4 | 9,548 | $9,166 | $4,583 |
| Facilities | 1 | 3 | 10,332 | $9,919 | $4,959 |
| | 3 | 1 | 6,143 | $14,669 | $12,384 |
| Finance | 1 | 2 | 2,903 | $2,787 | $1,393 |
| Parks | 1 | 14 | 87,463 | $83,964 | $41,982 |
| | 3 | 14 | 48,099 | $114,860 | $96,968 |
| | 4 | 1 | 241 | $719 | $607 |
| Police/Admin | 1 | 5 | 26,541 | $25,479 | $12,740 |
| | 2 | 1 | 16,103 | $25,894 | $18,293 |
| Police/Detective | 1 | 2 | 3,173 | $3,046 | $1,523 |
| Police/Patrol | 2 | 22 | 161,377 | $259,494 | $183,324 |
| Rec Center | 1 | 1 | 1,872 | $1,797 | $899 |
| | 3 | 2 | 1,567 | $3,742 | $3,159 |
| Streets | 3 | 4 | 20,322 | $48,529 | $40,969 |
| | 4 | 5 | 16,279 | $48,593 | $41,023 |
| | 5 | 2 | 482 | $1,918 | $1,620 |
| Utilities | 1 | 2 | 12,704 | $12,196 | $6,098 |
| | 3 | 10 | 43,464 | $103,792 | $87,623 |
| | 4 | 2 | 1,736 | $5,182 | $4,375 |
| | 5 | 3 | 486 | $1,934 | $1,633 |
| WTP | 1 | 4 | 24,639 | $23,653 | $11,827 |
| | 3 | 1 | 1,300 | $3,104 | $2,621 |
| WWTP | 1 | 3 | 12,077 | $11,594 | $5,797 |
| | 3 | 1 | 857 | $2,047 | $1,728 |
| Total | | 114 | 522,567 | $830,425 | $594,300 |

| Type | Replacement Year | Replace after Mileage/hours | Maintenance costs per mile ICE | Maintenance costs per mile EV |
|---|---|---|---|---|
| 1 | 12 | 120,000 | 0.08 | 0.04 |
| 2 | 8 | 80,000 | 0.201 | 0.142 |
| 3 | 12 | 120,000 | 0.199 | 0.168 |
| 4 | 15 | 80,000 | 0.199 | 0.168 |
| 5 | 20 | 10,000 hours | 0.199 | 0.168 |

**Fleet Fuel Savings**

EVs typically achieve better fuel economy and have lower fuel costs than similar ICE vehicles. A comparison of assumed average fuel efficiencies is shown on below. Fuel efficiencies for ICE vehicles were based on vehicle specification sheets and performance. Fuel efficiencies for EVs were estimated using public sources. There is no published data on electric heavy and light construction vehicles and it was assumed they would be use 3 to 5 times more electricity than light passenger vehicles.

| Department/Type | Vehicle category | Average of city mpg or gallons/hr | Average of Highway |
|---|---|---|---|
| Building Inspection | 1 | 24 | 30 |
| Code Enforcement | 1 | 16 | 21 |
| Engineering | 1 | 14 | 18 |
| Facilities | 1 | 18 | 24 |
| | 3 | 15 | 19 |
| Finance | 1 | 72 | 67 |
| Parks | 1 | 16 | 21 |
| | 3 | 13 | 15 |
| | 4 | 5 | 5 |
| Police | 1 | 16 | 23 |
| | 2 | 17 | 22 |
| Rec Center | 1 | 17 | 25 |
| | 3 | 13 | 13 |
| Streets | 3 | 12 | 13 |
| | 4 | 5 | 5 |
| | 5* | 5 | |
| Utilities | 1 | 14 | 18 |
| | 3 | 13 | 13 |
| | 4 | 5 | 5 |
| | 5* | 3 | 5 |
| WTP | 1 | 16 | 22 |
| | 3 | 14 | 14 |
| WWTP | 1 | 18 | 24 |
| | 3 | 14 | 14 |
| Grand Total | | 15 | 19 |

| Vehicle Type | kWh/100 miles |
|---|---|
| 1 | 35 |
| 2 | 40 |
| 3 | 45 |
| 4 | 150 |
| 5 | 200 |

# Louisville Fleet Decarbonization

On top of fuel efficiency improvements with EVs, the cost per kWh of electricity tends to be lower and more stable than the cost per gallon of gasoline or diesel. The fuel costs used can be seen below. These costs are a snapshot in time and have recently varied greatly. The cost of using electricity to fuel the vehicles is relatively cheap if the charging cycle does not increase the demand charge. For most of the cities buildings if charging at night the buildings peak demand won't be effected. For the City services building due to the large number of fleet vehicles located there it is likely the peak demand charge will increase. This additional cost is taken into account by using the blended electricity rate from the table below for any vehicle that would be stored at that site.

| **Gasoline Price** | **Diesel Price** | **Commercial Electricity Price blended ($/kWh)** | **Commercial Electricity Price ($/kWh)** |
|---|---|---|---|
| $4.01 | 4.946 | $0.11 | $0.05 |

Overall switching all fleet vehicles to EVs has the potential to save up to 90% on fueling costs. This is high dependent on the current gas and diesel fuel costs.

| Department/Type | Vehicle category | Quantity of each Type | Sum of average Miles Traveled | Total Gallons Consumed | Cost of Fuel | Total EV kWh Consumed | Cost of kWh |
|---|---|---|---|---|---|---|---|
| Building Inspection | 1 | 3 | 5,812 | 355 | $1,423 | 2,034 | $220 |
| Code Enforcement | 1 | 2 | 7,047 | 446 | $1,789 | 2,466 | $266 |
| Engineering | 1 | 4 | 9,548 | 659 | $2,645 | 3,342 | $361 |
| Facilities | 1 | 3 | 10,332 | 561 | $2,251 | 3,616 | $391 |
| | 3 | 1 | 6,143 | 392 | $1,574 | 2,457 | $265 |
| Finance | 1 | 2 | 2,903 | 68 | $274 | 1,016 | $46 |
| Parks | 1 | 14 | 87,463 | 5,363 | $21,518 | 30,612 | $3,306 |
| | 3 | 14 | 48,099 | 3,490 | $14,080 | 19,010 | $2,053 |
| | 4 | 1 | 241 | 48 | $238 | 108 | $12 |
| Police | 1 | 1 | 29,714 | 1,722 | $6,907 | 10,400 | $468 |
| | 2 | 2 | 177,480 | 10,485 | $42,065 | 62,118 | $2,795 |
| Rec Center | 1 | 4 | 1,872 | 103 | $414 | 655 | $29 |
| | 3 | 5 | 1,567 | 117 | $470 | 627 | $28 |
| Streets | 3 | 2 | 20,322 | 1,615 | $7,129 | 8,477 | $916 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 4 | 2 | 16,279 | 3,256 | $16,103 | 24,419 | $1,099 |
| | 5 | 10 | 482 | 2,410 | $11,920 | 723 | $33 |
| Utilities | 1 | 2 | 12,704 | 899 | $3,607 | 4,446 | $480 |
| | 3 | 3 | 41,016 | 3,086 | $12,386 | 16,409 | $1,772 |
| | 4 | 4 | 4,184 | 837 | $4,139 | 6,276 | $514 |
| | 5 | 1 | 486 | 693 | $3,428 | 729 | $33 |
| WTP | 1 | 3 | 24,639 | 1,458 | $5,851 | 8,624 | $388 |
| | 3 | 1 | 1,300 | 94 | $378 | 520 | $23 |
| WWTP | 1 | 7 | 12,077 | 745 | $2,987 | 4,227 | $408 |
| | 3 | 23 | 857 | 62 | $249 | 343 | $15 |
| Total | | 114 | 522,567 | 38,964 | $163,824 | 213,655 | $15,921 |

# Louisville Fleet Decarbonization

**Fleet EV Conversion Plan**

Assuming EV vehicle innovation continues the City should be able to replace all vehicles with an EV equivalent over the next 7 to 17 years. The City will need to decide if replacing some lightly used construction type equipment is worth the premium that will most likely be charged, otherwise all other vehicles will have an EV equivalent on the market.

Most city vehicles are assigned to a single person making consolidating difficult. If the City does want to consolidate the parks, utilities, and street departments have the most number of vehicles, most of which are stored at the City Services building. During our visits to this site there were always ~10 trucks parked in the back not in use at the specific time. In addition, there are a number of parking lot snowplow trucks staged at certain locations to plow the parking lots. These could possibly be reduced but would require city personnel to drive from site to site with the plow trucks.

McKinstry would recommend that the City replace vehicles with EV after the current vehicle has meet its replacement criteria. The table below shows the current replacement schedule assuming current usage pattern and shows what type of vehicle will be purchased. Some vehicles will need to be replaced before there is an EV equivalent on the market, in those cases it is assumed that a new ICE vehicle will be purchased and then will be replaced with an EV in the next cycle. In general, it is assumed all type 2 vehicles (mostly police vehicles) will not have an EV equivalent until 2027 and all type 3, 4, and 5 vehicles until 2030.

| Department | Replacement Type | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|
| Building Inspection | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Code Enforcement | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Engineering | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Facilities | ICE | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | EV | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Finance | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parks | ICE | 5 | 1 | 1 | 0 | 4 | 0 | 0 | 0 |
| | EV | 8 | 1 | 1 | 0 | 0 | 2 | 1 | 1 |
| Police | ICE | 12 | 2 | 3 | 2 | 0 | 0 | 0 | 0 |
| | EV | 0 | 2 | 0 | 0 | 2 | 3 | 2 | 2 |
| Rec Center | ICE | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Streets | ICE | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 |
| | EV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Utilities | ICE | 3 | 0 | 0 | 0 | 1 | 1 | 1 | 2 |
| | EV | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| WTP | ICE | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| WWTP | ICE | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | ICE | 23 | 4 | 7 | 2 | 6 | 2 | 1 | 2 |
| | EV | 18 | 4 | 2 | 2 | 3 | 5 | 3 | 13 |

# Louisville Fleet Decarbonization

| Department | Replacement Type | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Building Inspection | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Code Enforcement | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Engineering | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Facilities | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 |
| Finance | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Parks | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 3 | 0 | 1 | 1 | 12 | 2 | 2 | 0 | 4 | 3 |
| Police | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 13 | 4 | 4 | 1 | 3 | 5 | 3 | 1 | 13 | 3 |
| Rec Center | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| Streets | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | EV | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 |
| Utilities | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 1 | 1 | 0 |
| WTP | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| WWTP | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EV | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Total | ICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | EV | 17 | 7 | 8 | 4 | 32 | 9 | 8 | 3 | 20 | 7 |

Assuming the above replacement schedule an estimated replacement cost is shown below. A yearly inflation rate of 2.5% was used.

| Department | Replacment Type | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Building Inspection | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $86,387 | $0 | $0 |
| Code Enforcement | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $55,212 | $0 | $0 | $0 | $60,944 | $0 |
| Engineering | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $303,075 | $0 | $0 | $0 | $0 | $0 |
| Facilities | ICE | $0 | $0 | $0 | $0 | $83,736 | $0 |
| | EV | $89,899 | $0 | $0 | $0 | $0 | $0 |
| Finance | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $57,619 | $0 | $0 | $0 | $0 | $0 |
| Parks | ICE | $379,305 | $77,758 | $79,701 | $0 | $334,945 | $0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | EV | $487,872 | $56,592 | $58,007 | $0 | $0 | $124,935 |
| Police | ICE | $478,286 | $68,499 | $105,317 | $71,966 | $0 | $0 |
| | EV | $0 | $118,119 | $0 | $0 | $98,588 | $151,578 |
| Rec Center | ICE | $151,722 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $63,993 | $0 | $0 | $0 |
| Streets | ICE | $0 | $0 | $322,954 | $0 | $0 | $85,830 |
| | EV | $0 | $0 | $0 | $0 | $0 | $0 |
| Utilities | ICE | $227,583 | $0 | $0 | $0 | $83,736 | $176,126 |
| | EV | $55,212 | $0 | $0 | $86,387 | $0 | $0 |
| WTP | ICE | $75,861 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $56,592 | $0 | $0 | $0 | $0 |
| WWTP | ICE | $0 | $77,758 | $0 | $0 | $0 | $0 |
| | EV | $55,212 | $0 | $0 | $0 | $0 | $0 |
| Total | ICE | $1,312,757 | $224,014 | $507,972 | $71,966 | $502,418 | $261,956 |
| | EV | $1,104,102 | $231,304 | $122,000 | $172,775 | $159,531 | $276,513 |
| | All Vehicles | $2,416,859 | $455,317 | $629,972 | $244,741 | $661,949 | $538,469 |

| Department | Replacement Type | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 |
|---|---|---|---|---|---|---|---|
| Building Inspection | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $0 | $114,331 | $0 |
| Code Enforcement | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $0 | $0 | $0 |
| Engineering | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $0 | $0 | $0 |
| Facilities | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $100,183 | $0 | $0 |
| Finance | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $0 | $81,144 | $0 |
| Parks | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $64,029 | $120,518 | $258,072 | $0 | $129,785 | $72,443 |
| Police | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $103,579 | $106,168 | $770,296 | $223,085 | $228,663 | $58,595 |
| Rec Center | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $0 | $0 | $0 |
| Streets | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $615,137 | $0 | $259,829 | $0 | $272,983 |
| Utilities | ICE | $87,976 | $370,085 | $0 | $0 | $0 | $0 |
| | EV | $0 | $482,074 | $0 | $0 | $0 | $133,030 |
| WTP | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $190,711 | $97,739 | $0 | $0 | $0 |
| WWTP | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $95,355 | $0 | $55,771 | $0 | $0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total | ICE | $87,976 | $370,085 | $0 | $0 | $0 | $0 |
| | EV | $167,608 | $1,609,963 | $1,126,108 | $638,869 | $553,923 | $537,051 |
| | All Vehicles | $255,583 | $1,980,049 | $1,126,108 | $638,869 | $553,923 | $537,051 |

| Department | Replacement Type | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|---|---|
| Building Inspection | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $0 | $0 | $0 | $116,181 | $0 | $0 |
| Code Enforcement | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $74,254 | $0 | $0 | $0 | $81,963 | $0 |
| Engineering | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $407,602 | $0 | $0 | $0 | $0 | $0 |
| Facilities | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $120,905 | $0 | $0 | $0 | $150,511 | $0 |
| Finance | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $77,491 | $0 | $0 | $0 | $0 | $0 |
| Parks | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $1,263,658 | $215,875 | $221,272 | $0 | $602,044 | $252,035 |
| Police | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $249,666 | $343,540 | $189,301 | $64,678 | $938,531 | $203,856 |
| Rec Center | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $272,711 | $0 | $86,064 | $0 | $0 | $0 |
| Streets | ICE | $0 | $0 | $0 | $0 | $0 | $236,870 |
| | EV | $0 | $0 | $286,517 | $0 | $0 | $154,274 |
| Utilities | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $763,128 | $0 | $0 | $116,181 | $150,511 | $0 |
| WTP | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $136,356 | $76,110 | $0 | $0 | $0 | $0 |
| WWTP | ICE | $0 | $0 | $0 | $0 | $0 | $0 |
| | EV | $74,254 | $139,764 | $0 | $0 | $0 | $0 |
| Total | ICE | $0 | $0 | $0 | $0 | $0 | $236,870 |
| | EV | $3,440,025 | $775,290 | $783,153 | $297,040 | $1,923,560 | $610,165 |
| | All Vehicles | $3,440,025 | $775,290 | $783,153 | $297,040 | $1,923,560 | $847,035 |

# Louisville Fleet Decarbonization

Over the next 17 year, if the above replacement schedule was followed, the incremental initial vehicle cost would be $4.3M, but the incremental cost on a lifecycle basis would only be $1M. The amount of CO2 emissions saved would be ~9 million lb. These numbers does not include any financing costs, but do include 2.5% inflation, electric rate inflation of 2.44%, and gas/diesel cost escalation of 2.65%.

| | Vehicle replacement cost | Fuel Costs | Maintenance Costs | Total Cost | Total Emissions lb of co2 |
|---|---|---|---|---|---|
| Status Quo, keep buying ICE | $14,446,954 | $3,912,658 | $1,596,579 | $19,956,191 | 16,188,795 |
| Phasing in Evs | $18,104,994 | $1,710,455 | $1,178,767 | $20,994,216 | 6,936,913 |

At this time McKinstry does not recommend leasing EVs as the biggest benefit to leasing would be on the maintenance costs and possibly being able to receive some of the vehicle tax incentives. Maintenance costs for EV are less than ICE and City already does most of its own maintenance. Some retraining of the city's fleet mechanics may be needed but in general EV's are easier to maintain other than the electronic components, but most electronic issues are likely to happen during the warranty period when the dealer would be responsible for fixing. In addition, as more EV are adopted more qualified EV technicians will become available for the city to hire.

Because the City is a public entity it is hard to qualify for tax credit and incentives. There are some unique purchasing mechanisms available that allow public entities to receive part of these tax incentives but with all the recent changes in these program this will need to be further investigated.

There are no specific fire code for EV vehicles. Because most EV batteries are integral to the vehicle, are not designed to be replaced easily, and are expected to last the lifetime of the City's replacement schedule EV battery storage will not be necessary or recommended.




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# Louisville
# Miscellaneous Equipment
## Decarbonization Analysis and Info

# Louisville Summary Supporting Info

## 1 - Executive Summary

### Small Vehicle EV Charging

Relative to automobiles, gas powered lawn and garden equipment produce far fewer total carbon emissions, but they still add significantly to the problem with carbon accumulation and also with deteriorating air quality in urban areas. The US Department of Energy estimates that 1.2 billion gallons of gasoline are consumed annually in the US for lawn care. This translates to nearly 12 Million tons of CO2 emitted per year.

Small gasoline engines like those in gas powered riding mowers and garden equipment are fast becoming the number one contributor to smog forming air pollution. These small engines emit hundreds of times more pollutants per hour than automobile engines. These pollutants - benzene, butadiene, formaldehyde, oxides of nitrogen, carbon monoxide and small particulates are known carcinogens and known respiratory, cardiovascular, and neurological health risks. The EPA considers gasoline powered lawn and garden equipment “an important source of dangerous air pollution.”

New lithium battery powered riding mowers, park equipment, and leaf blowers compete effectively with gasoline powered tools regarding power and performance and have significantly longer operating run times than older electric models. On top of that these new tools are quieter and will not produce the lingering gasoline smells that are an indicator of the fumes and pollution that gasoline powered equipment produces.

# Louisville Summary Supporting Info

**Current equipment**

The city currently has three departments that own the majority of the small engine vehicles and equipment. The is equipment was broken down into smaller subcategories for analysis. The table below show she equipment categories.

| | Qty of equipment | | |
|---|---|---|---|
| **Type** | **golf qty** | **parks** | **open space** |
| aerator | 1 | 0 | 0 |
| ATV | 8 | 12 | 0 |
| blower | 3 | 0 | 0 |
| Cart | 3 | 0 | 0 |
| chainsaw | 2 | 2 | 0 |
| chipper | 0 | 1 | 0 |
| excavator | 0 | 1 | 0 |
| forklift | 0 | 11 | 0 |
| generator | 0 | 0 | 0 |
| loader | 1 | 0 | 0 |
| mower | 17 | 16 | 2 |
| roller | 0 | 1 | 0 |
| saw | 0 | 1 | 0 |
| skid | 0 | 2 | 0 |
| sprayer | 1 | 0 | 0 |
| tractor | 1 | 3 | 0 |
| trimmer | 4 | 0 | 0 |
| washer | 1 | 0 | 0 |

# Louisville Summary Supporting Info

This equipment was then assigned typical yearly runtime hours which could be used calculate the carbon emissions, maintenance costs, and replacement costs. The table below provides the hours of runtime for each equipment category. Runtimes were estimated based on the existing equipment type and confirmed with golf, parks, and open space facilities teams.

| | hours of operation per year | | |
|---|---|---|---|
| **Type** | **golf** | **parks** | **open space** |
| aerator | 50 | 0 | 0 |
| ATV | 30 | 50 | 0 |
| blower | 100 | 0 | 80 |
| Cart | 1000 | 125 | 0 |
| chainsaw | 50 | 0 | 0 |
| chipper | 50 | 120 | 40 |
| excavator | 0 | 50 | 30 |
| forklift | 0 | 50 | 30 |
| generator | 0 | 0 | 40 |
| loader | 100 | 0 | 50 |
| mower | 800 | 380 | 300 |
| roller | 45 | 50 | 60 |
| saw | 0 | 190 | 0 |
| skid | 0 | 50 | 80 |
| sprayer | 50 | 0 | 0 |
| tractor | 50 | 65 | 30 |
| trimmer | 500 | 0 | 200 |
| washer | 50 | 0 | 60 |

The EPA has published typical emission factors for small engines. These factors scale with engine size. The table below provides these factors for both gasoline and diesel. Most of the Cities equipment is gasoline.

| HP | CO2 lbs/yr gas | CO2 lbs/yr diesel |
|---|---|---|
| 1 | 1.08366 | 1.14138 |

# Louisville Summary Supporting Info

Using the same fuel costs as the fleet vehicles and the above emission factors we were able to estimate the total cost of running the small engine equipment and it emissions.

| Equipment type | Gallons of Fuel (yearly) | Fuel Cost (yearly) | Lb of CO2 (yearly) |
|---|---|---|---|
| aerator | 46 | 185 | 623 |
| ATV | 756 | 3,062 | 10,440 |
| blower | 222 | 889 | 3,002 |
| Cart | 1,680 | 6,740 | 22,757 |
| chainsaw | 18 | 71 | 238 |
| chipper | 408 | 1,637 | 5,527 |
| forklift | 232 | 931 | 3,143 |
| loader | 126 | 622 | 2,511 |
| mower | 18,346 | 77,358 | 274,348 |
| roller | 40 | 160 | 542 |
| saw | 160 | 640 | 2,162 |
| skid | 431 | 2,050 | 8,039 |
| sprayer | 50 | 201 | 677 |
| tractor | 390 | 1,929 | 7,790 |
| trimmer | 200 | 802 | 2,709 |
| **Grand Total** | **23,104** | **97,277** | **344,507** |

**Small Engine Electrification**

Most the equipment categories currently have electric equivalents available. The categories that do not or have very limited choices are, tractor, skid, loader, chipper, and roller. Some of these types of equipment are actively being developed. In addition, in the mower category there is some specialty golf mowers that do not have a good electric choice.

Unfortunately, unlike the electric fleet vehicles most of the electric lawn care equipment does not have battery warranty that match the equipment warranty. As this technology matures the warranties will get better.

Another large hurdle for this equipment is the cost of the electrified version. Most electric versions of the non-handheld equipment is about 1.75 times the cost of the gas version. Maintenance costs are lower but not enough to offset the initial up-front cost.

# Louisville Summary Supporting Info

The table below shows the electrical cost and cost to purchase new electric versions of the equipment. Cost for most of the equipment is estimated to be about 1.75 time the gas/diesel powered equivalent.

| Type | Count of Type | Electric Fuel (kWh) | Electric Fuel Cost ($) | Electric Vehicle Costs ($) |
|---|---|---|---|---|
| aerator | 1 | 858 | 39 | 39,839 |
| ATV | 18 | 14,331 | 1,336 | 403,765 |
| blower | 3 | 4,133 | 186 | 25,088 |
| Cart | 3 | 31,332 | 1,410 | 36,750 |
| chainsaw | 2 | 328 | 15 | 2,056 |
| chipper | 2 | 7,609 | 822 | 57,579 |
| forklift | 1 | 4,327 | 467 | 50,703 |
| generator | 11 | - | - | 775,520 |
| loader | 1 | 3,282 | 148 | 9,471 |
| mower | 35 | 372,136 | 27,701 | 1,539,193 |
| roller | 1 | 746 | 81 | 25,673 |
| saw | 1 | 2,977 | 321 | 9,184 |
| skid | 5 | 10,593 | 1,144 | 355,859 |
| sprayer | 1 | 933 | 42 | 62,272 |
| tractor | 4 | 10,183 | 947 | 247,067 |
| trimmer | 4 | 3,730 | 168 | 2,450 |
| washer | 1 | - | - | 5,369 |
| **Grand Total** | **94** | **467,498** | **34,826** | **3,647,837** |

McKinstry would recommend replacing existing equipment that is at the end of its life, most large equipment is replaced by the department every 8 years, with the electric equivalent.

**Refueling/charging**

With the newest battery technology available most of the larger equipment can operate during a typical workday. This equipment isn't designed for battery swap out in the field, so if the battery charge got low the operator would need to plug it in somewhere to charge or switch to a different piece of equipment. Typically, they would need to switch to a different piece of equipment. The charging time for this equipment isn't fast enough to get a full charge in a reasonable amount of time. For smaller handheld equipment spare batteries can carried along to change out and when the charge gets low. This will take some training to get operators use to carrying around extra batteries that are fully charged. When the city switches to the fleet vehicles to EV's, most

work style trucks may have the ability to charge auxiliary devices like batteries for small handheld equipment. For most of this equipment it is recommended that everything be charged overnight as it is unlikely that anything would be able to be charged during the day and used that same day.

**Charging**

Most small motor equipment will require at least a 120v 15amp circuit to charge. It is recommended that there is one dedicated plug for each piece of equipment. Additional electrical infrastructure will be needed to make charging plugs accessible to all equipment where it is stored.

**Battery Life**

Battery technology is significantly improving year to year. Most batteries are Lithium based and have longer life spans than the equipment. Depending on the manufacture the battery warranty may or may not match the typical equipment life. For small handheld equipment purchasing extra batteries will allow longer use and does not add much cost. For larger equipment the battery can be a significant part of the cost and having a second battery on hand will be cost prohibitive.  In addition, the larger equipment isn't always designed for quick battery change outs. Like electric vehicles, batteries for this type of equipment will eventually have warranty life greater than the cities typical use.




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## Construction Pricing Context

The MEP scope narratives described in previous sections and included in the appendices were used by McKinstry's construction division to provide Rough Order of Magnitude (ROM) pricing. This early ROM budgeting process sought to be reasonable but conservative wherever possible. **Typically for ROM-level pricing a range of +/- 20% is applied to the total construction and start up costs.** This range can be reduced, and the pricing further refined, via a deeper understanding of existing building conditions and detailed design. Note this does not account for escalation, which is addressed separately. This pricing represents the total construction and startup cost to Louisville, including:

- General contractor markup
- Design fees
- Engineering energy analysis
- Controls
- Equipment startup, commissioning, testing, and balancing
- Placeholders for miscellaneous trades (e.g. carpentry).
- Allowances specific to each building for construction conditions (e.g. crane time)

**All construction costs are in 2023 dollars unless noted otherwise.**

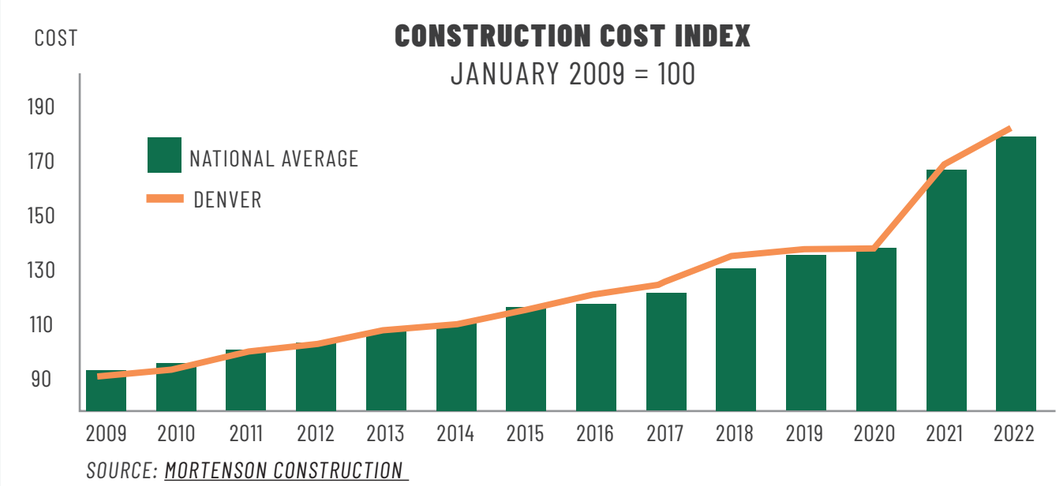
### Using These Construction Costs

Throughout this report, differentiation is made between "total construction costs" and "net cost over business-as-usual fossil fuel systems"The distinction between the two is:

- Total costs: these are the total construction costs. This is the total amount of money that will need to be allocated for budgetary purposes.
- The like-for-like project costs were derived from a combination of the City's CIP budget and detailed cost estimating of turnkey like-for-like equipment replacement as the comparison scenario.
- Net Cost: these are the total construction costs minus the like-like replacement costs that would've been spent to replace the existing units. These numbers represent the true cost of this decarbonization effort.

Note the numbers in the 2023 City Budget are budget numbers, and do not represent all costs for replacing the existing units. As such, they should not be used when determining the costs of decarbonization. In addition, the cost estimates in this report assume miscellaneous equipment (e.g. expansion tanks, domestic hot water storage tanks) need to be replaced. This assumption should be validated in detailed design, and could result in the total construction cost being lower if equipment can be reused.

As shown in the graph by the Mortenson, construction costs have been steadily rising since 2009. However, costs rose drastically from 2020 to 2022 (approximately 35%) due to global supply chain issues and unforeseen consequences of the COVID-19 pandemic.




## Constructibility

Recent upheavals in the global supply chain and labor workforce have caused uncertainty in the construction market. Our construction teams are seeing the following trends as of March, 2023:

**ELECTRICAL LEAD TIMES:**

- Most commodity items, such as conduit, wire, fittings, etc. are readily available.
- Lead times for Switchboards are being quoted 50-80 weeks. Panel-boards can be 20-40 weeks depending on complexity.

**MECHANICAL LEAD TIMES:**

- 26-30 weeks for larger and more customized equipment (50 ton RTUs)
- Equipment needs to be ordered earlier in detailed design process to accommodate long lead times. Requires additional coordination earlier in design.

In order to combat these lead time challenges, design teams may need to be flexible with their specifications and the products/manufacturers they are selecting.

**LABOR MARKET:**

While we are seeing a general relaxing of labor shortages in other markets around the country, the contractor and labor shortages continue to persist in the Denver market.

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# **Decarbonization Strategic Roadmap** | Future Weather

## Future Weather Sensitivity

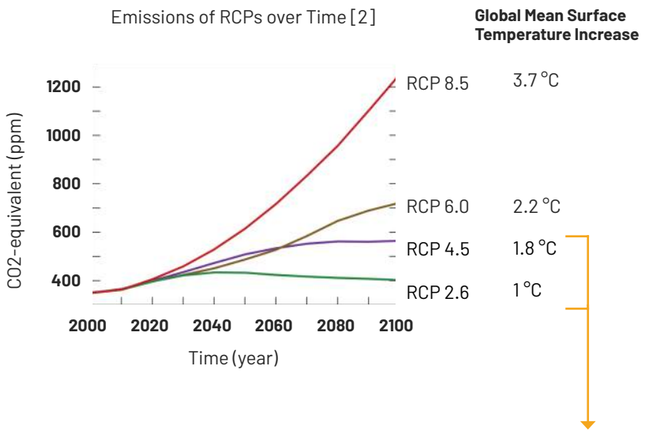
Global climate change will affect how mechanical systems designed to provide comfortable environments respond in a future, warmer environment. This document seeks to daylight ranges and uncertainties in future warming scenarios, and understand the design and energy implications of considering future weather.

The Intergovernmental Panel on Climate Change (IPCC) has introduced a concept called Representative Concentration Pathway (RCP) to try to quantify possible future climate states based on complex models of greenhouse gas (GHG) concentrations and predicted global emissions.

There are four RCPs, representing a variety of possible outcomes:

- **RCP8.5** - Business as usual, no substantial change to current global emissions rates
- **RCP6.0** - Moderate action to reduce global emissions
- **RCP4.5** - Moderately aggressive action to reduce global emissions
- **RCP2.6** - Aggressive, immediate and coordinated action to reduce global emissions

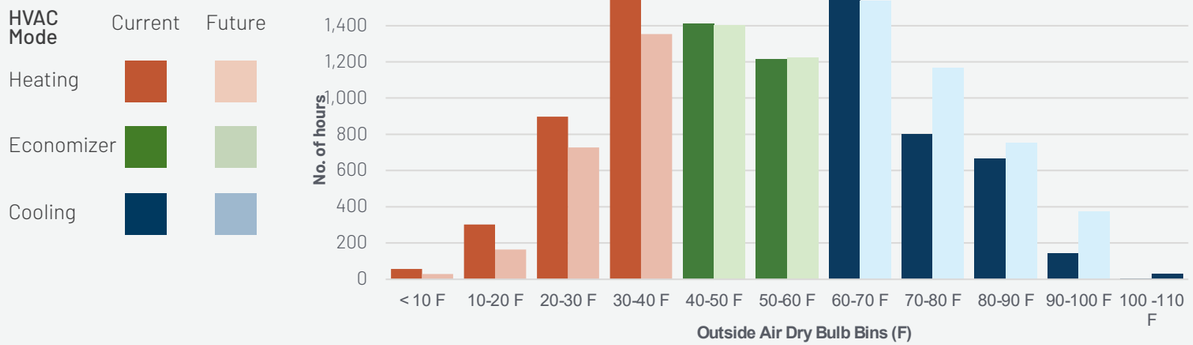
**RCP 4.5 is used for this study.**




RCP 4.5 and RCP 2.6 will both achieve the Paris Agreement target of limiting global temperature rise to below 2° C.

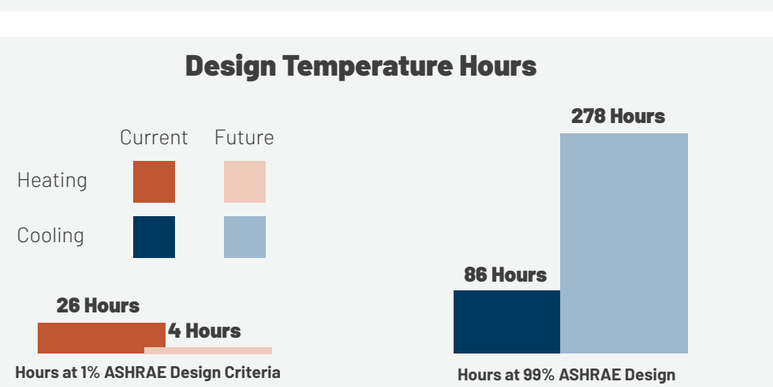
## Temperature Impact

The impact on dry bulb temperature when considering future weather can be show in the figure to the right. **Temperatures shift upward, spending less time in the colder heating temperature bins, and shifting upwards into the warmer cooling driven temperature bins.**



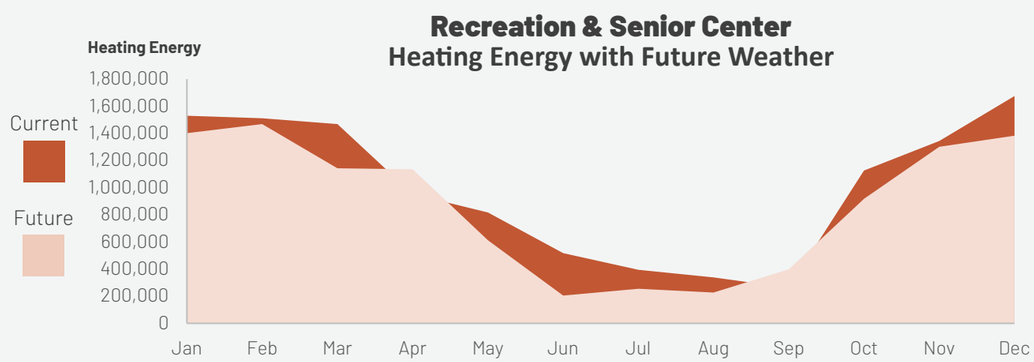

## Design Impact

This temperature shift could play a hand in decisions about equipment sizing. **There may be opportunity to downsize heating equipment based on these weather bins. Cooling equipment should be selected to prepare the city for weather of the future.**




## Energy & Carbon Impact

Building heating load is directly correlated with dry bulb temperature. **At the Recreation Center, the existing building heating load would decrease by approximately 10% under future weather conditions. There is still significant savings associated with decarbonizing the heating load.**



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# Louisville CO Decarbonization Roadmap - Cobenefits Valuation Appendix

For this assessment, McKinstry subcontracted with Autocase, a resource economics advisory service, to help establish values for certain performance parameters.

## Avoided Future Carbon Emissions Penalties

As climate change becomes an increasingly current (rather than future) reality, carbon emissions penalties are starting to be applied by leading organizations to internal operations, and by governing bodies as regulation. Colorado recently adopted HB21-1286, which establishes penalties for high Energy Use Intensity private sector buildings, and the City of Denver created Energize Denver, which has even more aggressive carbon penalties. Leading private sector firms, such as Microsoft, also apply an internal cost of carbon to lower immediate emissions and begin bending decision making to anticipate a more aggressive future carbon penalty regulatory environment. The Canadian Federal government recently adopted an internal decision making price of $261 CDN$/mton, and the EPA has draft rule of $261US. While these have yet to become actual regulatory penalties, they indicate a likely direction over time as climate change worsens. For this roadmap, an initial penalty stream based on the Colorado carbon price of $76/mton is applied from 2023-2027, moving to the draft EPA price for 2028-2040. These prices are escalated.

| Year | CO2 svings, mtons | Penalty/mton | Total |
|---|---|---|---|
| 2024 | 1010 | $76 | $76,760 |
| 2025 | 1014 | $77 | $78,078 |
| 2026 | 1022 | $78 | $79,716 |
| 2027 | 1044 | $79 | $82,476 |
| 2028 | 1088 | $223 | $242,624 |
| 2029 | 1095 | $226 | $247,470 |
| 2030 | 1554 | $230 | $357,420 |
| 2031 | 1607 | $234 | $376,038 |
| 2032 | 1651 | $237 | $391,287 |
| 2033 | 2614 | $241 | $629,974 |
| 2034 | 2631 | $245 | $644,595 |
| 2035 | 2653 | $248 | $657,944 |
| 2036 | 2656 | $252 | $669,312 |
| 2037 | 2668 | $256 | $683,008 |
| 2038 | 2668 | $259 | $691,012 |
| 2039 | 2690 | $263 | $707,470 |
| 2040 | 2695 | $267 | $719,565 |
| | 32360 | | $7,334,749 |

## Avoided Cost of Future Natural Gas Price Shock

Historically, natural gas has substantially greater price volatility than electricity, which isn't captured by typical escalation rates. The Russian invasion of Ukraine has put a spotlight on the potential for long term natural gas price instability – during 2022, natural gas prices increased by 50%, making previous natural gas escalation rate assumptions of 3-4% invalid. Many risk forecasters anticipate further natural gas instability based on volatility of many producing nations. This roadmap includes a scenario of a second natural gas price shock in 2030, mirroring the impact of the 2022 shock. Note that the Ukraine war actually resulted in a drop in average electricity prices across the US, with a slow return to median; the assumed aggregate net reduction in electricity costs over 2023-2040, assuming a 2030 price shock event, is 10%, and the aggregate net increase in natural gas over the same period is assumed at 16%.

## Value of Solar for Future Electric Micro-grid Backup Power

Currently, emergency power is provided by backup fossil fuel powered generators. A decarbonized alternative, with potentially even greater resiliency, is electric batteries fueled by on-site solar. The cost of batteries for such systems is currently cost prohibitive, but likely to drop in the future. Installing on-site solar as proposed for overall renewable power for the City has a dual benefit of helping enable future electrical islandability. The value of this is assumed at 10% of the overall cost of recommended on-site solar (which totals approximately $9 million).

## Employee and visitor health and performance: Air quality and thermal comfort

The proposed decarbonization program will also enable improvement of ventilation and filtration systems that are part of HVAC systems being electrified. Demand control ventilation can be added and optimized to better filter media. Elimination of natural gas combustion removes any risk of noxious combustion gasses (from malfunctioning exhausts, etc. Air sealing the buildings, which retains tempered indoor air, has the added benefit of excluding smog and wildfire smoke, as well as reducing mold – a substantial benefit. Finally, City Hall currently has very poor temperature control, with overheated and colder work areas. The new electrified and rezoned system will enable more comfortable work temperatures there.

For the purposes of this assessment, no indoor air quality data was available for City facilities. McKinstry HVAC engineers applied professional judgement based on literature about typical IAQ levels within facilities generally and their knowledge about the specific Louisville facilities and established an assumed IAQ performance level degradation of 20% from baseline air quality levels, for 20% of occupied hours for the higher employee density areas only. City Hall thermal performance was assumed to slightly degraded 25% of the time and moderately degraded 25% of the time, with the balance within ASHRAE setpoint guidelines.

These assumed levels were then applied to Autocase's proprietary economics model, which utilizes best available scientific literature to define value and costs associated with different performance parameters. Health outcomes assessed sum to an annual benefit of $59,000 included the following avoided outcomes:

- Mortality
- Nonfatal Heart Attacks
- Infant Mortality

- Hospital Admits, All Respiratory
- Hospital Admits, Cardiovascular
- Acute Bronchitis
- Upper Respiratory Symptoms
- Lower Respiratory Symptoms
- Emergency Room Visits, Asthma
- Asthma Exacerbation
- Wheezing
- Rhinitis
- Minor Restricted Activity Days
- Work Loss Days

Better thermal comfort settings in City Hall generate benefits to full-time employees with reduced Sick Building Syndrome symptoms. It generates an average annual benefit of $1,400 for 55 employees.

### Employee retention – climate leadership

The cost of employee turnover (training, lost knowledge, etc.) is significant in any organization. Employees take pride in working for organizations which have integrity in reflecting their values. This value stream assumes a 2% reduction in employee turnover due to its expressed climate leadership. The expressed aggregate value assumes typical turnover rates, and a cost per turnover of $23,760 (provided by the City).

# Attachment B: DOLA Grant Documentation

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# State of Colorado Intergovernmental Grant Agreement
# SUMMARY OF TERMS AND CONDITIONS

| | | |
|---|---|---|
| **State Agency**<br>Department of Local Affairs (DOLA) | **DLG Portal Number**<br>EIAF-09756 | **CMS Number**<br>189766 |
| **Grantee**<br>City of Louisville | **Grant Award Amount**<br>$2,500,000.00 | **Retainage Amount**<br>$125,000.00 |
| **Project Number and Name**<br>EIAF 9756 – CRC Louisville Recreation & Senior Center Resiliency Hub | **Performance Start Date**<br>The later of the Effective Date or March 07, 2024 | **Grant Expiration Date**<br>March 31, 2026 |
| **Project Description**<br>The Project consists of decarbonization efforts on nine (9) City facilities including a resiliency hub within the City of Louisville, Colorado. | **Program Name**<br>Energy & Mineral Impact Assistance Program ( EIAF )<br>**Funding Source**<br>STATE FUNDS<br>**Catalog of Federal Domestic Assistance (CFDA) Number**<br>N/A | |
| **DOLA Regional Manager**<br>**Chris La May, (970) 679-7679, (chris.la.may@state.co.us)** | **Funding Account Codes**<br>CTGG1 NLAA 202400003641 | |
| **DOLA Regional Assistant**<br>**Gheda Gayou, (303) 842-6318, (gheda.gayou@state.co.us)** | **VCUST#**<br>**14215** | **Address Code CN003 EFT** |

## THE SIGNATORIES LISTED BELOW AUTHORIZE THIS GRANT

**DEPARTMENT OF LOCAL AFFAIRS**
PROGRAM REVIEWER

DocuSigned by:
Angie Cue
45D2B7CF50DE4BD...

By: Angie Cue, EIAF Program Manager

Date: 3/18/2024 | 6:40 AM PDT

**STATE OF COLORADO**
Jared S. Polis, Governor
**DEPARTMENT OF LOCAL AFFAIRS**
Maria De Cambra, Executive Director

DocuSigned by:
0920A67707B9482...

By: Maria De Cambra, Executive Director

Date: 3/18/2024 | 10:43 AM MDT

In accordance with §24-30-202 C.R.S., this Grant is not valid until signed and dated below by the State Controller or an authorized delegate (the "**Effective Date**").

**STATE CONTROLLER**
**Robert Jaros, CPA, MBA, JD**

DocuSigned by:
Beulah Messick - DOLA
090ACD88A721474...

By: Beulah Messick, Controller Delegate
Department of Local Affairs

**Effective Date:** 3/19/2024 | 2:08 PM MDT

DocuSign Envelope ID: 8555DA38-E1D9-46A4-BE28-B173CB0EE252



## TERMS AND CONDITIONS

### 1. GRANT

As of the Performance Start Date, the State Agency shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement (the "State") hereby obligates and awards to Grantee shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement (the "Grantee") an award of Grant Funds in the amount shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement. By accepting the Grant Funds provided under this Intergovernmental Grant Agreement, Grantee agrees to comply with the terms and conditions of this Intergovernmental Grant Agreement and requirements and provisions of all Exhibits to this Intergovernmental Grant Agreement.

### 2. TERM

**A.** Initial Grant Term and Extension

The Parties' respective performances under this Intergovernmental Grant Agreement shall commence on the Performance Start Date and shall terminate on the Grant Expiration Date unless sooner terminated or further extended in accordance with the terms of this Intergovernmental Grant Agreement. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Intergovernmental Grant Agreement by providing Grantee with an updated Intergovernmental Grant Agreement or an executed Option Letter showing the new Grant Expiration Date.

**B.** Early Termination in the Public Interest

The State is entering into this Intergovernmental Grant Agreement to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Intergovernmental Grant Agreement ceases to further the public interest of the State or if State, Federal or other funds used for this Intergovernmental Grant Agreement are not appropriated, or otherwise become unavailable to fund this Intergovernmental Grant Agreement, the State, in its discretion, may terminate this Intergovernmental Grant Agreement in whole or in part by providing written notice to Grantee. If the State terminates this Intergovernmental Grant Agreement in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Intergovernmental Grant Agreement that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Intergovernmental Grant Agreement that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Intergovernmental Grant Agreement by the State for breach by Grantee.

**C.** *Reserved.*

### 3. AUTHORITY

Authority to enter into this Intergovernmental Grant Agreement exists in the law as follows:

**A.** *Reserved.*

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**B.** State Authority

Authority to enter into this Grant exists in C.R.S. 24-32-106 and 29-3.5-101 and funds have been budgeted, appropriated and otherwise made available pursuant to C.R.S. 39-29-110 (Local Government Severance Tax Fund) and a sufficient unencumbered balance thereof remains available for payment. Required approvals, clearance and coordination have been accomplished from and with appropriate agencies. This Intergovernmental Grant Agreement is funded, in whole or in part, with State funds.

## 4. DEFINITIONS

The following terms shall be construed and interpreted as follows:

**A.** "**Budget**" means the budget for the Work described in **Exhibit B**.

**B.** "**Business Day**" means any day on which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

**C.** *Reserved*.

**D.** "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

**E.** "**Grant**" or "**Intergovernmental Grant Agreement**" means this agreement which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

**F.** "**Grant Funds**" or "**Grant Award Amount**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Intergovernmental Grant Agreement.

**G.** "**Grant Expiration Date**" means the Grant Expiration Date shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement. Work performed after the Grant Expiration Date is not eligible for reimbursement from Grant Funds.

**H.** "**Performance Start Date**" means the later of the Performance Start Date or the Effective Date shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement.

**I.** "**Exhibits**" means the following exhibits attached to this Intergovernmental Grant Agreement:

**i.** **Exhibit B**, Scope of Project

**ii.** **Exhibit G**, Form of Option Letter

**J.** "**Extension Term**" means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Intergovernmental Grant Agreement, an amendment, or an Option Letter.

**K.** *Reserved*.

**L.** *Reserved*.

**M.** "**Goods**" means any movable material acquired, produced, or delivered by Grantee as set forth in this Intergovernmental Grant Agreement and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

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**N.** "**Incident**" means any accidental or deliberate event that results in, or constitutes an imminent threat of, the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

**O.** "**Initial Term**" means the time period between the Performance Start Date and the initial Grant Expiration Date.

**P.** "**Matching Funds**" or "**Other Funds**" means funds provided by the Grantee as a match required to receive the Grant Funds.

**Q.** "**Party**" means the State or Grantee, and **"Parties"** means both the State and Grantee.

**R.** *Reserved.*

**S.** *Reserved.*

**T.** *Reserved.*

**U.** *Reserved.*

**V.** "**Services**" means the services performed by Grantee as set forth in this Intergovernmental Grant Agreement, and shall include any services rendered by Grantee in connection with the Goods.

**W.** "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

**X.** "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13)(a) C.R.S.

**Y.** "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

**Z.** "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

**AA.** *Reserved.*

**BB.** "**Subcontractor**" means third-parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

**CC.** *Reserved.*

**DD.** *Reserved.*

**EE.** *Reserved.*

**FF.** "**Work**" means the delivery of the Goods and performance of the Services described in this Intergovernmental Grant Agreement.

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**GG.** "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Performance Start Date that is used, without modification, in the performance of the Work.

Any other term used in this Intergovernmental Grant Agreement that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

## 5. PURPOSE

The purpose of the Energy and Mineral Impact Assistance Program is to assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels. The purpose of this Grant is described in **Exhibit B**.

## 6. SCOPE OF PROJECT

Grantee shall complete the Work as described in this Intergovernmental Grant Agreement and in accordance with the provisions of **Exhibit B**. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Intergovernmental Grant Agreement.

## 7. PAYMENTS TO GRANTEE

**A.** Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Award Amount shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement.

**i.** The State may increase or decrease the Grant Award Amount by providing Grantee with an updated Intergovernmental Grant Agreement or an executed Option Letter showing the new Grant Award Amount.

**ii.** The State shall not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Performance Start Date or after the Grant Expiration Date.

**iii.** Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

**B.** *Reserved*.

**C.** Matching Funds.

Grantee shall provide the Other Funds amount shown on the Project Budget in **Exhibit B** (the "Local Match Amount"). Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Intergovernmental Grant Agreement each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Intergovernmental Grant Agreement irrevocably pledge present cash reserves for payments in future fiscal years, and this Intergovernmental Grant Agreement is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees,

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taxes or penalties of any nature, except as required by Grantee's laws or policies.

**D.** Reimbursement of Grantee Costs

The State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Intergovernmental Grant Agreement for all allowable costs described in this Intergovernmental Grant Agreement and shown in the Budget in **Exhibit B**. The State shall only reimburse allowable costs if those costs are: **(a)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(b)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

**i.** Upon request of the Grantee, the State may, without changing the maximum total amount of Grant Funds, adjust or otherwise reallocate Grant Funds among or between each line of the Project Budget by providing Grantee with an executed Option Letter or formal amendment.

**E.** Close-Out and De-obligation of Grant Funds

Grantee shall close out this Grant no later than 90 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Intergovernmental Grant Agreement and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete. Any Grant Funds remaining after submission and payment of Grantee's final reimbursement request are subject to de-obligation by the State.

**F.** Erroneous Payments

The State may recover, at the State's discretion, payments made to Grantee in error for any reason, including, but not limited to, overpayments or improper payments, and unexpended or excess funds received by Grantee. The State may recover such payments by deduction from subsequent payments under this Intergovernmental Grant Agreement, deduction from any payment due under any other contracts, grants or agreements between the State and Grantee, or by any other appropriate method for collecting debts owed to the State.

## 8. REPORTING – NOTIFICATION

**A.** Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out period described in **§7.E**.

**B.** Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting this Award.

## 9. GRANTEE RECORDS

**A.** Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe

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all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

**B.** Monitoring

The State will monitor Grantee's performance of its obligations under this Intergovernmental Grant Agreement using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

**C.** Audits

Grantee shall comply with all State and federal audit requirements.

## 10. CONFIDENTIAL INFORMATION-STATE RECORDS

**A.** Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publically available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Intergovernmental Grant Agreement. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI (payment card information) Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information (CJI) Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act (HIPAA) for all protected health information (PHI) and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

**B.** Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Intergovernmental Grant Agreement. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State

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Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

**C.** Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

**D.** Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

**E.** Safeguarding Personally Identifiable Information (PII)

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S. In addition, as set forth in §24-74-102, *et seq.*, C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement. If Grantee is given direct access to any State databases containing PII, Grantee shall execute, on behalf of itself and its employees, the certification on an annual basis, attached as an exhibit, if applicable. Grantee's duty and obligation to certify as set forth in the exhibit shall continue as long as Grantee has direct access to any State databases containing PII. If Grantee uses any Subcontractors to perform services requiring direct access to State databases containing PII, the Grantee shall require such Subcontractors to execute and deliver the certification to the State on an annual basis, so long as the Subcontractor has access to State databases containing PII.

## 11. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain

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from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in §24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of §24-18-105, C.R.S. with regard to this Grant.

## 12. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

## 13. REMEDIES

In addition to any remedies available under any Exhibit to this Intergovernmental Grant Agreement, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant Funds to the State in the State's sole discretion. The State may also terminate this Intergovernmental Grant Agreement at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

## 14. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

## 15. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Intergovernmental Grant Agreement shall be in writing, and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§15**.

## 16. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

## 17. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions, committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, *et seq.* C.R.S. No term or

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condition of this Intergovernmental Grant Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

## 18. GENERAL PROVISIONS

**A.** Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Intergovernmental Grant Agreement.

**B.** Captions and References

The captions and headings in this Intergovernmental Grant Agreement are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Intergovernmental Grant Agreement to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

**C.** Entire Understanding

This Intergovernmental Grant Agreement represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Intergovernmental Grant Agreement.

**D.** Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Intergovernmental Grant Agreement, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in either an option letter or a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

**E.** Statutes, Regulations, Fiscal Rules, and Other Authority

Any reference in this Intergovernmental Grant Agreement to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Performance Start Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

**F.** Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

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**G.** Order of Precedence

In the event of a conflict or inconsistency between this Intergovernmental Grant Agreement and any Exhibits or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

**i.** Colorado Special Provisions in **§19** of the main body of this Grant;

**ii.** Any executed Option Letter and Amendment;

**iii.** The provisions of this Intergovernmental Grant Agreement; and

**iv.** The provisions of any exhibits to this Intergovernmental Grant Agreement.

**H.** Severability

The invalidity or unenforceability of any provision of this Intergovernmental Grant Agreement shall not affect the validity or enforceability of any other provision of this Intergovernmental Grant Agreement, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

**I.** Survival of Certain Intergovernmental Grant Agreement Terms

Any provision of this Intergovernmental Grant Agreement that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

**J.** Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Intergovernmental Grant Agreement does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

**K.** Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Intergovernmental Grant Agreement, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

**L.** Accessibility

i. Grantee shall comply with and adhere to Section 508 of the U.S. Rehabilitation Act of 1973, as amended.

ii. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of §§24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

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iii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with §§24-85-101, *et seq*., C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S.

**M.** *Reserved*.

## 19. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

### A. STATUTORY APPROVAL. §24-30-202(1) C.R.S.

This Intergovernmental Grant Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Intergovernmental Grant Agreement is for a Major Information Technology Project, as defined in §24-37.5-102(2.6), then this Intergovernmental Grant Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

### B. FUND AVAILABILITY. §24-30-202(5.5) C.R.S.

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

### C. GOVERNMENTAL IMMUNITY.

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, *et seq.* C.R.S. No term or condition of this Intergovernmental Grant Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

### D. INDEPENDENT CONTRACTOR.

Grantee shall perform its duties hereunder as an independent Grantee and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Intergovernmental Grant Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

### E. COMPLIANCE WITH LAW.

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

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**F. CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Intergovernmental Grant Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Intergovernmental Grant Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

**G. PROHIBITED TERMS.**

Any term included in this Intergovernmental Grant Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Intergovernmental Grant Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

**H. SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Intergovernmental Grant Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Intergovernmental Grant Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Intergovernmental Grant Agreement, including, without limitation, immediate termination of this Intergovernmental Grant Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

**I. EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Intergovernmental Grant Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

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# EXHIBIT B – SCOPE OF PROJECT (SOP)

## 1. PURPOSE

**1.1. Energy Impact**. The purpose of the Energy and Mineral Impact Assistance Program is to assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels.

## 2. DESCRIPTION OF THE PROJECT(S) AND WORK

**2.1. Project Description**. The Project consists of decarbonization efforts on nine (9) City facilities including a resiliency hub within the City of Louisville, Colorado.

**2.2. Work Description**. The City of Louisville (Grantee) will hire a qualified firm to complete the design/builds for upgrading heating, cooling, lighting, electric and water systems in facilities throughout the City of Louisville in an effort to advance decarbonization.

Work includes:

1) Decarbonization of an approximately 100,000 square foot Recreation and Senior Center (RSC), located at 900 Via Appia Way in the City of Lousiville, Colorado including mechanical electrification of thirteen (13) heat pump rooftop units (RTU) replacements (2-3 Ton, 2- 4 Ton, 2–5 Ton, 3-6 Ton, 1-7.5 Ton, 1-10 Ton, 2-15 Ton); one (1) nanatorium dehumidification unit replacement; two (2) energy recovery ventilators (ERV); installation of a 380 kilowatt (kW) ground-mounted solar photovoltaic (PV) array with agrivoltaic elements below, including native pollinator habitats with firewise/drought resistant landscaping; energy efficiency measures including window glazing upgrades, a pool cover, sauna scheduling, building envelope air sealing, and weather stripping; lighting controls; advanced plug load reduction; installation of three (3) level 2 and two (2) level 3 electric vehicle (EV) chargers; and installation/replacement/optimization of associated controls, conduit, piping, and electrical.

2) Decarbonization of the Police and Municipal Court Building, located at 992 West Via Appia Way in the City of Lousiville, Colorado including two (2) heat pump RTU replacements (30-ton); one (1) electric unit heater; envelope air sealing; duct air sealing/insulation; controls optimization/retrocommissioning; advanced plug load reduction; installation of three (3) level 2 EV chargers and two (2) level 3 EV chargers; installation of a 257kW ground mounted solar PV array; ventilation and air conditioning unit replacement; and installation or replacement of associated controls, conduit, piping, and electrical.

3) Decarbonization of the Louisville Public Library, located at 951 Spruce Street in the City of Lousiville, Colorado including mechanical electrification of two (2) heat pump RTU replacements (50-ton); one (1) electric domestic hot water heater replacement; variable frequency drives; snow melt system retrocomissioning; advanced plug load reduction; envelope air sealing; duct air sealing; installation of a 128kW rooftop solar PV array, installation of four (4) level 2 EV chargers and one (1) level 3 EV charger; and installation/replacement/optimization of associated controls, conduit, piping, and electrical.

4) Full electrification of the Austin-Niehoff House, located at 717 Main Street in the City of Lousiville, Colorado including electrical infrastructure upgrades; installation of a 2 ton residential air source heat pump; Heating, ventilation, and air conditioning (HVAC) ductwork and piping; and window sealing.

5) Energy efficiencies at the Sid Copeland Water Treatment Plant, located at 1955 North Washington Avenue in the City of Lousiville, Colorado including one (1) heat pump RTU replacement (3-ton) with a heat wheel; envelope air sealing; lighting controls; light-emitting diode (LED) replacement lighting; installation of one (1) EV level 2 charger; and installation or replacement of associated controls, conduit, piping, and electrical.

6) Energy efficiencies at the Art Center, located at 801 Grant Avenue in the City of Lousiville, Colorado including envelope air sealing, replacement of windows, and insertion of wall insulation.

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7) Energy efficiencies at the City Services Building, located at 739 South 104th Street in the City of Lousiville, Colorado including envelope air sealing, compressed air leaks, controls optimization/retrocommissioning, and advanced plug load reduction.

8) Energy efficiencies at the Howard Berry Water Treatment Plant, located at 7000 Marshall Road in the City of Lousiville, Colorado including installation of lighting controls/vacancy sensors and replacement of lighting with LED technologies.

9) Energy efficiencies at the Wastewater Treatment Plant, located at 1601 Empire Road in the City of Lousiville, Colorado including envelope air sealing and installation of lighting controls/vacancy sensors.

The High Performance Certification Program (HPCP) applies with modification for alternative 3rd party verification. Grantee will comply with the HPCP, as required by Colorado Revised Statutes (C.R.S. 24-30-1303.5). The Grantee has requested and been granted a HPCP modification in order to use an alternative third party verification process. The Grantee will hire a consultant to complete 3rd party verification of the building. This means that green building standards must be achieved to the greatest extent possible per C.R.S. 24-30-1305.5(6). The following items must be submitted upon completion of the Project: a description of how the Project has included green building features as described by the Leadership in Energy and Environmental Design (LEED) or Green Globes to the greatest extent practicable and a description of the total hard and soft costs associated with the green building approaches used.

Grantee will provide DOLA with electronic copies of project photos and proof of Substantial Completion prior to Project Closeout. Grantee will own and maintain all improvements and, in accordance with **§9** below, a contractor will be hired to complete the Work.

**2.2.1.** A contract for consultant services shall be awarded by Grantee to a qualified firm through a formal Request For Proposals or competitive selection process.

**2.2.2.** The Grantee warrants that the facilities will **continue to be utilized as a public facilities** for at least ten (10) years following completion of the Grant. If the facilities are used for any purpose other than intended during that ten-year period, the Grantee shall return a portion of the Grant Funds based on the following payback schedule: In year one, one hundred percent (100%) of the grant funds must be returned; in year two, ninety percent (90%); in year three, eighty percent (80%); in year four, seventy percent (70%); in year five, sixty percent (60%); in year six, fifty percent (50%); in year seven, forty percent (40%); in year eight, thirty (30%) percent; in year nine, twenty (20%) and in year ten, ten (10%) percent. At the end of the ten (10) year period following the date of completion of the renovations and thereafter, no State restrictions on use of the properties shall be in effect.

**2.3. Responsibilities**. Grantee shall be responsible for the completion of the Work and to provide required documentation to DOLA as specified herein.

**2.3.1.** Grantee shall notify DOLA at least 30 days in advance of Project Completion.

**2.4. Recapture of Advanced Funds**. To maximize the use of Grant Funds, the State shall evaluate Grantee's expenditure of the Grant Funds for timeliness and compliance with the terms of this Grant. DOLA reserves the right to recapture advanced Grant Funds when Grantee has not or is not complying with the terms of this Grant.

**2.5. Eligible Expenses**. Eligible expenses shall include: contracted labor, materials, bonding, insurance, permitting, required testing, inspection and/or commissioning costs. Architectural/Engineering, project and construction oversight, bid process, travel, per diem and legal fees shall be the sole responsibility of the Grantee.

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## 3. DEFINITIONS

**3.1. Project Budget Lines**.

**3.1.1.** "Rehabilitation/Remodel of Public Structures" means labor and materials costs, bond and insurance costs, bid advertisements, purchase and erection of pre-engineered additions, and attorney's fees.

**3.2.** "Substantial Completion" means the Work is sufficiently complete in accordance with the Grant so it can be utilized for its intended purpose without undue interference.

## 4. DELIVERABLES

**4.1. Outcome.** The final outcome of this Grant is completed decarbonization efforts on nine (9) City of Louisville facilities to greatly reduce the City's municipal carbon emissions and increase the City's resiliency.

**4.2. Service Area.** The performance of the Work described within this Grant shall be located in Louisville, Colorado.

**4.3. Performance Measures.** Grantee shall comply with the following performance measures:

| **Milestone/Performance Measure/Grantee will:** | **By:** |
|---|---|
| Put Project out to bid. | Within 60 days after the Effective Date of this Intergovernmental Grant Agreement. |
| Award and finalize subcontract(s). | Within 30 days after bid opening. |
| Provide DOLA with Project Timeline. | Within 30 days after the Effective Date of the subcontract(s). |
| Upon Project Completion, Grantee will provide a monitoring and reporting plan to DOLA that includes the delivery of semi-annual (every six months) reports on the energy and cost performance of the system. These reports will be completed using the form supplied by DOLA, and are required for five (5) years after the expiration date of the Grant Agreement or date of Project Closeout (Work is completed, all deliverables have been submitted and accepted, the final payment request has been submitted, and an agreement as to any amount of Grant Funds to be de-obligated has been made), whichever is later. | To be included with the Project Final Report. |
| Provide DOLA with an electronic copy of the project photos and proof of Substantial Completion (i.e. Certificate of Occupancy, Certificate of Completion, Board motion of approval, lien waiver) and 3rd Party commissioning documentation. | To be included with the Project Final Report. |
| Submit Quarterly Pay Requests | **See §4.5.2 below** |
| Submit Quarterly Status Reports | **See §4.5.2 below** |
| Submit Project Final Report | June 29, 2026 |

**4.4. Budget Line Adjustments**.

**4.4.1. Grant Funds**. Grantee may request in writing that DOLA move Grant Funds between and among budget lines, so long as the total amount of Grant Funds remains unchanged. To make such budget line changes, DOLA will use an Option Letter (**Exhibit G**).

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**4.4.2. Other Funds**. Grantee may increase or decrease the amount of Other Funds in any one or any combination of budget lines as described in **§6.2**, or move Other Funds between and among budget lines, so long as the total amount of such "Other Funds" is not less than the amount set forth in **§6.2** below. Grantee may increase the Total Project Cost with "Other Funds" and such change does not require an amendment or option letter. DOLA will verify the Grantee's contribution of "Other Funds" and compliance with this section at Project Closeout.

**4.5. Quarterly Pay Request and Status Reports.** Beginning 30 days after the end of the first quarter following execution of this Grant and for each quarter thereafter until termination of this Grant, Grantee shall submit Pay Requests and Status Reports using a form provided by the State. The State shall pay the Grantee for actual expenditures made in the performance of this Grant based on the submission of statements in the format prescribed by the State. The Grantee shall submit Pay Requests setting forth a detailed description and provide documentation of the amounts and types of reimbursable expenses. Pay Requests and Status Reports are due within 30 days of the end of the quarter but may be submitted more frequently at the discretion of the Grantee.

**4.5.1.** For quarters in which there are no expenditures to reimburse, Grantee shall indicate zero (0) requested in the Pay Request and describe the status of the Work in the Status Report. The report will contain an update of expenditure of funds by budget line as per **§6.2** of this **Exhibit B** Scope of Project as well as a projection of all Work expected to be accomplished in the following quarter, including an estimate of Grant Funds to be expended.

**4.5.2.** Specific submittal dates.

| Quarter | Year | Due Date | Pay Request Due | Status Report Due |
|---|---|---|---|---|
| **1st (Jan-Mar)** | **2024** | **April 30, 2024** | **Yes** | **Yes** |
| **2nd (Apr-Jun)** | **2024** | **JULY 15, 2024*** | **Yes** | **Yes** |
| **3rd (Jul-Sep)** | **2024** | **October 30, 2024** | **Yes** | **Yes** |
| **4th (Oct-Dec)** | **2024** | **January 30, 2025** | **Yes** | **Yes** |
| **1st (Jan-Mar)** | **2025** | **April 30, 2025** | **Yes** | **Yes** |
| **2nd (Apr-Jun)** | **2025** | **JULY 15, 2025*** | **Yes** | **Yes** |
| **3rd (Jul-Sep)** | **2025** | **October 30, 2025** | **Yes** | **Yes** |
| **4th (Oct-Dec)** | **2025** | **January 30, 2026** | **Yes** | **Yes** |
| **1st (Jan-Mar)** | **2026** | **April 30, 2026** | **Yes** | **Yes** |

***State fiscal year runs July 1 – June 30 annually. Grantee must request reimbursement for all eligible costs incurred during a State fiscal year by July 15 annually.**

**4.6. DOLA Acknowledgment.** The Grantee agrees to acknowledge the Colorado Department of Local Affairs in any and all materials or events designed to promote or educate the public about the Work and the Project, including but not limited to: press releases, newspaper articles, op-ed pieces, press conferences, presentations and brochures/pamphlets.

## 5. PERSONNEL

**5.1. Responsible Administrator**. Grantee's performance hereunder shall be under the direct supervision of **Kayla Betzold, Sustainability Manager, (kbetzold@louisvilleco.gov)**, who is an employee or agent of Grantee, and is hereby designated as the responsible administrator of this Project and a key person under this **§5**. Such administrator shall be updated through the process in **§5.3**. If this person is an agent of the Grantee, such person must have signature authority to bind the Grantee and must provide evidence of such authority.

**5.2. Other Key Personnel**. **Jeff Durbin, City Manager, (jdurbin@louisvilleco.gov).** Such key personnel shall be updated through the process in **§5.3**.

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**5.3. Replacement**. Grantee shall immediately notify the State if any key personnel specified in **§5** of this **Exhibit B** cease to serve. All notices sent under this subsection shall be sent in accordance with **§15** of the Grant.

**5.4. DLG Regional Manager**: **Chris La May, (970) 679-7679, (chris.la.may@state.co.us)**

**5.5. DLG Regional Assistant**: **Gheda Gayou, (303) 842-6318, (gheda.gayou@state.co.us)**

## 6. FUNDING

The State provided funds shall be limited to the amount specified under the "Grant Funds" column of **§6.2**, Budget, below.

**6.1. Matching/Other Funds.** Grantee shall provide **at least 70%** of the Total Project Cost as documented by Grantee and verified by DOLA at Project Closeout. Initial estimates of Grantee's contribution are noted in the "Other Funds" column of **§6.2** below. Increases to Grantee's contribution to Total Project Cost do not require modification of this Intergovernmental Grant Agreement and/or **Exhibit B**.

**6.2. Budget**

| Budget Line(s) | | Total Project Cost | Grant Funds | Other Funds | Other Funds Source |
|---|---|---|---|---|---|
| Line # | Cost Category | | | | |
| 1 | Rehabilitation/Remodel of Public Structures | $8,603,006 | $2,500,000 | $6,103,006 | Grantee |
| | **Total** | **$8,603,006** | **$2,500,000** | **$6,103,006** | |

## 7. PAYMENT

Payments shall be made in accordance with this section and the provisions set forth in **§7** of the Grant.

**7.1. Payment Schedule.** If Work is subcontracted or subgranted and such Subcontractors and/or Subgrantees are not previously paid, Grantee shall disburse Grant Funds received from the State to such Subcontractor or Subgrantee within fifteen days of receipt. Excess funds shall be returned to DOLA.

| Payment | Amount | |
|---|---|---|
| Interim Payment(s) | $2,375,000 | Paid upon receipt of actual expense documentation and written Pay Requests from the Grantee for reimbursement of eligible approved expenses. |
| Final Payment | $125,000 | Paid upon Substantial Completion of the Project (as determined by the State in its sole discretion), provided that the Grantee has submitted, and DOLA has accepted, all required reports. |
| **Total** | **$2,500,000** | |

**7.2. Interest.** Grantee or Subgrantee may keep interest earned from Grant Funds up to $100 per year for administrative expenses.

## 8. ADMINISTRATIVE REQUIREMENTS

**8.1. Reporting**. Grantee shall submit the following reports to DOLA using the State-provided forms. DOLA may withhold payment(s) if such reports are not submitted timely.

**8.1.1. Quarterly Pay Request and Status Reports.** Quarterly Pay Requests shall be submitted to DOLA in accordance with **§4.5** of this **Exhibit B**.

**8.1.2. Final Reports.** Within 90 days after the completion of the Project, Grantee shall submit the final Pay Request and Status Report to DOLA.

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**8.2. Monitoring.** DOLA shall monitor this Work on an as-needed basis. DOLA may choose to audit the records for activities performed under this Grant. Grantee shall maintain a complete file of all records, documents, communications, notes and other written materials or electronic media, files or communications, which pertain in any manner to the operation of activities undertaken pursuant to an executed Grant. Such books and records shall contain documentation of the Grantee's pertinent activity under this Grant in accordance with Generally Accepted Accounting Principles.

**8.2.1. Subgrantee/Subcontractor**. Grantee shall monitor its Subgrantees and/or Subcontractors, if any, during the term of this Grant. Results of such monitoring shall be documented by Grantee and maintained on file.

**8.3. Bonds.** If Project includes construction or facility improvements, Grantee and/or its contractor (or subcontractors) performing such work shall secure the bonds hereunder from companies holding certificates of authority as acceptable sureties pursuant to 31 CFR Part 223 and are authorized to do business in Colorado.

**8.3.1. Bid Bond.** A bid guarantee from each bidder equivalent to 5 percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder shall, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

**8.3.2. Performance Bond.** A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

**8.3.3. Payment Bond.** A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by statute of all persons supplying labor and material in the execution of the work provided for in the contract.

**8.3.4. Substitution.** The bonding requirements in this **§8.3** may be waived in lieu of an irrevocable letter of credit if the price is less than $50,000.

**9. CONSTRUCTION/RENOVATION.** The following subsections shall apply to construction and/or renovation related projects/activities:

**9.1. Plans & Specifications**. Construction plans and specifications shall be drawn up by a qualified engineer or architect licensed in the State of Colorado, or pre-engineered in accordance with Colorado law, and hired by the Grantee through a competitive selection process.

**9.2. Procurement**. A construction contract shall be awarded to a qualified construction firm through a formal selection process with the Grantee being obligated to award the construction contract to the lowest responsive, responsible bidder meeting the Grantee's specifications.

**9.3. Subcontracts**. Copies of any and all contracts entered into by the Grantee in order to accomplish this Project shall be submitted to DOLA upon request, and any and all contracts entered into by the Grantee or any of its Subcontractors shall comply with all applicable federal and state laws and shall be governed by the laws of the State of Colorado.

**9.4. Standards**. Grantee, Subgrantees and Subcontractors shall comply with all applicable statutory design and construction standards and procedures that may be required, including the standards required by Colorado Department of Public Health and Environment, and shall provide the State with documentation of such compliance.

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# OPTION LETTER #Insert # Here

## SIGNATURE AND COVER PAGE

| | | |
|---|---|---|
| **State Agency**<br>Department of Local Affairs (DOLA) | **DLG Portal Number**<br>Insert DLG Portal number for this Project | **Option Letter CMS Number**<br>Insert CMS number for this Amendment |
| **Grantee**<br>**Insert Grantee's Full Legal Name** | **Previous CMS #(s)**<br>Insert CMS number for orig Agreement, and any prior chg docs | |
| **Project Number and Name**<br>Insert DOLA's project number and name | **Grant Amount**<br>Initial Award: $Insert orig award amt<br>Option Letter ## and date effective/spendable: $0.00<br>Option Letter ## and date effective/spendable: $0.00<br>**Total Grant Amount: $Insert total award to date** | |
| **DOLA Regional Manager**<br>Choose an item. | | |
| **DOLA Regional Assistant**<br>Choose an item. | | |
| **Funding Account Codes**<br>Enter CTGG1 number | **Program Name**<br>Energy & Mineral Impact Assistance Program (Acctg Dropdwn EIAF) | |
| **Prior Grant Agreement Expiration Date**<br>Month Day, Year | **Current Grant Agreement Expiration Date**<br>Month Day, Year | |

## THE PARTIES HERETO HAVE EXECUTED THIS OPTION LETTER

Each person signing this Option Letter represents and warrants that he or she is duly authorized to execute this Option Letter and to bind the Party authorizing his or her signature.

**STATE OF COLORADO**
**Jared S. Polis GOVERNOR**
**Colorado Department of Local Affairs**

**By: _____**

**Maria De Cambra, Executive Director**

**Date: _____**

## ALL CONTRACTS REQUIRE APPROVAL BY THE STATE CONTROLLER

**CRS §24-30-202 requires the State Controller to approve all State contracts. This Option Letter is not valid until signed and dated below by the State Controller or delegate.**

**STATE CONTROLLER**
**Robert Jaros, CPA, MBA, JD**

By: _____

Beulah Messick, DOLA Controller Delegate

Effective Date: _____

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1) **OPTIONS:** Choose all applicable options listed in §1 and in §2

- ☐ a. Option to extend *(use this option for Extension of Time)*
- ☐ b. Change in the Grant Award Amount within the current term *(use this option for an Increase or Decrease in Grant Funds, including Supplemental funding awards)*
- ☐ c. Budget Line Adjustment(s) – reallocation of awarded Grant Funds to Budget Line(s) *(use this Option to redistribute existing Grant Funds between budget lines)*

2) **REQUIRED PROVISIONS**. All Option Letters shall contain the appropriate provisions set forth below:

**a. For use with Option 1(a):** In accordance with **Section 2(A)** of the original Intergovernmental Grant Agreement between the State of Colorado, acting by and through the Colorado Department of Local Affairs**,** and **Grantee's Name**, the State hereby exercises its option for an additional term beginning **Insert start date** and ending on **Insert ending date**. Tables in **Sections 4.3 and 4.5.2** of **Exhibit B** are deleted and replaced with the following:

| **Milestone/Performance Measure** | **By:** |
|---|---|
| Put Project out to bid. | Within __ days of the Effective Date of this Intergovernmental Grant Agreement. |
| Award and finalize subcontract(s) and/or sub-grant(s). | [give target date] |
| Provide DOLA with Project Timeline | Within __ days of the Effective Date of the subcontract(s). |
| Contractor mobilization/begin Work. | Within __ days of the Effective Date of the subcontract(s). |
| Submit Quarterly Pay Requests | **See §4.5.2 below** |
| Submit Quarterly Status Reports | **See §4.5.2 below** |
| Submit Project Final Report | [give date certain] |

| **Quarter** | **Year** | **Due Date** | **Pay Request** | **Status Report** |
|---|---|---|---|---|
| **1st (Jan-Mar)** | **2024** | **April 30, 2024** | **Yes** | **Yes** |
| **2nd (Apr-Jun)** | **2024** | **JULY 15, 2024*** | **Yes** | **Yes** |
| **3rd (Jul-Sep)** | **2024** | **October 30, 2024** | **Yes** | **Yes** |
| **4th (Oct-Dec)** | **2024** | **January 30, 2025** | **Yes** | **Yes** |
| **1st (Jan-Mar)** | **2025** | **April 30, 2025** | **Yes** | **Yes** |
| **2nd (Apr-Jun)** | **2025** | **JULY 15, 2025*** | **Yes** | **Yes** |
| **3rd (Jul-Sep)** | **2025** | **October 30, 2025** | **Yes** | **Yes** |
| **4th (Oct-Dec)** | **2025** | **January 30, 2026** | **Yes** | **Yes** |
| **1st (Jan-Mar)** | **2026** | **April 30, 2026** | **Yes** | **Yes** |
| **2nd (Apr-Jun)** | **2026** | **JULY 15, 2026*** | **Yes** | **Yes** |
| **3rd (Jul-Sep)** | **2026** | **October 30, 2026** | **Yes** | **Yes** |
| **4th (Oct-Dec)** | **2026** | **January 30, 2027** | **Yes** | **Yes** |

***State fiscal year runs July 1 – June 30 annually. Grantee must request reimbursement for all eligible costs incurred during a State fiscal year by July 15 annually.**

**b. For use with Option 1(b):** In accordance with **Section 7(A)(i)** of the original Intergovernmental Grant Agreement between the State of Colorado, acting by and through the Colorado Department of Local Affairs**,** and **Grantee's Name**, the State hereby exercises its option to increase/decrease Grant Funds awarded for this Project in an amount equal to **amt of increase or (decrease)**, from **beginning dollar amt** to **ending dollar amt**. The Grant Award Amount shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement is hereby changed to **ending dollar amt**. The Budget table in **Section 6.2** and the Payment Schedule in **Section 7.1**, both of **Exhibit B**, are deleted and replaced with the following:

| **Budget Line(s)** | | | | |
|---|---|---|---|---|

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| Line # | Cost Category | Total Project Cost | Grant Funds | Other Funds | Other Funds Source |
|---|---|---|---|---|---|
| | Architectural/Engineering Services | $ 0.00 | | | Grantee |
| | Construction/Improvement of Public Roadways | | | | Grantee |
| | **Total** | **$ 0.00** | **$ 0.00** | **$ 0.00** | |

| Payment | Amount | |
|---|---|---|
| Interim Payment(s) | | Paid upon receipt of actual expense documentation and written Pay Requests from the Grantee for reimbursement of eligible approved expenses. |
| Final Payment | | Paid upon Substantial Completion of the Project (as determined by the State in its sole discretion), provided that the Grantee has submitted, and DOLA has accepted, all required reports. |
| **Total** | | |

**c. For use with Option 1(c):** In accordance with **Section 7(D)(i)** of the original Intergovernmental Grant Agreement between the State of Colorado, acting by and through the Colorado Department of Local Affairs**,** and **Grantee's Name**, the State hereby exercises its option to re-allocate awarded Grant Funds within the Project Budget. The Budget table in **Section 6.2** of **Exhibit B** is deleted and replaced with the following:

| Budget Line(s) | | Total Project Cost | Grant Funds | Other Funds | Other Funds Source |
|---|---|---|---|---|---|
| Line # | Cost Category | | | | |
| | Architectural/Engineering Services | $ 0.00 | | | Grantee |
| | Construction/Improvement of Public Roadways | | | | Grantee |
| | **Total** | **$ 0.00** | **$ 0.00** | **$ 0.00** | |

**3) Effective Date**. The effective date of this Option Letter is upon approval of the State Controller or _____, whichever is later.

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SAMPLE

# Attachment C: HEEHA Grant Documentation

# GRANT AWARD LETTER
# SUMMARY OF GRANT AWARD TERMS AND CONDITIONS

| | |
|---|---|
| **State Agency**<br>Colorado Energy Office | **Grant Amount**<br>State Fiscal Year 2025: $1,592,000.00<br>State Fiscal Year 2026: Any SFY25 unspent funds<br>State Fiscal Year 2027: $0.00<br>State Fiscal Year 2028: $0.00<br>State Fiscal Year 2029: $0.00<br>State Fiscal Year 2030: $0.00<br>**Total for all State Fiscal Years: $1,592,000.00** |
| **Grantee**<br>City of Louisville | |
| **Grant Issuance Date**<br>The date the State Controller or an authorized delegate signs this Grant Letter | |
| **Grant Expiration Date**<br>December 31, 2029 | **Local Match Amount**<br>**Total for all State Fiscal Years: $1,592,000.00** |
| **Grant Authority**<br>Authority to enter into this Grant exists in HB 22-1362. | |

**Grant Purpose**
The Grantee was awarded funding as a result of the competitive High Efficiency Electric Heating & Appliances (HEEHA) Requests for Application.

**Exhibits and Order of Precedence**
The following Exhibits and attachments are included with this Grant:

1. Exhibit A, Statement of Work.
2. Exhibit B, Budget and Payment Conditions.
3. Exhibit C, Grantee's Application.

In the event of a conflict or inconsistency between this Grant and any Exhibit or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

1. Colorado Special Provisions in §17 of the main body of this Grant
2. The provisions of the other sections of the main body of this Grant.
3. Exhibit A, Statement of Work.
4. Exhibit B, Budget and Payment Conditions.
5. Exhibit C, Grantee's Application

**Principal Representatives**

For the State:
Brittney Vancuran
Colorado Energy Office
1600 Broadway, Suite 1960

Denver, CO 80202
brittney.vancuran@state.co.us

For Grantee:
Hannah Miller
City of Louisville
749 Main Street

Louisville, CO 80027
hmiller@louisvilleco.gov

## SIGNATURE PAGE

## THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT

Each person signing this Agreement represents and warrants that the signer is duly authorized to execute this Agreement and to bind the Party authorizing such signature.

| **GRANTEE**<br>City of Louisville<br><br>_____<br>By:<br><br>Date: _____ | **STATE OF COLORADO**<br>Jared S. Polis, Governor<br>Colorado Energy Office<br>Will Toor, Executive Director<br><br>_____<br>By: Dominique Gómez, Deputy Director<br><br>Date: _____ |
|---|---|

In accordance with §24-30-202, C.R.S., this Agreement is not valid until signed and dated below by the State Controller or an authorized delegate.

**STATE CONTROLLER**
**Robert Jaros, CPA, MBA, JD**

_____
By: Office of the Governor, Jonathon Bray, Controller

Effective Date:_____

## 1. GRANT

As of the Grant Issuance Date, the State Agency shown on the first page of this Grant Award Letter (the "State") hereby obligates and awards to Grantee shown on the first page of this Grant Award Letter (the "Grantee") an award of Grant Funds in the amounts shown on the first page of this Grant Award Letter. By accepting the Grant Funds provided under this Grant Award Letter, Grantee agrees to comply with the terms and conditions of this Grant Award Letter and requirements and provisions of all Exhibits to this Grant Award Letter.

## 2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Grant Award Letter shall commence on the Grant Issuance Date and shall terminate on the Grant Expiration Date shown on the Cover Page for this Grant Award Letter unless sooner terminated or further extended in accordance with the terms of this Grant Award Letter. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Grant Award Letter by providing Grantee with an updated Grant Award Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Grant Award Letter to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Grant Award Letter ceases to further the public interest of the State or if State, Federal or other funds used for this Grant Award Letter are not appropriated, or otherwise become unavailable to fund this Grant Award Letter, the State, in its discretion, may terminate this Grant Award Letter in whole or in part by providing written notice to Grantee that includes, to the extent practicable, the public interest justification for the termination. If the State terminates this Grant Award Letter in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Grant Award Letter that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Grant Award Letter that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Grant Award Letter by the State for breach by Grantee.

## 3. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in Exhibit B.

B. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

D. **"Electric Ready"** means adequate panel capacity, dedicated electric panel space, electrical wire, electrical receptacles, and adequate physical space to accommodate future installation

of high-efficiency electric appliances including heating, water heating, cooking, drying, and an electric vehicle.

E. "**Grant Award Letter**" means this letter which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. "**Grant Funds**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Grant Award Letter.

G. "**Grant Expiration Date**" means the Grant Expiration Date shown on the first page of this Grant Award Letter.

H. "**Grant Issuance Date**" means the Grant Issuance Date shown on the first page of this Grant Award Letter.

I. "**Exhibits**" exhibits and attachments included with this Grant as shown on the first page of this Grant

J. "**Extension Term**" means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Grant Award Letter

K. "**Goods**" means any movable material acquired, produced, or delivered by Grantee as set forth in this Grant Award Letter and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

L. "**Incident**" means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

M. "**Initial Term**" means the time period between the Grant Issuance Date and the Grant Expiration Date.

N. **"IPMVP"** means International Performance Measurement and Verification Protocol

O. "**Matching Funds**" means the funds provided Grantee as a match required to receive the Grant Funds.

P. **"M&V"** means measurement and verification.

Q. "**Party**" means the State or Grantee, and "Parties" means both the State and Grantee.

R. "**PII**" means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101 C.R.S. "PII" shall also mean "personal identifying information" as set forth at § 24-74-102, et. seq., C.R.S.

S. **"Quarter"** means the three (3) months periods ending March 31, June 30, September 30, and December 31 of each calendar year.

T. "**Services**" means the services to be performed by Grantee as set forth in this Grant Award Letter and shall include any services to be rendered by Grantee in connection with the Goods.

U. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

V. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to § 24-30-202(13)(a) C.R.S.

W. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

X. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

Y. "**Subcontractor**" means third parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

Z. "**Work**" means the delivery of the Goods and performance of the Services described in this Grant Award Letter.

AA. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Grant Issuance Date that is used, without modification, in the performance of the Work.

Any other term used in this Grant Award Letter that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

## 4. STATEMENT OF WORK

Grantee shall complete the Work as described in this Grant Award Letter and in accordance with the provisions of Exhibit A. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Grant Award Letter.

## 5. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Amount for each State Fiscal Year shown on the first page of this Grant Award Letter. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. The State shall

not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Grant Issuance Date or after the Grant Expiration Date; provided, however, that Work performed and expenses incurred by Grantee before the Grant Issuance Date that are chargeable to an active Federal Award may be submitted for reimbursement as permitted by the terms of the Federal Award.

B. Matching Funds.

Grantee shall provide the Local Match Amount shown on the first page of this Grant Award Letter and described in Exhibit A (the "Local Match Amount"). Grantee's obligation to pay all or part of any matching funds, whether direct or contingent, only extends to funds duly and lawfully appropriated for the purpose of this Agreement by the authorized representatives of Grantee and paid into Grantee's treasury or bank account. Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Grant Award Letter each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Grant Award Letter irrevocably pledge present cash reserves for payments in future fiscal years, and this Grant Award Letter is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

C. Reimbursement of Grantee Costs

Upon prior written approval, the State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Grant Award Letter for all allowable costs described in this Grant Award Letter and shown in the Budget, except that Grantee may adjust the amounts between each line item of the Budget without formal modification to this Agreement as long as the Grantee provides notice to the State of the change, the change does not modify the total maximum amount of this Grant Award Letter or the maximum amount for any state fiscal year, and the change does not modify any requirements of the Work.. The State shall only reimburse allowable costs if those costs are: **(i)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(ii)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

D. Close-Out.

Grantee shall close out this Grant within 45 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Grant Award Letter and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete.

## 6. REPORTING - NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out described in **§ 5.E**, containing an evaluation and review of Grantee's performance and the final status of Grantee's obligations hereunder.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting the

Award. The State may impose any penalties for noncompliance allowed under 2 CFR Part 180 and 31 U.S.C. 3321, which may include, without limitation, suspension or debarment.

## 7. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Grant Award Letter using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Final Audit Report

Grantee shall promptly submit to the State a copy of any final audit report of an audit performed on Grantee's records that relates to or affects this Grant or the Work, whether the audit is conducted by Grantee or a third party.

## 8. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publicly available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Grant Award Letter. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Grant Award Letter. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding PII

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in § 24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with § 24-73-101 *et seq.*, C.R.S. In addition, as set forth in § 24-74-102, et. seq., C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement.

## 9. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee

acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in § 24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of § 24-18-105, C.R.S. with regard to this Grant.

**10. INSURANCE**

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, § 24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

**11. REMEDIES**

In addition to any remedies available under any exhibit to this Grant Award Letter, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant funds to the State in the State's sole discretion. The State may also terminate this Grant Award Letter at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

**12. DISPUTE RESOLUTION**

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

**13. NOTICES AND REPRESENTATIVES**

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Grant Award Letter shall be in writing and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§ 13**.

**14. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION**

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

**15. GOVERNMENTAL IMMUNITY**

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b),

and the State's risk management statutes, § 24-30-1501, *et seq*. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

## 16. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Grant Award Letter.

B. Captions and References

The captions and headings in this Grant Award Letter are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Grant Award Letter to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Grant Award Letter represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Grant Award Letter.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Grant Award Letter, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Grant Award Letter to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Grant Issuance Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Severability

The invalidity or unenforceability of any provision of this Grant Award Letter shall not affect the validity or enforceability of any other provision of this Grant Award Letter, which shall

remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

H. Survival of Certain Grant Award Letter Terms

Any provision of this Grant Award Letter that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

I. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Grant Award Letter does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

J. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Grant Award Letter, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

K. Accessibility

i. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of § 24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section § 24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

ii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with § 24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section § 24-85-103 (2.5), C.R.S.

## 17. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

### A. STATUTORY APPROVAL. § 24-30-202(1) C.R.S.

This Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Agreement is for a Major Information Technology Project, as defined in § 24-37.5-102(2.6), then this Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

### B. FUND AVAILABILITY. § 24-30-202(5.5) C.R.S.

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

### C. GOVERNMENTAL IMMUNITY.

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, § 24-30-1501, et seq. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. **INDEPENDENT CONTRACTOR.**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. **COMPLIANCE WITH LAW.**

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at

law or in equity or under this Agreement, including, without limitation, immediate termination of this Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§ 24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

# EXHIBIT A, STATEMENT OF WORK

## 1. High Efficiency Electric Heating and Appliances Grant Program

The HEEHA Grant Program was created by HB 22-1362 to promote neighborhood-scale electrification projects in the State of Colorado (State). Fossil gas-powered appliances and equipment produce greenhouse gasses (GHG) and harmful indoor air pollution which can cause health problems. As a result, buildings rank in the top five biggest sources of GHG pollution in the State. Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

The resulting High Efficiency Electric Heating & Appliances (HEEHA) program is a competitive, reimbursement-based grant program administered by CEO. The total funding amount distributed by HEEHA is not to exceed $10 million over the program's duration.

Funding allocations will go exclusively toward the purchase and installation of high-efficiency electric equipment for space heating, water heating, or cooking in 5 or more residential units or 3 or more commercial buildings. In the case of applicants located in DI/ LI/ JT communities, administrative costs associated with the purchase and installation of electrification equipment are eligible for additional cost coverage.

## 2. Project Description

The Grantee was awarded grant funding as a result of the High Efficiency Electric Heating and Appliances (HEEHA) Request for Applications (RFA). The Colorado Energy Office (hereinafter called "CEO" or the "State") agrees to provide funding to the **City of Louisville, Colorado** (hereinafter called "Grantee"), towards the costs associated and eligible with the HEEHA program.

HEEHA is a program administered by the Colorado Energy Office (CEO) to encourage use of electric equipment and appliances in buildings, because they reduce greenhouse gas emissions, promote energy security through reliance on domestic electricity, and drive an innovative market for new technology applications. The general purpose of this project is to encourage the installation of electric building equipment in residential and commercial buildings throughout the state of Colorado.

Grantee is requesting funding for the procurement and installation of electric equipment **at the Recreation & Senior Center: 900 Via Appia Way, The Police & Municipal Court: 992 West Via Appia Court, and The Sid Copeland Water Treatment: 1955 Washington Ave.**

Any dates or deadlines with the exception of the Effective Date and Grant Expiration Date of this Grant Award Letter may be adjusted by mutual written agreement of the Grantee and CEO. Exclusively for the purposes of modifying deadlines in this Statement of Work, e-mail shall suffice as

written documentation. If applicable, an extension of the Grant Expiration Date of the Grant Award shall require a formal modification to the Grant Award Letter.

The Grantee shall hire and retain contractors and other professional services as needed to purchase and install necessary equipment and supporting structures.

Total award not to exceed **$1,592,000.00**

# 3. Grantee Tasks, Deliverables & Timeline

Grantee is subject to the following tasks, deliverables and timelines.

## 3.1. Grant Administration

### 3.1.1. Kick-off Meeting

Kick-off meeting will be held within 45 days of Grant Agreement execution and will establish expectations of grantee for implementing this agreement. The meeting shall include, but not be limited to, a review of the project implementation timeline, contingency plans should the original timeline be extended, Grantee's strategy to implement the proposed project and associated deliverables, and a review of this agreement to ensure a clear understanding of expectations.

**Deliverables:** PowerPoint slides or presentation containing the project timeline and contingency plans. Other meeting materials developed as appropriate.

**Timeline:** Meeting will be held within 45 days of grant agreement execution and materials developed and presented in the kick-off meeting to be delivered to the grant program manager within 2 business days following the meeting.

### 3.1.2. Reporting & Progress Meetings

CEO & Grantee shall conduct check-in calls on a quarterly schedule (State fiscal year). The Grantee shall be responsible for ensuring that all relevant staff attend calls. Meeting agenda will include updates on relevant project tasks, challenges and barriers the Grantee is encountering, and any decisions or guidance needed from CEO. Additionally, these meetings may include identifying any needed modifications to the tasks, implementation timeline, or budgets.

- Monthly Progress Reports
  Grantee will be subject to monthly performance reporting.
  Reports shall include:
  - Financial/Expenditure – tracking of grant related expenses for the quarter (paid and unpaid) and expenditures to date by match funding source. Expenses must match the budget line items

outlined in Exhibit B. Expenditures of funds must reconcile with CEO's files and may also include unpaid invoices.
    - Programmatic – narrative report; including progress made toward project goals and objectives, obstacles encountered to date and possible solutions, photos indicative of construction progress for the quarter, planned activities for the next month.

**Deliverables:** Monthly progress report with financial/expenditure tracking and programmatic narrative update.

**Timeline**: Monthly reports will be submitted to the grant program manager by the 15th of each month.

- Annual Performance Reporting

  Grantee shall submit a report to the Colorado Energy Office the first five years after receiving the grant award. This report shall include description of the project and measures funded using grant funds and operational data of electric equipment on gas and electricity use, cost, and emissions. Reporting template will be provided by the Colorado Energy Office.

  **Deliverables:** Annual report with financial/expenditure tracking, programmatic narrative update, and impact reporting on energy use.

  **Timeline:** Annual report will be due each year in December.

- Final Report
    - The Grantee shall complete reimbursable work within 12 months of the Grant Agreement Effective Date and submit a final report. This report will demonstrate the completion of the project and installation of the electric equipment. To be acceptable, the final report must explain the Grantee's procurement and installation process, and it must identify the location of the equipment accompanied with a picture of the installed unit. The Grantee shall provide an invoice to CEO for the purchase of the unit and associated equipment, permitting costs, and the labor costs associated with the installation. To be acceptable, the invoice must be supported by receipts or invoices for all equipment, permits, and labor. The invoice must include an itemized list of all project costs being considered under the grant, including a breakdown of those covered under HEEHA and by any match funding.

**Deliverables**: Final report providing a summary of key accomplishments from the past year, including project completion and final reporting requirements.

**Timeline:** Due at final reimbursement request within 12 months of Grant Effective Date.

**Budget:** $0.00

### 3.1.3. Payment Requests/Reimbursements

- Grantee shall submit a finance/expenditure report including receipts/invoices detailing eligible project expenditures and pictures of operational equipment, along with the monthly progress report detailing installation and operation of electric equipment per unit complete. The electric equipment will be acceptable to the CEO if they are installed, operational, and available for use. The Grantee's invoice to CEO will be acceptable if it is properly supported by invoices or receipts and the costs are associated with procurement of electric equipment, construction materials, permitting, construction labor costs, and installation costs.
- The reimbursement report will be acceptable to CEO if it explains the Grantee's procurement and installation process, and it identifies the location of the electric equipment accompanied with a picture of the installed units. If the units, invoice, and report are acceptable, the CEO Program Manager will submit the invoice to the accounting department for payment.
    - If the units, invoice, and report are unacceptable, the CEO Program Manager will work with the Grantee to correct, modify, or replace as needed.

**Deliverables**: The following documentation is required for CEO to reimburse eligible costs on the project:

- Reimbursement Report
- Summary Invoice/Reimbursement Request
- Legible copies of all sales invoices showing the purchase price and amount paid by the applicant for the equipment, number of units purchased and serial numbers from the units.
- Legible copies of all invoices/receipts showing installation costs and number of labor hours spent by the installers and any subcontractors on the project.
- Date(s) of installation, installation completion and when the unit(s) are operational and available for use.
- Digital photograph(s) of the completed unit(s).

- Photographs must demonstrate adherence to the design standards. Additional photographs may be requested prior to reimbursement being finalized if this is not clearly demonstrated.
- All deliverables shall be adjusted to the final approval and discretion of the CEO.

### 3.2. Equipment Installation & Commissioning

3.2.1. Equipment Installation

The following activities will be performed and equipment will be purchased, installed, and operational:

- Space Heating & Cooling
  - Heat Pump rooftop units for the recreation & senior center (8)
  - Heat Pump rooftop units for the police & municipal court (2)
  - Heat Pump rooftop unit for the Sid Copeland Water Treatment Facility (1)
  - Installation and associated labor of heat pump rooftop units (11)
  - Associated equipment and labor costs required for equipment installation.

**Deliverables:** Installation of approved appliances with supporting documentation including paid invoices and photos

**Budget: $1,592,000.00**

3.2.2. Commissioning & Operational Verification

Grantee shall undertake a process to ensure all systems & equipment are designed, installed, tested, operated, and maintained according to the operational requirements to ensure proper installation and operation. Grantee shall also clearly demonstrate installed equipment is primarily used over fossil fuel driven redundancy boiler(s).

**Deliverables:** Supporting documentation including a commissioning logbook, IPMVP Option B compliant M&V plan and report and any supporting data and primary information to be provided within 1 year of project completion date.

3.2.3. Final Project Design

Grantee is tasked with finalizing the detailed design of this project and providing CEO with a copy of such design.

**Deliverables:** Copy of final project design development and construction documents upon completion.

### 3.3. Local Match Amount

Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements.

- Evidence of City of Louisville Capital Improvement Funds utilized for the project ($1,592,000.00)

**Deliverables**: Evidence of federal tax credit/benefits or local rebates received for this project. Evidence of general reserve funds and budgeted capital expenditure allocated for the project.

### 3.4. Acceptance Criteria

Deliverables will be accepted upon timely submission and review by the CEO grant manager to ensure they meet all criteria in the above tasks and are included in the monthly reports from the Grantee. CEO shall notify the Grantee in writing within ten (10) calendar days of receiving a deliverable whether it accepts or rejects that deliverable. If no notification is delivered to the Grantee within this period, the deliverable shall be considered accepted. Any deliverable rejection notice shall specify in reasonable detail the way the deliverable does not materially conform to the specifications set forth in this Exhibit A. Grantee shall then implement such changes as reasonably required to bring the deliverable into material conformity with this Exhibit A. If, at the time the Grant is closed-out or terminated, it is determined that the Work is unfinished, incomplete, or unsatisfactory, or if Grantee fails to complete its obligations under this Statement of Work, in the State's sole discretion, the State shall have the right to recover from Grantee up to 100% of the Grant Funds that have been expended.

# EXHIBIT B, BUDGET & PAYMENT CONDITIONS

## 1. Eligible Costs

The following items are eligible for reimbursement:

- Energy audit(s) of ASHRAE Level II or equivalent to help an applicant determine electrification equipment type and sizing for the project.
- The purchase and installation of high efficiency electric equipment for space heating, water heating, or cooking.
- Utility and electric infrastructure upgrades that are necessary to install high efficiency electric equipment. This includes wiring, transformers, breaker boxes, electrical panels, and circuits.
- The purchase and installation of other innovative high efficiency building technologies that the CEO decides will likely be the same or better efficiency as high efficiency heat pumps.
- DI / LI / JT Communities Only: Community organizing time associated with the planning of the neighborhood-scale electrification project. Up to 30 hours of community organizing to recruit homeowners, organizing energy audits, and other tasks associated with the planning grant may be reimbursed through the grant.
- DI / LI / JT Communities Only: Administrative costs associated with the implementation of the neighborhood-scale electrification project may be reimbursed through the grant funding. Administrative costs may include but are not limited to reimbursement for staff time for managing or coordinating the implementation and installation of the equipment, working with contractors to complete projects, or other implementation-focused activities.

## 2. Project Budget

**Table 1. HEEHA Budget Form Summary**

| Planning Phase Budget Request | **Measure** | **Total Cost** | **CEO Grant Coverage Percentage** |
|---|---|---|---|
| | Energy Audits/ | $0 | 0% |

| | | | |
|---|---|---|---|
| | Analysis Costs: | | |
| | Community Organizing Costs: | $0 | 0% |
| | **Total Request** | **$0** | 0% |
| | | | |
| Implementation Phase Budget Request | **Measure** | **Total Cost** | **CEO Grant Coverage Percentage** |
| | Electrification Equipment Costs: | $3,184,000 | 50%* |
| | Electric Service/Panel Upgrade Costs: | $0.00 | 0% |
| | Administrative Costs: | $0.00 | 0% |
| | Total Request before Training: | $1,592,000.00 | |
| | Total Request Cover by Grant after Training: | **$1,592,000.00** | |
| | | | |
| Total Project Costs Covered before Training (Planning & Implementation) | | $1,592,000.00 | |
| Total Project Costs Covered by Grant after Training (Planning & Implementation) | | $1,592,000.00 | |

*Grantees who elect to participate in CEO's electrification training course receive a 5% discount on match requirement for electrification equipment costs.

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# High Efficiency and Electrification Heating Appliances
# Implementation Only Grant Application Form

## Grant Program Overview

The HEEHA Grant Program was created by HB 22-1362[1] to promote neighborhood-scale electrification projects in the State of Colorado (State). Fossil gas-powered appliances and equipment produce greenhouse gas (GHG) and harmful indoor air pollution which can cause health problems. As a result, buildings rank in the top five biggest sources of GHG pollution in the State, according to the Colorado Greenhouse Gas Pollution Reduction Roadmap. In addition, over one million Coloradans spend five percent or more of their household income on energy costs – a situation known as "energy-burdened."

**High efficiency electric appliance upgrades can reduce indoor air pollutants, reduce energy costs, and improve comfort, but present a significant cost to implement. The HEEHA Grant Program intends to reduce this cost barrier.**

Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Program Goals

The objectives of the HEEHA Grant Program are to:

1. Scale up beneficial electrification in projects across Colorado, specifically in DI / LI / JT communities.
2. Support electrification and energy efficiency projects in DI / LI / JT communities.
3. Reduce harmful indoor air pollution and GHGs associated with burning natural gas and other fossil fuels, which disproportionately harm DI / LI / JT communities.
4. Reduce energy burden and energy use, with the intent to save money spent on energy bills for DI / LI / JT communities.[2]
5. Advance the goals of the State's GHG Pollution Reduction Roadmap.
6. Increase demand and publicity for innovative, climate-smart building technology.

[1] In 2022, the Colorado State Legislature passed House Bill (HB) 22-1362, the Building Greenhouse Gas Emissions Act. Section 24-38.5-405 of this bill directed the Colorado Energy Office (CEO) to create a grant program, the High Efficiency Electric Heating and Appliances (HEEHA) Grant Program.
[2] https://rmi.org/insight/the-new-economics-of-electrifying-buildings

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# Preparing your Implementation Only Grant Application

**BEFORE YOU BEGIN: Please read through the HEEHA Grant Program Guidelines and Resource pages to understand the program objectives, eligibility, and requirements. To complete your application, please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.**

To self-identify your community as a DI / JT / LI community for this grant funding opportunity, please:

1. Follow the guidance in the Community Identification Resource;
2. Prepare all documentation described in the resource; and
3. Provide the documentation outlined in Section 2 Community Information.

*Note: A community is considered eligible for the DI / JT / LI allotment if they qualify for one or more of the community identifiers.*

## Implementation Only Grant Application Overview

The purpose of the grant application is to provide the Review Committee with an understanding of the applicant's proposed project, the project's commitment to full beneficial electrification, any demonstrated need for funding support, and preparedness to implement the proposed project.

To submit your application and documentation, **DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields,** then follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage. The applicant should review the HEEHA Grant Program Guidelines in full prior to completing an application.

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# Implementation Only Grant Application Form

**Please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.**

## 1. Contact Information and Project Summary

**Project Title: City of Louisville Municipal Decarbonization Project**

**Applicant Organization/Entity: City of Louisville**

**Applicant Type:**

| | |
|---|---|
| Private/non-profit organization | Business district/association |
| Local government | Utilities |
| Institution of higher education | Tribal government |
| Apartment/condominium complex | HOA |
| Housing developer | Other, please explain |

**Lead Applicant Name/Title: Kayla Betzold, Sustainability Manager**

**Lead Applicant Email Address: kbetzold@louisvilleco.gov**

**Lead Applicant Phone Number: 720-765-7006**

**Lead Organization/Entity Mailing Address: 749 Main Street, Louisville CO, 80027**

**Total Funding Amount Requested: $1,592,000**

**Estimated Total Project Cost: $3,184,000**

**Project Timeline (anticipated start and end dates, any potential reason for delay):**

3 months for final design – anticipated start date of April 2024, anticipated construction timeline of 18 months, due to supply chain constraints.

**Brief Project Description (750 word limit):**

In December 2021, the City of Louisville experienced the most destructive wildfire in the state's history, with 550 homes and businesses destroyed. Almost two years after the devastating Marshall Fire, the City of Louisville continues to rebuild. In addition to pre-disaster planning, the City is focused on improving its climate resiliency and lessening its carbon footprint. The City developed and adopted an Internal Decarbonization Plan, which includes a roadmap to decarbonization and electrification of City facilities, fleet and equipment. The roadmap's




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recommendations are outlined in phases – near term, mid term and long term. The near term recommendations in the Plan include energy efficiency and load reduction at all 10 facility sites, 2.3 MW of onsite solar at seven facility sites, electric vehicle charging at five facility sites and mechanical electrification at five facility sites. The five near term sites were chosen due to their equipment nearing the end of its useful life. The Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant are all facilities included in the near term scope outlined in the Internal Decarbonization Plan.

The transition from natural gas to electric heating and water systems is a crucial step towards reducing the carbon footprint associated with energy consumption. This project not only aligns with the City's commitment to environmental stewardship but also contributes to the broader goals of the state of Colorado in addressing climate change.

The benefits of this project extend beyond energy efficiency; it also promotes cleaner air, improved indoor air quality, and a healthier environment for patrons and staff. Furthermore, the successful implementation of this grant will undoubtedly contribute to the facilities' long-term operational efficiency and cost savings, reflecting a proactive approach to managing energy needs while fostering a positive impact on the community.

Electrifying the rooftop units at the Recreation & Senior Center, Police & Courts and Sid Copeland Water Treatment Plant is an integral part of achieving the goals outlined in the Internal Decarbonization Plan and grant funding will allow the City to implement the Plan's recommendations without reduction in scope, realizing the greatest decarbonization potential.

## 2. Community Information

**Community Location**

County: Boulder

City/Town: Louisville

Neighborhood Address: Recreation & Senior Center: 900 Via Appia Way, Police & Municipal Court: 992 West Via Appia Court, Sid Copeland Water Treatment: 1955 Washington Ave

**OR**

**[UPLOAD]** Neighborhood Map: You may also upload a screenshot of your neighborhood instead of providing an address.

Neighborhood Description: Please provide a written narrative/description of the neighborhood that captures location and other relevant information. (500 word limit)

The Recreation and Senior Center and Police & Municipal Court buildings are located on the same street, a well-traveled east-west street through the north central neighborhood of Louisville. Both buildings are located directly across the street from one of the hardest hit neighborhoods in the Marshall Fire, with more than 100 homes being rebuilt in the surrounding area. The Sid Copeland Water Treatment Plant is located on the north side of the city, south of South Boulder Road.

**Disproportionately Impacted, Just Transition, and/or Low-Income Communities**

1. Are you self-identifying your community as a Disproportionately Impacted, Just Transition, or Low-Income (DI / JT / LI) Community?

   Yes

   No

2. If yes, do you anticipate needing assistance with project management and/or administration of the grant if awarded? *Note: DI / JT / LI communities qualify for free technical assistance from CEO if the grant is awarded.*

   Yes

   No

3. **[UPLOAD]** If you are self-identifying your community as DI /JT /LI (answered "yes" in Question 1 of this section), please upload the documentation requested in the Community Identification resource to demonstrate applicability with the DI / JT / LI requirements.

**Project Narrative. Please keep answers to a 500 word limit for each question.**

1. Please describe why HEEHA grant funds are necessary for your community/organization/entity and if the project would be able to move forward without grant funding.

In addition to the COVID-19 pandemic, Boulder County and the City of Louisville have experienced numerous disasters in recent years. The 2013 Flood resulted in extensive damage to residential and commercial property, as well as roads, bridges creeks and open space and the 2021 Marshall Fire was the most destructive wildfire in Colorado history, with over 1,200 structures damaged or destroyed countywide. As the City of Louisville continues to rebuild from the fire, City leadership are working to become more resilient through climate mitigation and adaptation efforts.
The first large step was the City's Internal Decarbonization Plan which includes building and infrastructure upgrades, energy efficiency, clean energy and sustainable transportation. The

City is also hiring a Resiliency Program Manager and Mitigation Coordinator to further increase resiliency work within the City. Through these efforts, the City of Louisville is doing its part to prepare, mitigate and adapt to climate change and reduce the impacts of future natural disasters, while also reducing emissions in an effort to reduce the intensity and frequency of these disasters in the future. This endeavor is important, impactful and expensive. The full decarbonization plan cost is $51M and the costs for the near term recommendations in the Plan are $27M.

Currently, the City has $3M budgeted in the Capital Improvement Fund to support this project and needs grants and other funding to implement the full decarbonization recommendations in the Plan. If this project is not awarded grant funds, the City would have to significantly reduce the scope, delay the project, or look for other ways to slowly implement measures over time. CEO funding for this project will enable the project to move forward as it currently exists. This project is an unprecedented opportunity for Louisville to achieve its resiliency, facility, and climate goals while continuing to provide on-going programming services to the community of Louisville.

2. In general, how will this project benefit your community? Please describe all potential associated co-benefits of this project.

Through electrification and EV charging, the City will adapt to potential shifts in energy sources and technology advancements and will be more resilient to fluctuating fossil fuel prices due to global economic instability. Energy efficiency measures ensure ongoing energy savings and resiliency in the face of economic uncertainty.

The project enhances the community's health and well-being by improving indoor air quality, reducing carbon emissions and upgrading building infrastructure which preserves a community resource used for programs and meetings. It improves the local economy by reducing operational costs allowing the City to allocate funds to other essential services.

Through implementation of this project, the community will be able to reduce its energy consumption, produce more clean energy on-site and reduce the reliance on gas through building electrification. As a result of the project, the City will reduce GHG emissions, reduce current and future utility costs, lessen global warming, and -in turn - produce a healthier environment for present and future generations. In addition, this project focuses on extending the life of the current facilities within Louisville versus building new which produces less embodied carbon and fewer lifecycle carbon emissions. It enhances project benefits by providing sustainable improvements for both present and future generations to enjoy.

During the bidding of the project's scope of work, all subcontractors in the local community will be encouraged to respond, including smaller companies that may be more at-risk due to the financial impacts of climate change. This project will help to promote social equity of

clean energy across the Louisville community by sharing knowledge and education of the process and helping to make the transition to a clean energy economy a more holistic, state-wide solution. By preserving and enhancing a key publicly accessible community hub, Louisville will be providing equitable access and maintaining resources within the library for all residents and community members – regardless of background.

**Required Uploads**

- Neighborhood Map, if applicable.
- DI / LI / JT documentation, if applicable.

## 3. Project Information

**Please indicate the targeted number of dwelling units, commercial units, and/or buildings, etc. in the project.** *Note: Applicants must represent a minimum of five (5) homes or dwelling units, or at least three (3) businesses/building units.*

This project will fund building electrification at three (3) facilities – the Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant.

**[UPLOAD] Please fill out the "Project Information Spreadsheet" with the following information for each building and/or unit in the proposed project.** *Note: If any information is unavailable, please include a description in the space provided indicating why the applicant could not find the information.*

1. Property Street Address(es).
    - Unit Numbers (as applicable)
2. Utility companies serving the building(s) for natural gas and electricity.
3. Description of the facilities:
    - Approximate Square Footage
    - Age of Building
    - Uses and/or Occupancy Type
    - Fuel Types Used (electricity, propane, natural gas, etc)
    - HVAC System - Space Heating
    - HVAC System - Domestic Water Heating
    - Other Applicable Gas-Fueled Appliance(s):
        - *Note: This may include but is not limited to clothes dryers, stoves, ovens, and/or fireplaces.*
4. Note any retrofits or equipment upgrades were completed within the last 10 years, if known or applicable. (500 word limit)




- *This may include but is not limited to energy efficiency or weatherization retrofits and upgrades, including any prior work completed with a CEO program such as the Weatherization Assistance Program.*

5. Description of the all electric systems that will be installed with the grant funding.
    - Note if any of the following electric service upgrades will be needed to complete the project.
        - Electric Panel Upgrade
        - Electric Utility Service Upgrade

**[UPLOAD] Provide 12 Months of Energy Bills.** Provide bills from Gas, Propane, Electricity, or other energy source providers for each unit and/or building. *Note: This can be compiled in a separate spreadsheet or submitted as separate PDFs of each energy bill. Ensure all uploaded documents are clearly titled.*

**[UPLOAD] Natural Gas and Electricity Rates.** If NOT included in the submitted 12 months of energy bills, provide gas and electric rate documentation. *Note: This may be a screenshot or PDF of one gas and electric rate documentation each.*

**[UPLOAD] All-Electric Systems Information:** Please fill out the tab in the "Building Information Spreadsheet" titled "All-Electric Systems Information Spreadsheet" to provide information on the all-electric systems you are installing for each building and/or unit included in the project.

**Required Uploads**

- Project Information Spreadsheet
- 12 Months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
- Gas and Electric Rate Documentation, if not included in the 12 months of Energy Bills submitted.
- All-Electric Systems Information Spreadsheet

## 4. Project Details

**Project Beneficiaries**

1. **[UPLOAD]** Please attach all written approvals from participants for whom this application represents.
2. **Optional, unless you are a DI / LI / JT community seeking to use grant funds to cover community organizing**: Please describe any community organizing activities completed to recruit participants for this project. Attach any supporting documentation as applicable. (500 word limit and/or **UPLOAD**)

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**Electrification Project Scope**

1. **[UPLOAD]** Provide all energy audits of ASHRAE Level II or equivalent or analysis completed for the project that evaluated the electrification of fossil gas equipment and/or any electric service and electric panel upgrades.

    a. **[UPLOAD]** If not included in the energy audits or analysis provided in Question 1 of this section, submit documentation that justifies the selected size and type of equipment or installation with the quote. This may include but is not limited to an energy audit, a report from an energy analyst, or a set of Manual J calculations.

2. Provide a description in narrative form of the full project scope including which electrification measures will be implemented and electric service upgrades needed if applicable. (750 word limit)

This project will fund building electrification at the Louisville Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant. At the Recreation & Senior Center, this project scope includes funding to convert eight (8) natural gas rooftop units to heat pump rooftop units.

**Existing**

RTU 1 – 5 ton gas DX

RTU 2 – 5 ton gas DX

RTU 3 – 6 ton gas DX

RTU 4 – 10 ton gas DX

RTU 5 – 4 ton gas DX

RTU 6 – 3 ton gas DX

RTU 7 – 7.5 ton gas DX

RTU 8 – 6 ton gas DX

**Replacement**

RTU 1 - 5-ton heat pump with gas backup

RTU 2 - 5-ton heat pump with gas backup

RTU 3 – 6-ton heat pump with gas backup

RTU 4 – 10 ton heat pump with gas backup

RTU 5 – 5 ton heat pump with gas backup

RTU 6 – 3 ton heat pump with gas backup

RTU 7 – 7.5 ton heat pump with gas backup

RTU 8 – 6 ton heat pump with gas backup

At Police & Municipal Court, this project scope includes funding to convert two (2) natural gas rooftop units to heat pump rooftop units.

**Existing**

RTU 1 – 30 ton gas DX

RTU 2 – 20 ton gas DX

**Replacement**

RTU 1 – 30 ton heat pump with electric backup

RTU 2 – 20 ton heat pump with electric backup

At Sid Copeland Water Treatment Plant, this project scope includes funding to convert one (1) natural gas rooftop unit to a heat pump rooftop unit.

**Existing**

RTU 1 – 3 ton gas DX

**Replacement**

RTU 1 – 3 ton heat pump with electric backup

**Additional Energy Work within Project Scope - Implementation Phase**

For each facility or unit in the proposed project, please describe if the project will be paired with renewable energy, energy storage, and/or other energy efficiency improvements. If so, please describe those improvements here and attach any relevant documentation. (500 word limit and/or **UPLOAD**)

This grant project scope is part of a larger implementation plan for the City's Internal Decarbonization Plan.




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At the Recreation & Senior Center, the building electrification will be paired with energy efficiency and load reduction measures including: pool covers, sauna scheduling, window replacements, building automation system scheduling, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors and advanced plug load reduction. Additionally, there will be a 380 kW agrivoltaic ground mounted solar array installed on site with native and pollinator friendly plants underneath the panels.

At the Police & Municipal Court, the building electrification will be paired with energy efficiency and load reduction measures including: HVAC occupancy sensors, building automation scheduling, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors and advanced plug load reduction. Additionally, there will be a 257 kW ground mounted solar array installed on site.

At the Sid Copeland Water Treatment Plant, the building electrification will be paired with energy efficiency and load reduction measures including: Envelope air sealing, lighting controls/vacancy sensors and LED lighting. Additionally, there will be a 376 kW ground mounted solar array installed on site.

Through the Internal Decarbonization Plan, geothermal and energy storage were considered at all sites, but were not recommended due to cost and payback timelines.

**New Construction Projects**

If you are applying for grant funding of a new construction project, your application must also demonstrate the following:

1. **[UPLOAD]** Properly calculated HVAC loads for future electric HVAC equipment serving each unit and/or building.
2. **[UPLOAD]** REScheck, ERI, or comparable modeling pathway detail that demonstrates the new construction project meets the standards of the 2018 IECC OR the most recent version of the International Energy Conservation Code adopted by the project's jurisdiction, whichever is more stringent. If your project does not meet these code requirements, please contact the HEEHA Program Manager.

**(OPTIONAL - for Commercial Properties Only) Commissioning Plan**

Project commissioning is not required but highly encouraged. If you are pursuing commissioning, please provide the following detail.

Commissioning will be completed during the construction period of the project and will be administered by the energy service company.

Name of Certified Commissioning Agent:

Timeline for Commissioning:

Systems being Commissioned:

**[UPLOAD]** Commissioning Plan.

**Implementation Project Team**

Who will be involved in this project? List any contractors, community staff/stakeholders, facilities managers, building owners, etc., along with relevant certifications and/or licenses (if applicable).

[**UPLOAD**] You may either fill out the table below or upload a document with your project team's information.

| Project Team Member | Role | Company/ Organization | Certification/ Licenses (if applicable) |
|---|---|---|---|
| Kayla Betzold | Sustainability Manager/Project Manager | City of Louisville | |
| Kevin Frey | Facilities Superintendent/Project Manager | City of Louisville | |
| Kurt Kowar | Public Works Director | City of Louisville | |
| ESCO | Construction Management | TBD | |
| Ryder Bailey | Finance Director | City of Louisville | |

**OPTIONAL: Additional Relevant Information**

*Note: This section is optional and not required for the grant application. Projects that do not provide information in this section will not be penalized.*

1. Is there any additional information that will assist the Review Committee in understanding the proposed project and need? (500 word limit)

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2. **[UPLOAD]** Please attach any additional documents that would support your application (i.e., neighborhood sustainability plans, site design documents / photos, letters of recommendation, etc.). Include a brief description of the documents attached. (500 word limit)

**Required Uploads**

- Participant Written Approvals.
- Community Organizing Documentation (if applicable).
- Energy Audit or Analysis (ASHRAE Level II or equivalent).
- Size and Type Justification Analysis, if information is not included in the energy audit OR for new construction projects.
- For new construction projects, documentation demonstrating the minimum requirements of the International Energy Conservation Code and all applicable local jurisdictional code requirements have been met. This should be an ERI or ResCheck.
- Commissioning Plan, if applicable.
- Project Team Documentation, if provided table is not filled out.
- Any additional documents that support your application.

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## 5. Project Budget

**Project Budget**

[**UPLOAD**] Complete the "Project Budget" Spreadsheet, detailing each project expense for which you anticipate using project funding, and upload. See HEEHA Grant Program Guidelines for additional information on eligible costs and community match allowances for each phase.

[**UPLOAD**] Please attach all quote(s) and specification sheets for the proposed high-efficiency electric equipment and/or any electric service and electric-panel upgrades necessary for project execution. You must include at least two (2) quotes per service or equipment type, as applicable, and indicate which vendor was selected to perform the work.

For community match, please detail the cash match contribution and provide both description and cost for any in-kind match contribution. In addition, include details on any leveraged rebates and incentives that will be used to contribute towards the community match.

> **DI / LI / JT Communities**
> DI / LI / JT Applicants may use grant funds to cover up to 40 hours of administrative time. Please provide detail on the administrative cost and the number of hours needed. *Note: You may not double count between administrative time covered with grant funding and any in-kind support that contributes to the community match.*

**Required Uploads**

- Project Budget Spreadsheet.
- Project Quotes/Estimates.
- Equipment Specification Sheets.

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## 6. Reporting Plan and Final Documentation - Implementation Phase

**Reporting Plan**

Briefly describe the plan for grant reporting and document submission, including roles, responsibilities, methods, and approvals from participants. If you are self-identifying your community as a DI/JT/LI community and plan to use grant funding to cover administrative costs, be sure to include the estimated administrative costs associated with grant reporting in the project budget. (500 word limit)

If awarded funding, the City of Louisville team will effectively manage the grant reporting and community progress and outcomes to the Colorado Energy Office. Kayla Betzold will act as the Project Manager and will oversee the project and its reporting. Kayla will compile information, ensure accuracy and provide a comprehensive overview of the project status and outcomes. Kayla will also be the City of Louisville point of contact and will communicate with other city team members through the project. Ryder Bailey and his Finance team will be responsible for providing accurate financial data related to grant expenditures and other financial documentation required by the state. Kevin Frey and the Public Works team will be directly involved with the project's implementation and will provide details about project activities, milestones achieved, challenges faced and success stories.

Upon completion of the project, the following information will be required to be submitted to CEO:

1. Final budget sheet including all project expenses and matched income.
2. Legible copies of all sales/invoices showing the purchase price and amount paid by the applicant for the HEEHA equipment and installation, the number and type of units purchased, and the coefficient of performance or efficiency rating for all units purchased.
3. Date(s) of installation, installation completion, and when the units were operational.
4. If available, energy use data/energy bills for each building for the months following the installation of the high-efficiency electric equipment.

To submit documentation, follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage.

COLORADO
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## 7. Required Uploads

**Uploads and Documentation**

Please ensure all the following documents have been uploaded with your application:

Section 2: Neighborhood map, if applicable.
Section 2: DI/JT/LI documentation, if applicable.
Section 3: Project Information Spreadsheet.
Section 3: 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
Section 3: Gas and Electric Rate Documentation, if not included in the 12 months of Energy Bills submitted.
Section 4: Participant Written Approvals.
Section 4: Community Organizing Documentation, if applicable.
Section 4: Energy Audit or Analysis (ASHRAE Level II or equivalent).
Section 4: Size and Type Justification Analysis, if information is not included in the energy audit OR for new construction projects.
Section 4: For new construction projects, documentation demonstrating the minimum requirements of the most recent version of the International Energy Conservation Code have been met. This must be an ERI or ResCheck.
Section 4: Commissioning Plan, if applicable.
Section 4: Project Team Roster, if provided table is not filled out.
Section 4: Any additional documents that support your application.
Section 5: Project Budget Spreadsheet.
Section 5: Project Quotes/Estimates.
Section 5: Equipment Specification Sheets.

To submit documentation, follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage.

# Attachment D: PBEG Grant Documentation

# GRANT AWARD LETTER
# SUMMARY OF GRANT AWARD TERMS AND CONDITIONS

| | |
|---|---|
| **State Agency**<br>Colorado Energy Office | **Grant Amount**<br>State Fiscal Year 2025: $677,500.00<br>State Fiscal Year 2026: Any SFY25 unspent funds<br>State Fiscal Year 2027: $0.00<br>State Fiscal Year 2028: $0.00<br>State Fiscal Year 2029: $0.00<br>State Fiscal Year 2030: $0.00<br>**Total for all State Fiscal Years: $677,500.00** |
| **Grantee**<br>City of Louisville | |
| **Grant Issuance Date**<br>The date the State Controller or an authorized delegate signs this Grant Letter | |
| **Fund Expenditure End Date**<br>November 30, 2029<br>**Grant Expiration Date**<br>November 30, 2029 | **Local Match Amount**<br>**Total for all State Fiscal Years: $677,500.00** |
| **Grant Authority**<br>Authority to enter into this Grant exists in HB 22-1362. | |

**Grant Purpose**
The Grantee was awarded funding as a result of the competitive Public Building Electrification Grant (PBEG) Requests for Application released in October 2023.

**Exhibits and Order of Precedence**
The following Exhibits and attachments are included with this Grant:

1. Exhibit A, Statement of Work.
2. Exhibit B, Budget and Payment Conditions.
3. Exhibit C, Grantee's Application.

In the event of a conflict or inconsistency between this Grant and any Exhibit or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

1. Colorado Special Provisions in §17 of the main body of this Grant
2. The provisions of the other sections of the main body of this Grant.
3. Exhibit A, Statement of Work.
4. Exhibit B, Budget and Payment Conditions.
5. Exhibit C, Grantee's Application

**Principal Representatives**

For the State:
Brittney Vancuran
Colorado Energy Office
1600 Broadway, Suite 1960

Denver, CO 80202
brittney.vancuran@state.co.us

For Grantee:
Hannah Miller
City of Louisville
749 Main Street

Louisville, CO 80027
hmiller@louisvilleco.gov

## SIGNATURE PAGE

## THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT

Each person signing this Agreement represents and warrants that the signer is duly authorized to execute this Agreement and to bind the Party authorizing such signature.

| **GRANTEE**<br>City of Louisville<br><br>_____<br>By:<br><br>Date: _____ | **STATE OF COLORADO**<br>Jared S. Polis, Governor<br>Colorado Energy Office<br>Will Toor, Executive Director<br><br>_____<br>By: Dominique Gómez, Deputy Director<br><br>Date: _____ |
|---|---|

In accordance with §24-30-202, C.R.S., this Agreement is not valid until signed and dated below by the State Controller or an authorized delegate.

**STATE CONTROLLER**
**Robert Jaros, CPA, MBA, JD**

_____
By: Office of the Governor, Jonathon Bray, Controller

Effective Date:_____

## 1. GRANT

As of the Grant Issuance Date, the State Agency shown on the first page of this Grant Award Letter (the "State") hereby obligates and awards to Grantee shown on the first page of this Grant Award Letter (the "Grantee") an award of Grant Funds in the amounts shown on the first page of this Grant Award Letter. By accepting the Grant Funds provided under this Grant Award Letter, Grantee agrees to comply with the terms and conditions of this Grant Award Letter and requirements and provisions of all Exhibits to this Grant Award Letter.

## 2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Grant Award Letter shall commence on the Grant Issuance Date, and the Grant Funds shall be expended by the Fund Expenditure End Date, and shall terminate on the Grant Expiration Date shown on the Cover Page for this Grant Award Letter unless sooner terminated or further extended in accordance with the terms of this Grant Award Letter. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Grant Award Letter by providing Grantee with an updated Grant Award Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Grant Award Letter to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Grant Award Letter ceases to further the public interest of the State or if State, Federal or other funds used for this Grant Award Letter are not appropriated, or otherwise become unavailable to fund this Grant Award Letter, the State, in its discretion, may terminate this Grant Award Letter in whole or in part by providing written notice to Grantee that includes, to the extent practicable, the public interest justification for the termination. If the State terminates this Grant Award Letter in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Grant Award Letter that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Grant Award Letter that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Grant Award Letter by the State for breach by Grantee.

## 3. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in Exhibit B.

B. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

D. **"Electric Ready"** means adequate panel capacity, dedicated electric panel space, electrical wire, electrical receptacles, and adequate physical space to accommodate future installation

of high-efficiency electric appliances including heating, water heating, cooking, drying, and an electric vehicle.

E. "**Grant Award Letter**" means this letter which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. "**Grant Funds**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Grant Award Letter.

G. "**Grant Expiration Date**" means the Grant Expiration Date shown on the first page of this Grant Award Letter.

H. "**Grant Issuance Date**" means the Grant Issuance Date shown on the first page of this Grant Award Letter.

I. "**Exhibits**" exhibits and attachments included with this Grant as shown on the first page of this Grant

J. "**Extension Term**" means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Grant Award Letter

K. "**Goods**" means any movable material acquired, produced, or delivered by Grantee as set forth in this Grant Award Letter and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

L. "**Incident**" means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

M. "**Initial Term**" means the time period between the Grant Issuance Date and the Grant Expiration Date.

N. **"IPMVP"** means International Performance Measurement and Verification Protocol

O. "**Matching Funds**" means the funds provided Grantee as a match required to receive the Grant Funds.

P. **"M&V"** means measurement and verification.

Q. "**Party**" means the State or Grantee, and "Parties" means both the State and Grantee.

R. "**PII**" means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101 C.R.S. "PII" shall also mean "personal identifying information" as set forth at § 24-74-102, et. seq., C.R.S.

S. **"Quarter"** means the three (3) months periods ending March 31, June 30, September 30, and December 31 of each calendar year.

T. "**Services**" means the services to be performed by Grantee as set forth in this Grant Award Letter, and shall include any services to be rendered by Grantee in connection with the Goods.

U. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

V. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13)(a) C.R.S.

W. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

X. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

Y. "**Subcontractor**" means third-parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

Z. "**Work**" means the delivery of the Goods and performance of the Services described in this Grant Award Letter.

AA. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Grant Issuance Date that is used, without modification, in the performance of the Work.

Any other term used in this Grant Award Letter that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

## 4. STATEMENT OF WORK

Grantee shall complete the Work as described in this Grant Award Letter and in accordance with the provisions of Exhibit A. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Grant Award Letter.

## 5. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Amount for each State Fiscal Year shown on the first page of this Grant Award Letter. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. The State shall

not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Grant Issuance Date or after the Grant Expiration Date; provided, however, that Work performed and expenses incurred by Grantee before the Grant Issuance Date that are chargeable to an active Federal Award may be submitted for reimbursement as permitted by the terms of the Federal Award.

B. Matching Funds.

Grantee shall provide the Local Match Amount shown on the first page of this Grant Award Letter and described in Exhibit A (the "Local Match Amount"). Grantee's obligation to pay all or part of any matching funds, whether direct or contingent, only extends to funds duly and lawfully appropriated for the purpose of this Agreement by the authorized representatives of Grantee and paid into Grantee's treasury or bank account. Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Grant Award Letter each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Grant Award Letter irrevocably pledge present cash reserves for payments in future fiscal years, and this Grant Award Letter is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

D. Reimbursement of Grantee Costs

Upon prior written approval, the State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Grant Award Letter for all allowable costs described in this Grant Award Letter and shown in the Budget, except that Grantee may adjust the amounts between each line item of the Budget without formal modification to this Agreement as long as the Grantee provides notice to the State of the change, the change does not modify the total maximum amount of this Grant Award Letter or the maximum amount for any state fiscal year, and the change does not modify any requirements of the Work.. The State shall only reimburse allowable costs if those costs are: **(i)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(ii)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

E. Close-Out.

Grantee shall close out this Grant within 45 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Grant Award Letter and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete.

## 6. REPORTING - NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out described in **§5.E**, containing an evaluation and review of Grantee's performance and the final status of Grantee's obligations hereunder.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting the

Award. The State may impose any penalties for noncompliance allowed under 2 CFR Part 180 and 31 U.S.C. 3321, which may include, without limitation, suspension or debarment.

## 7. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Grant Award Letter using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Final Audit Report

Grantee shall promptly submit to the State a copy of any final audit report of an audit performed on Grantee's records that relates to or affects this Grant or the Work, whether the audit is conducted by Grantee or a third party.

## 8. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publicly available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Grant Award Letter. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Grant Award Letter. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding PII

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S. In addition, as set forth in § 24-74-102, et. seq., C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement..

## 9. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee

acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in §24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of §24-18-105, C.R.S. with regard to this Grant.

## 10. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

## 11. REMEDIES

In addition to any remedies available under any exhibit to this Grant Award Letter, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant funds to the State in the State's sole discretion. The State may also terminate this Grant Award Letter at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

## 12. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

## 13. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Grant Award Letter shall be in writing, and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§13**.

## 14. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

## 15. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b),

and the State's risk management statutes, §§24-30-1501, *et seq*. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

## 16. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Grant Award Letter.

B. Captions and References

The captions and headings in this Grant Award Letter are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Grant Award Letter to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Grant Award Letter represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Grant Award Letter.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Grant Award Letter, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Grant Award Letter to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Grant Issuance Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Severability

The invalidity or unenforceability of any provision of this Grant Award Letter shall not affect the validity or enforceability of any other provision of this Grant Award Letter, which shall

remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

H. Survival of Certain Grant Award Letter Terms

Any provision of this Grant Award Letter that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

I. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Grant Award Letter does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

J. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Grant Award Letter, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

K. Accessibility

i. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of §§24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

ii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with §§24-85-101, *et seq*., C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S.

## 17. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

### A. STATUTORY APPROVAL. §24-30-202(1) C.R.S.

This Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Agreement is for a Major Information Technology Project, as defined in

§24-37.5-102(2.6), then this Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. **FUND AVAILABILITY. §24-30-202(5.5) C.R.S.**

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. **GOVERNMENTAL IMMUNITY.**

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, et seq. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. **INDEPENDENT CONTRACTOR.**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. **COMPLIANCE WITH LAW.**

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts

with this provision in any way shall be void ab initio. Nothing in this Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Agreement, including, without limitation, immediate termination of this Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

# EXHIBIT A, STATEMENT OF WORK

## 1. Public Building Electrification Grant Program

The Public Building Electrification Grant (PBEG) Program was created by HB 22-1362 to promote greenhouse gas emissions reductions from public buildings in the State of Colorado. Emissions from heating buildings are one of the five major sources of greenhouse gas pollution in the State, according to the State's Greenhouse Gas Pollution Reduction Roadmap. Furthermore, public buildings tend to be older buildings whose systems have high energy needs and high energy costs. Energy upgrades to public buildings often remain cost-prohibitive and are a lower priority than the execution of public services. In recognition of these challenges, the PBEG Program was designed to support public buildings in need of financial and technical assistance to transition fossil fuel powered HVAC systems, water heating systems, or fossil fuel-powered appliances to highly efficient electric equipment and appliances.

The resulting Public Building Electrification Grant Program (PBEG) program is a competitive, reimbursement-based grant program administered by CEO. The total funding amount distributed by PBEG is not to exceed $10 million over the program's duration. Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Funding allocations will go exclusively toward the purchase and installation of high-efficiency electric equipment for space heating, water heating, or cooking in public buildings. In the case of applicants located in DI/ LI/ JT communities, administrative costs associated with the purchase and installation of electrification equipment are eligible for additional cost coverage.

## 2. Project Description

The Grantee was awarded grant funding as a result of the Public Building Electrification Grant (PBEG) Request for Applications (RFA). The Colorado Energy Office (hereinafter called "CEO" or the "State") agrees to provide funding to the **City of Louisville, Colorado** (hereinafter called "Grantee"), towards the costs associated and eligible with the PBEG program.

PBEG is a program administered by the Colorado Energy Office (CEO) to encourage use of electric equipment and appliances in buildings, because they reduce greenhouse gas emissions, promote energy security through reliance on domestic electricity, and drive an innovative market for new technology applications. The general purpose of this project is to encourage the installation of electric building equipment in public buildings throughout the state of Colorado.

Grantee is requesting funding for the planning and installation of electric equipment in **the City of Louisville Library buildings at 951 Spruce Street Louisville, Colorado.**

Any dates or deadlines with the exception of the Effective Date, Fund Expenditure End Date, and Grant Expiration Date of this Grant Award Letter may be adjusted by mutual written agreement of the Grantee and CEO. Exclusively for the purposes of modifying deadlines in this Statement of Work, e-mail shall suffice as written documentation. If applicable, an extension of the Fund Expenditure End Date or Grant Expiration Date of the Grant Award shall require a formal modification to the Grant Award Letter.

The Grantee shall hire and retain contractors and other professional services as needed to purchase and install necessary equipment and supporting structures.

Total project grant award not to exceed **$677,500.00**

# 3. Grantee Tasks, Deliverables & Timeline

Grantee is subject to the following tasks, deliverables and timelines.

## 3.1. Grant Administration

### 3.1.1. Kick-off Meeting

Kick-off meeting will be held within 45 days of Grant Award Letter execution and will establish expectations of Grantee for implementing this agreement. The meeting shall include, but not be limited to, a review of the project implementation timeline, contingency plans should the original timeline be extended, Grantee's strategy to implement the proposed project and associated deliverables, and a review of this agreement to ensure a clear understanding of expectations.

**Deliverables:** PowerPoint slides or presentation containing the project timeline and contingency plans. Other meeting materials developed as appropriate.

**Timeline:** Meeting will be held within 45 days of Grant Award Letter execution and materials developed and presented in the kick-off meeting to be delivered to the grant program manager within 2 business days following the meeting.

### 3.1.2. Reporting & Progress Meetings

CEO & Grantee shall conduct check-in calls on a quarterly schedule (State Fiscal Year). The Grantee shall be responsible for ensuring that all relevant staff attend calls. Meeting agenda will include updates on relevant project tasks, challenges and barriers the Grantee is encountering, and any decisions or guidance needed from CEO. Additionally, these meetings may include identifying any needed modifications to the tasks, implementation timeline, or budgets.

- Monthly Progress Reports

Grantee will be subject to monthly performance reporting.
Reports shall include:

- Financial/Expenditure – tracking of grant related expenses for the quarter (paid and unpaid) and expenditures to date by match funding source. Expenses must match the budget line items outlined in Exhibit B. Expenditures of funds must reconcile with CEO's files and may also include unpaid invoices.
- Programmatic – narrative report; including progress made toward project goals and objectives, obstacles encountered to date and possible solutions, photos indicative of construction progress for the quarter, planned activities for the next month.

**Deliverables:** Monthly progress report with financial/expenditure tracking and programmatic narrative update.

**Timeline**: Monthly reports will be submitted to the CEO grant program manager by the 15th of each month.

- Annual Performance Reporting

  Grantee shall submit a report to the Colorado Energy Office the first five years after receiving the grant award. This report shall include description of the project and measures funded using grant funds and operational data of electric equipment on gas and electricity use, cost, and emissions. Reporting template will be provided by the Colorado Energy Office.

  **Deliverables:** Annual report with financial/expenditure tracking, programmatic narrative update, and impact reporting on energy use.

  **Timeline:** Annual report will be due each year in December.

- Final Report
  - The Grantee shall complete reimbursable work within 12 months of the Grant Agreement Effective Date and submit a final report. This report will demonstrate the completion of the project and installation of the electric equipment. To be acceptable, the final report must explain the Grantee's procurement and installation process, and it must identify the location of the equipment accompanied with a picture of the installed unit. The Grantee shall provide an invoice to CEO for the purchase of the unit and associated equipment, permitting costs, and the labor costs associated with the installation. To be acceptable, the invoice must be supported by receipts or invoices for all equipment, permits, and labor. The invoice must include an itemized list of

all project costs being considered under the grant, including a breakdown of those covered under PBEG and by any match funding.

**Deliverables**: Final report providing a summary of key accomplishments from the past year, including project completion and final reporting requirements.

**Timeline:** Due at final reimbursement request and by the Fund Expenditure End Date.

**Budget:** $0.00

### 3.1.3. Payment Requests/Reimbursements

- Grantee shall submit a finance/expenditure report including receipts/invoices detailing eligible project expenditures and pictures of operational equipment, along with the monthly progress report detailing installation and operation of electric equipment per unit complete. The electric equipment will be acceptable to the CEO if they are installed, operational, and available for use by Fund Expenditure End Date. The Grantee's invoice to CEO will be acceptable if it is properly supported by invoices or receipts and the costs are associated with procurement of electric equipment, construction materials, permitting, construction labor costs, and installation costs.
- The reimbursement report will be acceptable to CEO if it explains the Grantee's procurement and installation process, and it identifies the location of the electric equipment accompanied with a picture of the installed units. If the units, invoice, and report are acceptable, the CEO Program Manager will submit the invoice to the accounting department for payment.
    - If the units, invoice, and report are unacceptable, the CEO Program Manager will work with the Grantee to correct, modify, or replace as needed.

**Deliverable/s**: The following documentation is required for CEO to reimburse eligible costs on the project:

- Reimbursement Report
- Summary Invoice/Reimbursement Request
- Legible copies of all sales invoices showing the purchase price and amount paid by the applicant for the equipment, number of units purchased and serial numbers from the units.

- Legible copies of all invoices/receipts showing installation costs and number of labor hours spent by the installers and any subcontractors on the project.
- Date(s) of installation, installation completion and when the unit(s) are operational and available for use.
- Digital photograph(s) of the completed unit(s).
- Photographs must demonstrate adherence to the design standards. Additional photographs may be requested prior to reimbursement being finalized if this is not clearly demonstrated.
- All deliverables shall be adjusted to the final approval and discretion of the CEO.

## 3.2. Equipment Installation & Commissioning

3.2.1. Equipment Installation

The following activities will be performed and equipment will be purchased, installed, and operational:

- Space Heating & Cooling
  - Heat pump rooftop units (2)
  - Associated equipment and labor costs required for equipment installation (2)
- Water Heating
  - High efficiency electric water heater (1)
  - Associated equipment and labor costs required for equipment installation (1)

**Deliverables:** Installation of approved appliances with supporting documentation including paid invoices and photos

**Budget: $677,500.00**

3.2.2. Commissioning & Operational Verification

Grantee shall undertake a process to ensure all systems & equipment are designed, installed, tested, operated, and maintained according to the operational requirements to ensure proper installation and operation. Grantee shall also clearly demonstrate installed equipment is primarily used over fossil fuel driven redundancy boiler(s).

**Deliverable/s:** Supporting documentation including a commissioning logbook, IPMVP Option B compliant M&V plan and report and any supporting data and primary information to be provided within 1 year of project completion date.

3.2.3. Final Project Design

Grantee is tasked with finalizing the detailed design of this project and providing CEO with a copy of such design.

**Deliverable/s:** Copy of final project design development and construction documents upon completion.

### 3.3. Local Match Amount

Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements.

**Deliverable/s**: Evidence of City of Louisville Capital Improvement Funds utilized for the project ($677,500.00)

### 3.4. Acceptance Criteria

Deliverables will be accepted upon timely submission and review by the CEO grant manager to ensure they meet all criteria in the above tasks and are included in the monthly reports from the Grantee. CEO shall notify the Grantee in writing within ten (10) calendar days of receiving a deliverable whether it accepts or rejects that deliverable. If no notification is delivered to the Grantee within this period, the deliverable shall be considered accepted. Any deliverable rejection notice shall specify in reasonable detail the way the deliverable does not materially conform to the specifications set forth in this Exhibit A. Grantee shall then implement such changes as reasonably required to bring the deliverable into material conformity with this Exhibit A. If, at the time the Grant is closed-out or terminated, it is determined that the Work is unfinished, incomplete, or unsatisfactory, or if Grantee fails to complete its obligations under this Statement of Work, in the State's sole discretion, the State shall have the right to recover from Grantee up to 100% of the Grant Funds that have been expended.

# EXHIBIT B, BUDGET & PAYMENT CONDITIONS

## 1. Eligible Costs

The following items are eligible for reimbursement:

- Energy audit(s) of ASHRAE Level II or equivalent to help an applicant determine electrification equipment type and sizing for the project.
- The purchase and installation of high efficiency electric equipment for space heating, water heating, or cooking.
- Utility and electric infrastructure upgrades that are necessary to install high efficiency electric equipment. This includes wiring, transformers, breaker boxes, electrical panels, and circuits.
- The purchase and installation of other innovative high efficiency building technologies that the CEO decides will likely be the same or better efficiency as high efficiency heat pumps.
- DI / LI / JT Communities Only: Community organizing time associated with the planning of the neighborhood-scale electrification project. Up to 30 hours of community organizing to recruit homeowners, organizing energy audits, and other tasks associated with the planning grant may be reimbursed through the grant.
- DI / LI / JT Communities Only: Administrative costs associated with the implementation of the neighborhood-scale electrification project may be reimbursed through the grant funding. Administrative costs may include but are not limited to reimbursement for staff time for managing or coordinating the implementation and installation of the equipment, working with contractors to complete projects, or other implementation-focused activities.

## 2. Project Budget

**Table 1. HEEHA Budget Form Summary**

| Planning Phase Budget Request | **Measure** | **Total Cost** | **CEO Grant Coverage Percentage** |
|---|---|---|---|
| | Energy Audits/ | $0 | 0% |

| | | | |
|---|---|---|---|
| | Analysis Costs: | | |
| | Community Organizing Costs: | $0 | 0% |
| | **Total Request** | **$0** | 0% |
| | | | |
| Implementation Phase Budget Request | **Measure** | **Total Cost** | **CEO Grant Coverage Percentage** |
| | Electrification Equipment Costs: | $1,235,000.00 | 50%* |
| | Electric Service/Panel Upgrade Costs: | $120,000 | 50% |
| | Administrative Costs: | $0 | 0% |
| | Total Request before Training: | $677,500 | |
| | Total Request Cover by Grant after Training: | **$677,500** | |
| | | | |
| Total Project Costs Covered before Training (Planning & Implementation) | | $677,500 | |
| Total Project Costs Covered by Grant after Training (Planning & Implementation) | | $677,500 | |

*Grantees who elect to participate in CEO's electrification training course receive a 5% discount on match requirement for electrification equipment costs.

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# PUBLIC BUILDING ELECTRIFICATION GRANT PROGRAM

## Implementation Only Grant Application Form

## Grant Program Overview

The Public Building Electrification Grant (PBEG) Program was created by HB 22-1362[1], to promote greenhouse gas emissions (GHGs) reductions from public buildings in the State of Colorado (State). Emissions from heating buildings are one of the five major sources of greenhouse gas pollution in the State, according to the State's Greenhouse Gas Pollution Reduction Roadmap. Furthermore, public buildings tend to be older buildings whose systems have high energy needs and high energy costs. Energy upgrades to public buildings often remain cost-prohibitive and are a lower priority than the execution of public services. In recognition of these challenges, the PBEG Program was designed to support public buildings in need of financial and technical assistance to transition fossil fuel powered HVAC systems, water heating systems, or fossil fuel-powered appliances to highly efficient electric equipment and appliances.

Projects that support electrification and energy efficiency projects for public buildings in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Program Goals
The objectives of the PBEG Program are to:

1. Scale up beneficial electrification in projects across Colorado, specifically in DI / LI / JT communities.
2. Reduce energy consumption in public buildings in Colorado.
3. Reduce harmful indoor air pollution and greenhouse gas emissions associated with burning natural gas and other fossil fuels that disproportionately impact low-income communities.
4. Reduce energy burden for public entities, with the intent of saving money spent on energy bills and reallocating those to other public services.
5. Support State-wide adoption of Colorado's updated Energy Code.
6. Spur electrification market transformation and technology advancement to accelerate the deployment of net-zero buildings.

[1] House Bill (HB) 22-1362, the Building Greenhouse Gas Emissions Act, directed the Colorado Energy Office (CEO) to create a grant program that supports the electrification of public buildings called the Public Building Electrification Grant (PBEG) program. The development of the Grant Program is outlined in Section 24-38.5-405 of the House Bill.

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## Preparing your Implementation Only Grant Application

**BEFORE YOU BEGIN: Please read through the PBEG Program Guidelines and Resource pages to understand the program objectives, eligibility, and requirements. To complete your application, please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.**

To identify your community as a DI / JT / LI community for this grant funding opportunity, please:

1. Follow the guidance in the Community Identification Resource;
2. Prepare all documentation described in the resource; and
3. Provide the documentation outlined in Section 2 Community Information.

*Note: A community is considered eligible for the DI / JT / LI allotment if they qualify for one or more of the community identifiers.*

## Implementation Only Grant Application Overview

The purpose of the grant application is to provide the Review Committee with an understanding of the applicant's proposed project, the project's commitment to full equipment electrification, any demonstrated need for funding support, and preparedness to implement the proposed project.

To submit your application and documentation, **DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields, DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields**, then follow submission instructions on the Colorado Energy Office's PBEG Grant Webpage. The applicant should review these guidelines in full prior to completing an application.

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**Please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.**

## 1. Contact Information and Project Summary

**Project Title: City of Louisville Public Library Building Electrification Retrofit**

**Applicant Organization/Entity: City of Louisville**

**Organization Type:**

| | |
|---|---|
| State agency | School district |
| Local government | Tribal government |
| Institution of higher education | Other, please specify |
| Special district | |

**Lead Applicant Name/Title: Kayla Betzold, Sustainability Manager**

**Lead Applicant Email Address: kbetzold@louisvilleco.gov**

**Lead Applicant Phone Number: 720-765-7006**

**Lead Organization Mailing Address: 749 Main Street, Louisville CO, 80027**

**Total Funding Amount Requested: $677,500**

**Estimated Total Project Cost: 1,355,000**

**Project Timeline (anticipated start and end dates, any potential reason for delay):**

3 months for final design – anticipated start date of April 2024, anticipated completion date of December 2024 (due to supply chain constraints).

**Brief Project Description (750 words):**

In December 2021, the City of Louisville experienced the most destructive wildfire in the state's history, with 550 homes and businesses destroyed. Almost two years after the devastating Marshall Fire, the City of Louisville continues to rebuild. In addition to pre-disaster planning, the City is focused on improving its climate resiliency and lessening its carbon footprint. The City developed and adopted an Internal Decarbonization Plan, which includes a roadmap to decarbonization and electrification of City facilities, fleet and equipment. The roadmap's recommendations are outlined in phases – near term, mid term and long term. The near term recommendations in the Plan include energy efficiency and load reduction at all 10 facility sites, 2.3 MW of onsite solar at seven facility sites, electric vehicle charging at five facility sites and mechanical electrification at five facility sites. The five near

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term sites were chosen due to their equipment nearing the end of its useful life. The Louisville Public Library is one of five near term building electrification sites outlined in the Internal Decarbonization Plan and electrifying the rooftop units and domestic hot water heater at the library is an integral part of achieving the goals outlined in the Internal Decarbonization Plan and grant funding will allow the City to implement the Plan's recommendations without reduction in scope, realizing the greatest decarbonization potential.

The transition from natural gas to electric heating and water systems is a crucial step towards reducing the carbon footprint associated with energy consumption. This project not only aligns with the City's commitment to environmental stewardship but also contributes to the broader goals of the state of Colorado in addressing climate change.

The benefits of this project extend beyond energy efficiency; it also promotes cleaner air, improved indoor air quality, and a healthier environment for patrons and staff. Furthermore, the successful implementation of this grant will undoubtedly contribute to the facilities' long-term operational efficiency and cost savings, reflecting a proactive approach to managing energy needs while fostering a positive impact on the community.

## 2. Community Information

**Description of Community Location:**

County: Boulder

City/Town: Louisville

Community Population: 19,394

**Disproportionately Impacted, Just Transition, and/or Low Income Communities**

Are you self-identifying your community as a Disproportionately Impacted, Just Transition, or Low-Income (DI/JT/LI) Community?

Yes

No

If yes, do you anticipate needing assistance with project management or administration of the grant if awarded? *Note: DI / JT / LI communities qualify for free technical and administrative assistance if the grant is awarded.*

Yes

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No

**[UPLOAD]** If you are self-identifying your community as DI/JT/LI (checked "yes") please provide the documentation requested in the Community Identification resource, in this section, to demonstrate applicability with the DI / JT / LI requirements.

**Project Narrative. Please keep answers to a 500 word limit for each question.**

1. Please describe why grant funds are necessary for your community/organization/entity and if the project would be able to move forward without the grant funding.

In addition to the COVID-19 pandemic, Boulder County and the City of Louisville have experienced numerous disasters in recent years. The 2013 Flood resulted in extensive damage to residential and commercial property, as well as roads, bridges creeks and open space and the 2021 Marshall Fire was the most destructive wildfire in Colorado history, with over 1,200 structures damaged or destroyed countywide. As the City of Louisville continues to rebuild from the fire, City leadership are working to become more resilient through climate mitigation and adaptation efforts.

The first large step was the City's Internal Decarbonization Plan which includes building and infrastructure upgrades, energy efficiency, clean energy and sustainable transportation. The City is also hiring a Resiliency Program Manager and Mitigation Coordinator to further increase resiliency work within the City. Through these efforts, the City of Louisville is doing its part to prepare, mitigate and adapt to climate change and reduce the impacts of future natural disasters, while also reducing emissions in an effort to reduce the intensity and frequency of these disasters in the future. This endeavor is important, impactful and expensive.

If this project is not awarded grant funds, the City would have to significantly reduce the scope, delay the project, or look for other ways to slowly implement measures over time. CEO funding for this project will enable the project to move forward as it currently exists. This project is an unprecedented opportunity for Louisville to achieve its resiliency, facility, and climate goals while continuing to provide on-going programming services to the community of Louisville.

2. In general, how will this project benefit your community? Please include all associated co-benefits on this project.

Through electrification and EV charging, the City will adapt to potential shifts in energy sources and technology advancements and will be more resilient to fluctuating fossil fuel prices due to global economic instability. Energy efficiency measures ensure ongoing energy savings and resiliency in the face of economic uncertainty.




The project enhances the community's health and well-being by improving indoor air quality, reducing carbon emissions and upgrading building infrastructure which preserves a community resource used for programs and meetings. It improves the local economy by reducing operational costs allowing the City to allocate funds to other essential services.

Through implementation of this project, the community will be able to reduce its energy consumption, produce more clean energy on-site and reduce the reliance on gas through building electrification. As a result of the project, the City will reduce GHG emissions, reduce current and future utility costs, lessen global warming, and -in turn - produce a healthier environment for present and future generations. In addition, this project focuses on extending the life of the current facilities within Louisville versus building new which produces less embodied carbon and fewer lifecycle carbon emissions. It enhances project benefits by providing sustainable improvements for both present and future generations to enjoy.

During the bidding of the project's scope of work, all subcontractors in the local community will be encouraged to respond, including smaller companies that may be more at-risk due to the financial impacts of climate change. This project will help to promote social equity of clean energy across the Louisville community by sharing knowledge and education of the process and helping to make the transition to a clean energy economy a more holistic, state-wide solution. By preserving and enhancing a key publicly accessible community hub, Louisville will be providing equitable access and maintaining resources within the library for all residents and community members – regardless of background.

3. Are you working to achieve any sustainability goals or to implement strategies from other community plans (such as a comprehensive plan, etc)?

In 2019, City Council advanced its commitment to climate action by unanimously adopting Resolution 25-2019, setting clean energy and carbon emission reduction goals for the municipality and larger community. The municipal climate action goals are as follows:

- Meet all of Louisville’s municipal electric needs with 100% carbon-free sources by 2025
- Reduce core municipal greenhouse gas (GHG) emissions annually below the 2016 baseline through 2025 (2016 baseline is 4,016 mtCO2)

As of March 2020, all City facility electricity comes from carbon-free sources, which is supplied as a premium charge added to each premise’s monthly electricity consumption through utility billing (Renewable*Connect and Windsource). City facilities also participate in community solar gardens in Boulder and Weld counties and on-site solar at the Water and Wastewater Treatment Plants.

Currently, the City is not meeting the municipal goal to decrease GHG emissions from building energy use and fleet fuel annually from the 2016 baseline. In 2022, municipal greenhouse gas




emissions associated with building energy use and fleet fuel decreased, but are significantly higher than the baseline year of 2016, likely due to the Recreation Center expansion in 2018.

The City's Strategic Plan calls out 'Complete and implement Internal Decarbonization Plan for City facilities, fleet and equipment in an effort to support the City's renewable energy and carbon emission reduction goals and to serve as a role model for the community' as a priority initiative. The 2023 City Council Work Plan identifies 'City climate change/greenhouse gas reduction initiatives' as a high priority with "Completion and implementation of the Internal Decarbonization Plan" listed.

The City's adopted Sustainability Action Plan lists several energy, climate and transportation goals that are being achieved through the creation and implementation of the Internal Decarbonization Plan.

**Required Uploads**

- DI/JT/LI documentation, if applicable.

## 3. Building Information

**[UPLOAD] Please fill out the spreadsheet titled "Building Information Spreadsheet" with the following information for the proposed project:**

- Property Street Address
- Utility companies serving the building for natural gas and electricity.
- Description of the current facility:
    - Uses / Occupancy Type
    - Age of Building
    - Building square footage
    - Fuel Types Used
    - HVAC System - Space Heating
    - HVAC System - Domestic Water Heating
    - Other Applicable Gas-Fueled Appliance(s)
    - Note any retrofits or equipment upgrades within the last 10 years, if known or applicable.
- Description of the all electric systems that will be installed with the grant funding.
    - Note if electric service upgrades will be needed for the building to complete the project.
        - Electric panel upgrade.
        - Electric utility service upgrade.

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**[UPLOAD] Provide 12 Months of Energy Bills.** Provide bills from Gas, Propane, Electricity, or other energy source providers. This can be in spreadsheet form or you may submit PDFs of the energy bills. Ensure all uploaded documents are clearly titled.

**[UPLOAD] Natural Gas and Electric Rates:** Gas and electric rate documentation (if not included in the 12 months of Energy Bills submitted).

**[UPLOAD] All-Electric Systems Information:** Please fill out the tab in the "Building Information Spreadsheet" titled "All-Electric Systems Information Spreadsheet" to provide information on the all-electric systems you are installing for the project.

**Required Uploads**

- Building Information Spreadsheet.
- 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
- Gas and Electric Rate Documentation if not included in the 12 months of Energy Bills submitted.
- All-Electric Systems Information Spreadsheet.

## 4. Project Details

**Electrification Project Scope**

**[UPLOAD]** Provide all energy audits of ASHRAE Level II or equivalent or analysis completed for the project that evaluated the electrification of fossil gas equipment and/or any electric-service and electric-panel upgrades.

**[UPLOAD]** Submit documentation that justifies the selected size and type of equipment or installation with the quote. This may include but is not limited to an energy audit, a report from an energy analyst, or a set of Manual J calculations.

Provide a description in narrative form of the full project scope including which electrification measures will be implemented and electric service upgrades needed if applicable. (750 word limit)

Through this PGEB funded project at the Louisville Public Library, the City will transition two natural gas 80% efficient rooftop units (RTU) to two 50-ton air to air heat pump RTUs. One of the heat pump RTUs will have a coefficient of performance (COP) of 3.33 with heat recovery at 47 degrees Fahrenheit and the second heat pump RTU will have a COP of 3.18 with heat recovery at 17 degrees Fahrenheit. Additionally, a natural gas 80% efficient domestic hot water heater will be transitioned to an 80 gallon, 18kW electric water heater with a COP of 1




with electric resistance backup heating. Since the City will not be electrifying the natural gas boiler, a service upgrade is not needed at the site at this time.

**Additional Energy Work within Project Scope**

For each facility in the proposed project, please describe if the project will be paired with renewable energy, energy storage, and/or other energy efficiency improvements. If so, please describe those improvements here and attach any relevant documentation. (500 word limit, and/or **UPLOAD)**

There are several other aspects of decarbonization at the public library site that will be implemented in conjunction with the mechanical electrification. The following energy efficiency and load reduction measures will be implemented: variable frequency drives, snow melt system retro-commissioning, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors, advanced plug load reduction. Additionally, a 128 kW-DC flat roof solar system will be installed on the roof to further decarbonization efforts and produce renewable electricity onsite.

**Energy Performance Contracting**

Are you planning on pairing grant funding with EPC financing?

Yes

No

**Implementation Project Team**

Who will be involved in the implementation project? List any contractors, facilities managers, building owners, etc. along with relevant certifications and/or licenses (if applicable).

**[UPLOAD]** You may either fill out the table below or upload a document with your project team's information.

| Project Team Member | Role | Company/ Organization | Certification/ Licenses (if applicable) |
|---|---|---|---|
| Kayla Betzold | Sustainability Manager/Project Manager | City of Louisville | |
| Kevin Frey | Facilities | City of Louisville | |

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| | | | |
|---|---|---|---|
| | **Superintendent/Project Manager** | | |
| **Kurt Kowar** | **Public Works Director** | **City of Louisville** | |
| **ESCO** | **Construction management** | **TBD** | |
| **Ryder Bailey** | **Finance Director** | **City of Louisville** | |

**Commissioning Plan**

Project commissioning is not required but highly encouraged. If you are pursuing commissioning, please provide the following detail.

Name of Certified Commissioning Agent: TBD

Timeline for Commissioning: 2024

Systems being Commissioned: Commissioning will be completed after installation of the electric units through the EPC.

**[UPLOAD]** Commissioning Plan.

**Additional Relevant Information**

*Note: Projects that do not provide information in this section will not be penalized.*

1. Is there any additional information that will assist the Evaluation Committee in understanding the proposed project and need? (500 word limit)

2. **[UPLOAD]** Please attach any additional documents that would support your application (i.e., design documents, energy analysis, letters of recommendation, letters of support, etc.) and include a brief description of the documents attached. (500 word limit)

**Required Uploads**

- Energy Audit or Analysis (ASHRAE Level II or equivalent).




- Size and Type of Electric Systems Justification Report.
- Commissioning Plan, if applicable.
- Project team documentation, if not filling out the provided table.
- Any additional documents that support your application.

## 5. Project Budget

**Project Budget**

**[UPLOAD]** Complete the "Project Budget" Spreadsheet and upload it.

> **DI / LI / JT Communities**
> DI / LI / JT Applicants may have up to 40 hours of administrative time covered under the Implementation Grant. Please provide details on the administrative cost and the number of hours needed. Note, there cannot be double counting between administrative time covered with grant funding and any in-kind support that contributes to the community match.

**[UPLOAD]** Please attach a quote(s) and all specification sheets for the proposed high-efficiency electric equipment and/or any electric service and electric-panel upgrades necessary for project execution. You must include at least two (2) quotes per service or equipment type, as applicable, and must indicate which vendor was selected to perform the work.

**[UPLOAD]** Confirmation a project team member has signed up or completed the Electrification Training for the match contribution.

**Required Uploads**

- Project Budget Form.
- Project Quotes/Estimates.
- Equipment Specification Sheets.
- Confirmation of Electrification Training.

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## 6. Required Uploads for Supporting Documentation

**Supporting Uploads and Documentation**

Please ensure all the following documents have been attached to your application:

Section 2: DI/JT/LI documentation, if applicable.
Section 3: Building Information Spreadsheet.
Section 3: 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
Section 3: Gas and Electric Rate Documentation if not included in the 12 months of Energy Bills submitted.
Section 3: All-Electric Systems Information Spreadsheet.
Section 4: Energy Audit or Analysis (ASHRAE Level II or equivalent)
Section 4: Size and Type Justification Analysis if information is not included in the energy audit.
Section 4: Commissioning Plan, if applicable.
Section 4: Any additional documents that support your application.
Section 4: Project team documentation, if not filling out the provided table.
Section 5: Project Budget Form.
Section 5: Project Quotes/Estimates.
Section 5: Equipment Specification Sheets.
Section 5: Confirmation of Electrification Training.

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## 7. Reporting Plan and Final Documentation - Implementation

**Reporting Plan**

Briefly describe the plan for grant reporting, including roles, responsibilities, and methods. If you are self-identifying your community as a DI/JT/LI community and plan to use grant funding to cover administrative costs, be sure to include the estimated administrative costs associated with grant reporting in the project budget. (500 word limit)

If awarded funding, the City of Louisville team will effectively manage the grant reporting and community progress and outcomes to the Colorado Energy Office. Kayla Betzold will act as the Project Manager and will oversee the project and its reporting. Kayla will compile information, ensure accuracy and provide a comprehensive overview of the project status and outcomes. Kayla will also be the City of Louisville point of contact and will communicate with other city team members through the project. Ryder Bailey and his Finance team will be responsible for providing accurate financial data related to grant expenditures and other financial documentation required by the state. Kevin Frey and the Public Works team will be directly involved with the project's implementation and will provide details about project activities, milestones achieved, challenges faced and success stories.

---

Upon completion of the project, the following documentation will be required:

1. Final budget sheet including all project expenses and matched income.
2. Legible copies of all sales/invoices showing the purchase price and amount paid by the applicant for the PBEG equipment and installation, the number and type of units purchased, and the coefficient of performance or efficiency rating for all units purchased.
3. Date(s) of installation, installation completion, and when the units were operational.
4. If available, energy use data/energy bills for each building for the months following the installation of the high-efficiency electric equipment.

To submit documentation, follow submission instructions on the Colorado Energy Office's PBEG Grant Program webpage.

# Attachment E: Professional Services Agreement

**INDEPENDENT CONTRACTOR AGREEMENT**
**BY AND BETWEEN THE CITY OF LOUISVILLE**
**AND _____**
**FOR _____ SERVICES**

## 1.0 PARTIES

This INDEPENDENT CONTRACTOR AGREEMENT (this "Agreement") is made and entered into this _____ day of _____, 20__ (the "Effective Date"), by and between the **City of Louisville**, a Colorado home rule municipal corporation, hereinafter referred to as the "City", and _____, [Name of Contractor] a _____[State of Formation and Type of Entity], hereinafter referred to as the "Contractor".

## 2.0 RECITALS AND PURPOSE

2.1 The City desires to engage the Contractor for the purpose of providing _____ services as further set forth in the Contractor's Scope of Services set forth in Section 3.0 of this Agreement (which services are hereinafter referred to as the "Services").

2.2 The Contractor represents that it has the special expertise, qualifications and background necessary to complete the Services.

## 3.0 SCOPE OF SERVICES

The Contractor agrees to provide the City with the specific Services and to perform the specific tasks, duties and responsibilities set forth in Scope of Services attached hereto as Exhibit "A" and incorporated herein by reference. Contractor shall furnish all tools, labor and supplies in such quantities and of the proper quality as are necessary to professionally and timely perform the Services. Contractor acknowledges that this Agreement does not grant any exclusive privilege or right to supply Services to the City.

## 4.0 COMPENSATION

4.1 The City shall pay the Contractor for Services under this Agreement a total not to exceed the amounts set forth in Exhibit "A" attached hereto and incorporated herein by this reference. For Services compensated at hourly or per unit rates, or on a per-task basis, such rates or costs per task shall not exceed the amounts set forth in Exhibit A. The City shall not pay mileage and other reimbursable expenses (such as meals, parking, travel expenses, necessary memberships, etc.), unless such expenses are (1) clearly set forth in the Scope of Services, and (2) necessary for performance of the Services ("Pre-Approved Expenses"). The foregoing amounts of compensation shall be inclusive of all costs of whatsoever nature associated with the Contractor's efforts, including but not limited to salaries, benefits, overhead, administration, profits, expenses, and outside Contractor fees. The Scope of Services and payment therefor shall only be changed by a properly authorized amendment to this Agreement. No City employee has the authority to bind the City with regard to any payment for any Services which exceeds the amount payable under the terms of this Agreement.

4.2 The Contractor shall submit monthly an invoice to the City for Services rendered and a detailed expense report for Pre-Approved Expenses incurred during the previous month.

The invoice shall document the Services provided during the preceding month, identifying by work category and subcategory the work and tasks performed and such other information as may be required by the City. The Contractor shall provide such additional backup documentation as may be required by the City. The City shall pay the invoice within thirty (30) days of receipt unless the Services or the documentation therefor are unsatisfactory. Payments made after thirty (30) days may be assessed an interest charge of one percent (1%) per month unless the delay in payment resulted from unsatisfactory work or documentation therefor.

## 5.0 PROJECT REPRESENTATION

5.1 The City designates _____ as the responsible City staff to provide direction to the Contractor during the conduct of the Services. The Contractor shall comply with the directions given by _____ and such person's designees.

5.2 The Contractor designates _____ as its project manager and as the principal in charge who shall be providing the Services under this Agreement. Should any of the representatives be replaced, particularly _____, and such replacement require the City or the Contractor to undertake additional reevaluations, coordination, orientations, etc., the Contractor shall be fully responsible for all such additional costs and services.

## 6.0 TERM

6.1 The term of this Agreement shall be from the Effective Date to _____, 20___, unless sooner terminated pursuant to Section 13, below. The Contractor's Services under this Agreement shall commence on [(the Effective Date) or (on another date desired by the City, after the Effective Date)] and Contractor shall proceed with diligence and promptness so that the Services are completed [in a timely fashion consistent with the City's requirements] [on or before _____].

6.2 Nothing in this Agreement is intended or shall be deemed or construed as creating any multiple-fiscal year direct or indirect debt or financial obligation on the part of the City within the meaning of Colorado Constitution Article X, Section 20 or any other constitutional or statutory provision. All financial obligations of the City under this Agreement are subject to annual budgeting and appropriation by the Louisville City Council, in its sole discretion. Notwithstanding anything in this Agreement to the contrary, in the event of non-appropriation, this Agreement shall terminate effective December 31 of the then-current fiscal year.

## 7.0 INSURANCE

7.1 The Contractor agrees to procure and maintain, at its own cost, the policies of insurance set forth in Subsections 7.1.1 through 7.1.4. The Contractor shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. The coverages required below shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained from the date of commencement of Services hereunder. The required coverages are:

7.1.1 Workers' Compensation insurance as required by the Labor Code of the State of Colorado and Employers Liability Insurance. Evidence of qualified self-insured status may be substituted.

7.1.2 General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 aggregate. The policy shall include the City of Louisville, its officers and its employees, as additional insureds, with primary coverage as respects the City of Louisville, its officers and its employees, and shall contain a severability of interests provision.

7.1.3 Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than $400,000 per person in any one occurrence and $1,000,000 for two or more persons in any one occurrence, and auto property damage insurance of at least $50,000 per occurrence, with respect to each of Contractor's owned, hired or non-owned vehicles assigned to or used in performance of the Services. If the Contractor has no owned automobiles, the requirements of this paragraph shall be met by each officer or employee of the Contractor providing services to the City of Louisville under this contract.

7.2 The Contractor's general liability insurance and automobile liability and physical damage insurance shall be endorsed to include the City, and its elected and appointed officers and employees, as additional insureds, unless the City in its sole discretion waives such requirement. Every policy required above shall be primary insurance, and any insurance carried by the City, its officers, or its employees, shall be excess and not contributory insurance to that provided by the Contractor. Such policies shall contain a severability of interests provision. The Contractor shall be solely responsible for any deductible losses under each of the policies required above.

7.3 Certificates of insurance shall be provided by the Contractor as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the City. No required coverage shall be cancelled, terminated or materially changed until at least 30 days prior written notice has been given to the City. The City reserves the right to request and receive a certified copy of any policy and any endorsement thereto.

7.4 Failure on the part of the Contractor to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the City may immediately terminate this Agreement, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Contractor to the City upon demand, or the City may offset the cost of the premiums against any monies due to Contractor from the City.

7.5 The parties understand and agree that the City is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S., as from time to time amended, or otherwise available to the City, its officers, or its employees.

## 8.0 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor agrees to indemnify and hold harmless the City, and its elected and appointed officers and its employees, from and against all liability, claims, and demands, on account of any injury, loss, or damage, which arise out of or are connected with the Services hereunder, if such injury, loss, or damage is caused by the negligent act, omission, or other fault of the Contractor or any subcontractor of the Contractor, or any officer, employee, or agent of the Contractor or any subcontractor, or any other person for whom Contractor is responsible. The Contractor shall investigate, handle, respond to, and provide defense for and defend against any such liability, claims, and demands. The Contractor shall further bear all other costs and expenses incurred by the City or Contractor and related to any such liability, claims and demands, including but not limited to court costs, expert witness fees and attorneys' fees if the court determines that these incurred costs and expenses are related to such negligent acts, errors, and omissions or other fault of the Contractor. The City shall be entitled to its costs and attorneys' fees incurred in any action to enforce the provisions of this Section 8.0. The Contractor's indemnification obligation shall not be construed to extend to any injury, loss, or damage which is caused by the act, omission, or other fault of the City.

## 9.0 QUALITY OF WORK

Contractor's Services shall be performed in accordance with the highest professional workmanship and service standards in the field to the satisfaction of the City.

## 10.0 INDEPENDENT CONTRACTOR

It is the expressed intent of the parties that the Contractor is an independent contractor and not the agent, employee or servant of the City, and that:

10.1. **CONTRACTOR SHALL SATISFY ALL TAX AND OTHER GOVERNMENTALLY IMPOSED RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, PAYMENT OF STATE, FEDERAL AND SOCIAL SECURITY TAXES, UNEMPLOYMENT TAXES, WORKERS' COMPENSATION AND SELF-EMPLOYMENT TAXES. NO STATE, FEDERAL OR LOCAL TAXES OF ANY KIND SHALL BE WITHHELD OR PAID BY THE CITY.**

10.2. **CONTRACTOR IS NOT ENTITLED TO WORKERS' COMPENSATION BENEFITS EXCEPT AS MAY BE PROVIDED BY THE INDEPENDENT CONTRACTOR NOR TO UNEMPLOYMENT INSURANCE BENEFITS UNLESS UNEMPLOYMENT COMPENSATION COVERAGE IS PROVIDED BY THE INDEPENDENT CONTRACTOR OR SOME ENTITY OTHER THAN THE CITY.**

10.3. Contractor does not have the authority to act for the City, or to bind the City in any respect whatsoever, or to incur any debts or liabilities in the name of or on behalf of the City.

10.4. Contractor has and retains control of and supervision over the performance of Contractor's obligations hereunder and control over any persons employed by Contractor for performing the Services hereunder.

10.5. The City will not provide training or instruction to Contractor or any of its employees regarding the performance of the Services hereunder.

10.6. Neither the Contractor nor any of its officers or employees will receive benefits of any type from the City.

10.7. Contractor represents that it is engaged in providing similar services to other clients and/or the general public and is not required to work exclusively for the City.

10.8. All Services are to be performed solely at the risk of Contractor and Contractor shall take all precautions necessary for the proper and sole performance thereof.

10.9. Contractor will not combine its business operations in any way with the City's business operations and each party shall maintain their operations as separate and distinct.

## 11.0 ASSIGNMENT

Contractor shall not assign or delegate this Agreement or any portion thereof, or any monies due to or become due hereunder without the City's prior written consent.

## 12.0 DEFAULT

Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event either party should fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

## 13.0 TERMINATION

13.1 This Agreement may be terminated by either party for material breach or default of this Agreement by the other party not caused by any action or omission of the other party by giving the other party written notice at least thirty (30) days in advance of the termination date. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

13.2 In addition to the foregoing, this Agreement may be terminated by the City for its convenience and without cause of any nature by giving written notice at least fifteen (15) days in advance of the termination date. In the event of such termination, the Contractor will be paid for the reasonable value of the Services rendered to the date of termination, not to exceed a pro-rated daily rate, for the Services rendered to the date of termination, and upon such payment, all obligations of the City to the Contractor under this Agreement will cease. Termination pursuant to this Subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

## 14.0 INSPECTION AND AUDIT

The City and its duly authorized representatives shall have access to any books, documents, papers, and records of the Contractor that are related to this Agreement for the purpose of making audits, examinations, excerpts, and transcriptions.

## 15.0 DOCUMENTS

All computer input and output, analyses, plans, documents photographic images, tests, maps, surveys, electronic files and written material of any kind generated in the performance of this Agreement or developed for the City in performance of the Services are and shall remain the sole and exclusive property of the City. All such materials shall be promptly provided to the City upon request therefor and at the time of termination of this Agreement, without further charge or

expense to the City and in hardcopy or an electronic format acceptable to the City, or both, as the City shall determine. Contractor shall not provide copies of any such material to any other party without the prior written consent of the City. Contractor shall not use or disclose confidential information of the City for purposes unrelated to performance of this Agreement without the City's written consent.

## 16.0 ENFORCEMENT

16.1 In the event that suit is brought upon this Agreement to enforce its terms, the parties shall each bear and be responsible for their own attorneys' fees and court costs.

16.2 This Agreement shall be deemed entered into in Boulder County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Agreement shall be filed in the courts of Boulder County or the federal district court for the District of Colorado, and in no other court. [If out of state contractor: Contractor hereby waives its right to challenge the personal jurisdiction of the courts of Boulder County and the federal district court for the District of Colorado over it.] Colorado law shall apply to the construction and enforcement of this Agreement.

## 17.0 COMPLIANCE WITH LAWS

Contractor shall be solely responsible for compliance with all applicable federal, state, and local laws, including the ordinances, resolutions, rules, and regulations of the City; for payment of all applicable taxes; and obtaining and keeping in force all applicable permits and approvals.

## 18.0 INTEGRATION AND AMENDMENT

This Agreement represents the entire Agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties.

## 19.0 NOTICES

All notices required or permitted under this Agreement shall be in writing and shall be given by hand delivery, by United States first class mail, postage prepaid, registered or certified, return receipt requested, by national overnight carrier, or by email transmission, addressed to the party for whom it is intended at the following address:

If to the City:

City of Louisville
Attn: _____
749 Main Street
Louisville, CO 80027
e-mail: _____

If to the Contractor:

_____
_____
_____
_____

Except for notices by email transmission, any notice required or permitted under this Agreement shall be effective when received as indicated on the delivery receipt, if by hand delivery or overnight carrier; on the United States mail return receipt, if by United States mail. Notices by email transmission shall be effective on transmission, so long as no message of error or non-receipt is received by the party giving notice. Either party may by similar notice given, change the address to which future notices or other communications shall be sent.

## 20.0 EQUAL OPPORTUNITY EMPLOYER

a) Contractor will not discriminate against any employee or applicant for employment because of age 40 and over, race, sex, color, religion, national origin, disability, genetic information, sexual orientation, veteran status, or any other applicable status protected by state or local law. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to any status set forth in the preceding sentence. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

b) Contractor shall be in compliance with the applicable provisions of the American with Disabilities Act as enacted and from time to time amended and any other applicable federal, state, or local laws and regulations. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of this Agreement or any renewal thereof.

## 21.0 NO THIRD PARTY BENEFICIARIES

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to City and Contractor, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than City or Contractor receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

## 22.0 SUBCONTRACTORS

Contractor may utilize subcontractors identified in its qualifications submittal to assist with non-specialized works as necessary to complete projects. Contractor will submit any proposed subcontractor and the description of its services to the City for approval. The City will not work directly with subcontractors.

## 23.0 AUTHORITY TO BIND

Each of the persons signing below on behalf of any party hereby represents and warrants that such person is signing with full and complete authority to bind the party on whose behalf of whom such person is signing, to each and every term of this Agreement.

In witness whereof, the parties have executed this Agreement to be effective as of the day and year first above written.

CITY OF LOUISVILLE

By:_____
Chris Leh, Mayor

Attest:_____
Genny Kline, Interim City Clerk

CONTRACTOR:
_____

By:_____
Title:_____




# City of Louisville
# Internal Decarbonization Project

September 12, 2025

Delivering a better world

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7595 Technology Way, Suite 200
Denver, CO 80237
(303) 694-2770

September 12, 2025

Taylor McCauley
Civil Engineer III
City of Louisville
749 Main Street
Louisville, CO 80027

*Submitted to* tmccauley@louisvilleco.gov

**RE: Internal Decarbonization Project**

Ms. McCauley,

The City of Louisville's Internal Decarbonization Project is a bold step toward a cleaner, more resilient future for our community and our state. AECOM is deeply committed to advancing decarbonization in Colorado, and we view this project as a milestone that will demonstrate what's possible when leadership, innovation, and local expertise come together. We are excited by the opportunity to partner with the City of Louisville on this important endeavor.

### Experienced Leadership

AECOM has been delivering decarbonization projects across the U.S. for more than a decade, giving us a deep understanding of the technical, regulatory, and community drivers that shape success. Our Project Manager, Laurie Meyer-Lancisi, AIA, is a licensed architect with over 20 years of specialized experience. She is supported by Jeff Bentley, PE (electrical lead) and Chris Imperato, PE (mechanical lead), who have partnered on major efforts such as Denver Water's Northwater Treatment Plant, Sijan Hall at the U.S. Air Force Academy, and multiple energy projects at the Anschutz Medical Campus. Together, our full team brings nearly 200 years of combined architectural, engineering, and specialty expertise, reinforced by cost estimating, construction management, and commissioning capabilities.

### Local, Responsive Resources

The team we have assembled is predominantly based in Colorado's Front Range, ensuring ready access for site visits, in-person coordination, and responsive support throughout the project. This strong local presence not only helps control costs but also strengthens continuity across Phases 1 and 2. With Phase 2 expected to extend into 2027, having a reliable, Colorado-based team will be essential to maintaining momentum and delivering results across multiple facilities.

### National Expertise, On Demand

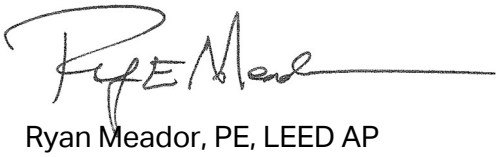
As part of AECOM's 18,000-person U.S. network, our team has seamless access to national specialists in battery storage, electrified mobility, grid modernization, policy, stakeholder

engagement, and more. Our Denver office frequently collaborates with California colleagues who bring extensive experience delivering decarbonization programs for Oakland County, Yolo County, the Los Angeles Unified School District, and are now advancing sustainability planning for the 2028 LA Olympics. Louisville will benefit from this combination of trusted local delivery and proven national expertise.

AECOM is honored to submit this proposal to the City of Louisville. We are inspired by the City's leadership and look forward to supporting this landmark project. Ryan is available to answer any questions as you deliberate.

As AECOM's authorized signatory I, Ryan Meador, certify that the information submitted is true and complete to the best of my knowledge. I acknowledge receipt of Addenda 1-5 as well.

Sincerely,
AECOM Technical Services, Inc.





Ryan Meador, PE, LEED AP
Principal, Authorized signatory
Ryan.Meador@aecom.com
(303) 843-2178

Laurie Meyer-Lancisi, AIA
Senior Project Manager
Laurie.Meyer-Lancisi@aecom.com
(303) 881-9066

*Please note, AECOM no longer maintains a fax number.*

# PROJECT TEAM

# Project Team

**Firm Overview**
AECOM Technical Services, Inc. (AECOM) is a full-service, global consultancy with 50,000 employees worldwide, over 600 of whom are in Colorado; our offices are in Denver, Boulder, Fort Collins, Colorado Springs, and Glenwood Springs. Our broad service categories are architecture and design, engineering, construction management, environmental services, and program management. AECOM performs a wide range of services for our clients, from designing and constructing major infrastructure including bridges, roadways, and electrical transmission lines, to rigorous analytical studies, environmental quality monitoring and analysis, managing wastewater treatment systems, landscape design, developing economic development plans, and more.

AECOM is an innovator with a global network of integrated services uniquely tailored to the delivery of multi-discipline projects. Our integrated offering means we work seamlessly with our clients throughout the life cycle of the project by bringing in subject matter experts within our larger company framework in addition to our granular local knowledge.

With more than 50 years of history in Colorado, AECOM has executed many projects across the state. This depth of experience provides us great working knowledge of metropolitan areas and rural markets across the state, and we understand the differing geographies our state represents. The challenges, climates, economies and labor forces are as diverse as the terrain.

## AECOM's Colorado Clients




**Sustainable Legacies**
Through our Sustainable Legacies strategy, AECOM has pledged to advance sustainability and Environmental, Social & Governance (ESG) initiatives within our operations and in partnership with our clients. Strongly aligned with Louisville's climate goals and values, our commitments include:

- Achieving operational net zero emissions in 2021 (completed and maintaining)
- Achieving science-based net zero emissions by 2040
- Offsetting residual carbon by creating our own nature-based solution projects
- Partnering with our supply chain to develop carbon reduction targets
- Integrating climate adaptation and climate resilience into all aspects of our advisory, planning, feasibility, design, and program management solutions
- Ensuring our project teams reflect the diversity of the clients and communities we serve

- Ensuring women comprise at least 20% of senior leadership roles and at least 35% of the overall workforce in the near-term
- Implementing and enhancing our enterprise framework that assesses ESG risk in all project pursuits
- Driving accountability through specific ESG goals/metrics in leadership annual goals
- Reporting on our ESG performance in line with the Sustainability Accounting Standards Board (SASB) and Task Force on Climate-related Financial Disclosures (TCFD) frameworks

**Team Members**
For the City of Louisville, we have assembled a team based in our Denver office who have worked together on multiple projects. As an interdisciplinary practice, our staff regularly work collaboratively on several projects, simultaneously. In many cases the task leads not only work together on a daily basis but also sit together in the same office. This creates opportunities for spontaneous interaction and collaboration.

## Meet Your Project Manager: Laurie Meyer-Lancisi, AIA, LEED GA



Laurie is a licensed architect with over 20 years of experience in the industry working on a variety of project types from preliminary design through construction contract administration. With a background in urban and regional planning, she has developed a deep understanding of how projects impact their end users, the communities they live in, and the environment. Her diverse project portfolio has strengthened her ability to navigate varying scopes, timelines, and resource constraints bringing an experienced but fresh approach to each project she manages.

*"Communication and reliability are key to my approach to project management. I strive to understand my client's goals and parameters so that our team delivers a high-quality work product on time and on budget"*

**Jeff Bentley, PE: Electrical Engineering Lead.** Jeff is a Senior Electrical Engineer committed to sustainable designs, quality control, and mentoring. His specialties include indoor agriculture design, project management, jobsite services, and construction administration services. He has conducted feasibility studies, facility assessments, and electrical system evaluations as well as conceptual design, construction document production and construction administration for a wide variety of both existing and new facilities.

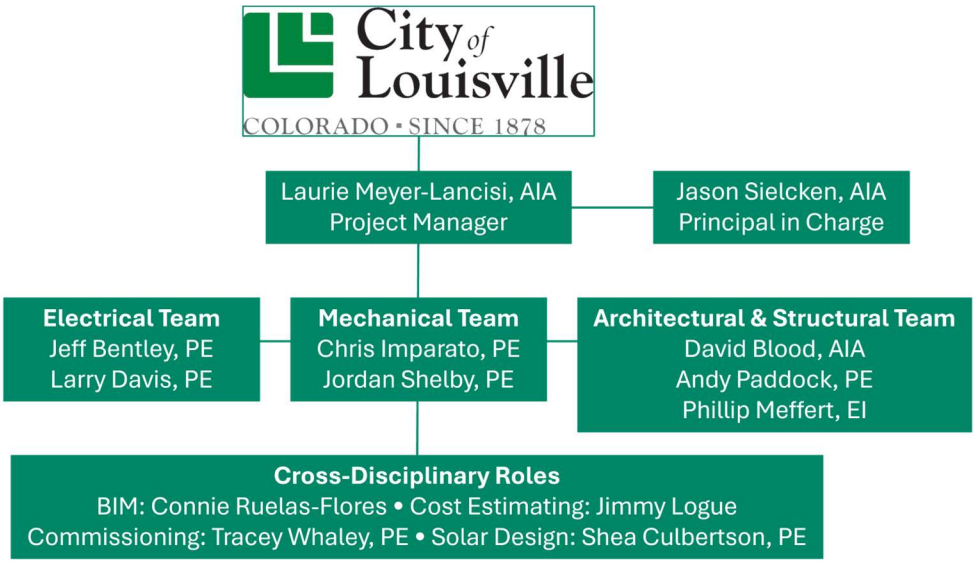
**Chris Imparato, PE, LEED AP: Mechanical Engineering Lead.** Chris is a mechanical engineer with more than 16 years of experience. He is a mechanical design engineer for building HVAC and plumbing systems. His project roles include project lead and discipline lead providing design guidance, oversight, and technical reviews of the HVAC and plumbing disciplines, as well as project engineer overseeing the multidisciplined technical execution of the client's scope of work.

**David Blood, AIA, LEED AP: Architectural Lead.** David has architectural experience in new construction and improvements to existing projects. He has participated in several site/building restoration projects that were of historical significance and integrated them into the existing infrastructure. His experience in construction and presentation documents development allows him to provide support in conveying complex information to clients and the public. David has expertise in several industry standard CAD software programs allowing AECOM to be compatible with whatever software the client is currently using

**Jason Sielcken, AIA, LEED AP**: Principal-In-Charge. Jason has been a driving force in delivering high-performance, sustainable buildings in the public sector for over 15 years. His leadership includes industry firsts such as completing the nation's first net-zero energy building on the National Register of Historic Places and

leading the design for the first net-zero BSL-3 laboratory and the first net-zero land port of entry on the northern border. Jason has also guided major adaptive reuse projects achieving LEED Gold and Platinum, SITES Silver, and substantial reductions in energy and water use. His work consistently integrates renewable energy, electrification, and advanced strategies that set new standards for resilient and sustainable public infrastructure.

Our team is organized to address each of the service areas outlined in the RFP. We strongly believe in consistency among team members to maintain continuity and quality control from project conception to execution. To this end, we carefully organize teams at the start so that they are comprised of individuals with strengths in design, technical coordination and management. Resumes for key personnel are provided in the Appendix.




*Note: The entire team is based in the Denver metro area except for Shea Culbertson.*

**Time Commitment and Capacity**

This team is deliberately assembled to demonstrate that we are able to provide the expertise necessary to address the requirements of the SOW with redundancy and depth in each specialty area. Our task leadership and support staff have been determined by a combination of appropriate skill set and availability to fully commit to successful delivery. We pride ourselves in doing what we say. Each task will be led and managed by the individuals listed in this proposal.

**Current and Projected Workload**

AECOM has an established record of meeting schedules with well-defined project and business management systems. Louisville's decarbonization program aligns with our expertise and works easily into our team's current commitments. Our team is prepared to proceed immediately upon selection, and our current workload does not impede our ability to meet the schedule of any upcoming task orders.

The table below demonstrates our task leads' experience with facility planning and programming and decarbonization, and our availability to complete this project for the City of Louisville.

| | | | | | Unique Knowledge | | | |
|---|---|---|---|---|---|---|---|---|
| **Name** | **Role** | **% of Workload Allocated** | **% of Workload Available** | **Years with AECOM** | **Electrical Design** | **Mechanical Design** | **Architectural Design** | **Construction Management** |
| Jason Sielcken, AIA | Principal in Charge | 10% | 20% | <1 | | | ● | ● |
| Laurie Meyer-Lancisi, AIA | Project Manager | 10% | 20% | <1 | | | ● | |
| Jeff Bentley, PE | Electrical Lead | 10% | 20% | 2 | ● | | | ● |
| Chris Imperato, PE | Mechanical Lead | 10% | 20% | 8 | | ● | | ● |
| David Blood, AIA | Architectural Lead | 10% | 20% | 26 | | | ● | ● |

**Project Experience**

The table below provides the required information about each referenced project. Additional descriptions of relevant projects, including those for which clients have provided letters of commendation, are provided in the References section.

| **Client** | **Project Name** | **Year Completed** |
|---|---|---|
| **US Air Force Academy** | Sijan Hall | Design complete, in bid process |
| Contact | Corine Weiss, RA, GS-13, Chief, Portfolio Optimization<br>(719) 651-9744 (requests to be contacted by phone) | |
| AECOM's Role | AECOM designed HVAC for 675,000 SF dormitory facility on the campus. The project included ground source heat pumps throughout the facility to achieve high energy efficiency targets. A total of 180 boreholes were designed to provide enough energy transfer for the building without the need for any other outside heating or cooling sources. Cost estimates were provided at each delivery stage which helped keep the project on budget and on schedule. | |
| **Denver Water** | Northwater Treatment Plant | 2024 |
| Contact | Pete McCormick, Design Project Manager; peter.mccormick@denverwater.org | |
| AECOM's Role | The proposed team for Louisville designed the HVAC for 12 different buildings on a new site for a 75 MGD water treatment facility aligned with Denver Water's goal of a net zero energy facility. The project achieved Envision Gold certification through ISI and looking to achieve LEED Gold certification for the Operations Building through USGBC. AECOM also provided construction administration services for the mechanical and plumbing disciplines continuing our pursuit of quality all the way through to startup and turnover of each of the buildings. | |

| | | |
|---|---|---|
| **City & County of Denver** | National Western Center District Energy System | 2019 |
| Contact | Brad Buchanan, CEO; (720) 326-9506; b.buchanan@nationalwesterncenter.com | |
| AECOM's Role | This state-of-the-art central utility plant utilizes sewer heat recovery to provide 90% of its heating and cooling to buildings across the campus. The largest installation in North America to date, the system can provide up to 4 MW of heating for the campus. The sewer heat recovery systems pull thermal energy from wastewater instead of burning fossil fuels. Using this system, the 250-acre campus will avoid emitting an estimated 2,600 metric tons of carbon per year. Contracting method was a design-build effort with Saunders Construction, this enabled the project to incorporate cost saving features while still maintaining the quality of the equipment. | |
| **University of Colorado, Boulder** | Energy Master Plan | 2022 |
| Contact | Brian Lindoerfer, Assoc. Vice Chancellor, Facilities Mgmt<br>(720) 514-9860; brian.lindoerfer@colorado.edu | |
| AECOM's Role | AECOM developed an Energy Master plan for the University of Colorado, Boulder Campus. Scope included investigating the existing facilities and infrastructure to recommend energy efficient upgrades and plans to help the campus meet their Greenhouse Gas Emission (GHG) reduction goals. | |
| **University of Colorado, Anschutz Medical Campus** | Bundled Energy Projects | 2020-2025 |
| Contact | Jarrett Smith, MPA, Sustainability Manager<br>(303) 956-1712; jarrett.smith@cuanschutz.edu | |
| AECOM's Role | AECOM evaluated more than one million square feet of facility assets in an effort to advance CU Anschutz's Climate Action Plan and reduce their energy footprint. The scope included whole-building energy modeling, energy conservation measure (ECM) designs, cost estimates, and financial analysis. CU Anschutz continued AECOM's involvement after the ECMs were developed and costed, a selected group of ECMs were chosen to move into implementation. Permitting and construction documents were created and AECOM supported construction efforts through project close-out. | |

# WORK PLAN

# Work Plan

### Project Understanding

Based on the City of Louisville's sustainability plans and reports, the RFP (including RFI responses), and the pre-bid site visit, AECOM understands that the objective of this project is to electrify up to 10 municipal facilities to facilitate decarbonization. The City has been awarded grants from the state which, if matched to their maximum capacity, would equal a total project budget of approximately $13.1M, of which the City has secured $6.5M, with $5.8M of that allocated to Phase 2. The City intends to proceed with the Phase 1 task of conducting an electrical load analysis for these seven facilities:

- Art Center
- Austin-Neihoff House (White House)
- City Hall
- City Services Facility
- Public Library
- Sid Copeland Water Treatment Plant
- Wastewater Treatment Plant

The consultant selected for this project will need to coordinate with other consultants and City staff on related projects for certain buildings regarding EV charging and emergency backup generator projects.

The results of the Phase 1 assessment will inform Phase 2, in which the engineering designs will be created and construction implemented. The consultant selected under this RFP may or may not advance to Phase 2, i.e., providing the engineering designs and managing the construction administration, depending on their proposals. AECOM proposes herein to provide the full suite of services to complete the projects, inclusive of Phase 1 and Phase 2. With the full scope and timeline for Phase 2 unknown at this time, a scope and budget are provided only for Phase 1. A detailed scope and budget for Phase 2 will be developed with the City at the conclusion of Phase 1, when the prioritization of projects is known.




*AECOM's decarbonization planning process, focused on developing holistic and implementation action plans, has been applied to over 500,000,000 SF of facilities across the US.*

### Project Approach

Our approach to identifying and developing fossil fuel reduction strategies is predicated on our experience of developing decarbonization roadmaps for clients across the country and abroad. We have completed similar projects for campuses, communities, and real estate portfolios totaling over 500 million square feet of facilities spanning governing bodies, public agencies and institutions, and private businesses. Our approach combines facility assessments, energy modeling, opportunity development, and pathway development, and leverages a holistic methodology built around four key questions:

- Where are you? — Data review, inventory, and assessment of existing performance
- Where do you want to go? — Objective setting and future performance evaluation
- What are your opportunities? — Identification and feasibility evaluation of potential projects
- How will you get there? — Funding, Implementation and Monitoring plan development

### Quality Control

AECOM implements quality processes as an integral part of project delivery; AECOM's Project Delivery System (PDS) is our Quality Management System (QMS). The QMS is part of our Integrated Management System (IMS) that includes global programs for safety and environmental management. The requirements and processes for the global IMS are described in AECOM's IMS Manual, which comprises the overarching requirements for business processes within AECOM and executes our Quality Policy. AECOM's PDS incorporates the roles of technical reviewers and a project lead verifier. These roles offer crucial checkpoints, ensuring the project adheres to contract obligations.




The quality of our work is rated on our technical service, professionalism, innovation, communication and adherence to budgets and schedules. AECOM maintains this quality control record through operation under a structured corporate Quality Management Plan (QMP). This plan is reviewed and updated annually and provides the direction and foundation for program – and project – specific quality management documents.

Our approach to quality assurance follows the international standard for quality management systems (QMS), ISO 9001. As one of the few ISO 9001-certified professional and technical services firms in North America, AECOM developed its system to address the standard's requirements, and we confirm compliance through formal auditing and verification.

A key component of AECOM's quality program and ISO 9001 is continuous improvement. We learn from our experiences and apply those lessons to future work through a formal, iterative process. The true focus of this process is to generate client satisfaction, one of AECOM's core values.

## Phase 1: Electrical Load Evaluation

**Task 0: Project Management**

As Project Manager, Laurie will leverage her 20 years of experience to provide leadership and oversight throughout the entire duration of the electrical load evaluation effort. She will implement a robust, ongoing communication plan and protocols, integrating review collaboration between Louisville and AECOM's multi-disciplinary team. Laurie will drive consistent engagement, emphasizing coordination, goal alignment, and seamless collaboration to keep the project on track and aligned with stakeholder expectations. Additionally, we will tailor our communication strategies to meet the distinct needs of stakeholders, deploying a range of communication tools to maintain clarity and responsiveness through the project.

**Task 0.1: Project Kickoff Meeting**

Kick-off begins with a collaborative meeting designed to confirm project goals, review existing documentation, and establish clear communication protocols. A virtual and/or, if preferred, in-person session with the Louisville project team will officially introduce the core team members and set the stage for success. During this meeting, participants will discuss project expectations, define what success looks like, and review key elements including the project timeline, background on City operations, logistics for site visits, and the biweekly meeting schedule.

AECOM will work closely with the Louisville project manager to fine-tune the proposed schedule. This schedule will pinpoint key deliverables, dependencies, and client review periods. Additionally, AECOM commits to continuously updating the schedule throughout the project and notifying Louisville of any potential delays.

**Task 0.2: Project Communications**

AECOM's communication strategy is designed to build a strong partnership with Louisville, ensuring alignment, transparency, and collaboration throughout the project. By prioritizing open dialogue, we create a platform for addressing challenges proactively, sharing critical insights, and maintaining momentum. Regular engagement will focus on progress updates, key decisions, and actionable solutions, fostering a shared understanding among all stakeholders.

**Deliverables**

- Draft and final project schedule
- Draft and final Kickoff Meeting agenda
- One 60-minute kickoff meeting
- Summary of kickoff meeting notes
- Virtual bi-weekly 30-minute coordination meetings for four months, transitioning to monthly thereafter.
- Status update included with monthly invoices.
- Immediate communication with the Louisville team of any delays, along with a written recovery plan

**Assumptions**

- Louisville will provide consolidated comments on each of the draft deliverables within three business days
- AECOM will incorporate and resolve comments on each of the draft deliverables within two business days
- AECOM will be responsible for scheduling the Kickoff and Project Coordination meetings including issuing meeting invites, facilitating coordination calls, preparing meeting materials including agendas, notes with follow-up items and resolutions, and a summary of questions raised in each meeting. (Word and/or Excel).

**Task 1: Power Needs Assessment**

Note: As noted in IDP-Addendum 2 – RFI Responses, the existing backup system assessment for the Recreation Center and Police and Municipal Building is included in the Generators Project Scope of Work and has been excluded from this Proposal Response.

A successful, implementable decarbonization work plan is built on a strong technical foundation. Our approach to developing the future power needs assessment of each facility will rely upon our analysis and prioritization methodologies established in our energy decarbonation and resilience planning work in communities across the US including the National Western District Energy System, CU Boulder's Energy Master Plan, and the University of Texas Medical Branch project, amongst many others. Evaluation of the feasibility of building retrofits, electrification, solar and storage in the context of City buildings will be applied to scope individual building improvements.

Overlaying the prioritized facility list with applicable technology factors and funding mechanisms will establish an optimized sequenced 'playbook' for implementation. This process is supported by subject matter experts and is flexible to the level of detail needed. For this effort, our key team composition reflects the need for building energy, electrification, and solar system technical expertise.

**Task 1.1: Existing Conditions Review and Site Visits**

AECOM will review City-provided energy data and as-built mechanical and electrical drawings to prepare for site visits, noting key questions and findings. We will conduct seven one-day site visits with up to four staff for larger buildings and two for smaller facilities to document mechanical, plumbing, and electrical systems, including fossil fuel equipment capacities and electrical panel details. If additional visits are required, they will be requested via change order. Using collected data, AECOM will analyze fossil fuel use, historic energy trends (up to five years), and key performance metrics like seasonal patterns and usage per capita, while identifying data gaps to refine fossil fuel removal strategies.

**Task 1.2: Data Evaluation and Power Projection**

Understanding the impact of planned operational changes and growth is critical to estimate future resource use. Following the site visits, our team will leverage the analysis undertaken in previous tasks, along with further modeling, to project future resource usage that accounts for planned development projects across the portfolio, including the impact of vehicle electrification on energy demand. AECOM will estimate the current fossil fuel use for each piece of equipment that consumes fossil fuels and will project the electrical energy consumption and demand for equipment that is to be electrified. AECOM will determine the peak electrical demand from utility bills and estimate the available capacity of the existing system. AECOM will generate a table of projected increase in electrical demand for electrification of each project, organized by remaining useful life (shortest to longest). The example here illustrates the analysis results.

| REPLACEMENT BY REMAINING LIFE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TAG | EST REMAINING LIFE | EXISTING PEAK kW | NEW LOAD | DELTA kW TO BE ADDED | UTILITY SUM DEMAND (kW) | EQUIPMENT SUM DEMAND (AMPS) | UTILITY CAPACITY (kVA) REMAINING | SWITCHGEAR CAPACITY (AMPS) REMAINING |
| CB-1 | 0 | 0.0 | 6.4 | 6.4 | 6.4 | 17.9 | 331.1 | 837.2 |
| DRYER | 0 | 21.6 | 67.1 | 45.5 | 52.0 | 144.3 | 285.5 | 710.7 |
| FG-1 | 0 | 0.7 | 10.7 | 10.0 | 62.0 | 172.1 | 275.5 | 682.9 |
| FIREPLACE | 0 | 0.0 | 4.0 | 4.0 | 66.0 | 183.1 | 271.5 | 671.9 |
| FR-1 | 0 | 0.0 | 11.2 | 11.2 | 77.2 | 214.3 | 260.3 | 640.7 |
| RN-1 | 0 | 0.7 | 19.9 | 19.2 | 96.4 | 267.5 | 241.1 | 587.5 |
| DWH-2 | 5 | 0.6 | 45.0 | 44.4 | 140.8 | 390.7 | 196.7 | 464.3 |
| DWH-1 | 7 | 0.4 | 45.0 | 44.6 | 185.4 | 514.6 | 152.1 | 340.4 |
| DWH-3 | 12 | 0.4 | 45.0 | 44.6 | 230.0 | 638.5 | 107.5 | 216.5 |
| DWH-4 * | 15 | 0.0 | 29.2 | 29.2 | 259.3 | 719.7 | 78.2 | 135.3 |
| PU-1 | 8 | 18.4 | 78.5 | 60.2 | 319.5 | 886.7 | 18.0 | -31.7 |
| RTU-1 | 14 | 15.8 | 68.1 | 52.3 | 371.7 | 1031.8 | -34.2 | -176.8 |
| RTU-2 | 14 | 15.8 | 68.1 | 52.3 | 424.0 | 1177.0 | -86.5 | -321.9 |
| * New piece of equipment required for electrification. | | | | | | | | |

*Example Electrification Analysis Summary Table*

AECOM will generate a draft memo aggregating all sites that includes the following sections:

1. Introduction and Building Details
2. Current HVAC and Domestic Hot Water Equipment
3. Current Non-HVAC Fossil Fuel Consuming Equipment
4. Current Electrical System Equipment, Capacity, and Analysis
5. 'Business As Usual' Base Case for Future Load Projection
6. Proposed Replacements for Fossil Fuel Consuming Equipment
7. Future Electricity Demand Estimation of Future Decarbonization Scenario

**Deliverables**

- Meeting notes from planning meetings and site visits
- Marked-up plans of buildings showing MEP systems and generator layouts.
- Comment response matrix.
- Draft and final summary report of existing conditions for each facility

**Assumptions**

- Louisville will identify core stakeholder representatives appropriate to contribute to this effort
- The data collection meeting will be virtual.
- Data will be provided by Louisville in a consolidated organized and editable Excel spreadsheet.
- The onsite assessments will include a team of up to three (3) AECOM staff onsite at each of the sites.
- Louisville will arrange for site access during normal business hours. AECOM will be given access to all areas of the sites. A single mobilization to each site and associated costs will be included in the fee.
- For the purposes of the site assessments, one site contact (e.g., Facilities Manager) will be provided for each site while AECOM is present to provide location of and access to all mechanical, lighting, and electrical equipment.
- If complete data cannot be collected within the estimated seven days of site visits, AECOM will discuss options for scope and/or budget modifications with the Louisville project manager.

**Task 1.3: Prepare Drawings**
Our approach to engineering and design will focus on early definition and development of upfront standards for mechanical, electrical, and structural engineering. Our team also understands that engaging the local utility early and understanding the utility standards, interconnection requirements, and associated timelines is critical to help the eventual projects achieve Louisville's desired schedule.

**Schematic Design**
As part of the design development, our team will meet with Louisville, the relevant local authorities, and the utility to redefine and confirm the scope for each project site based on the assessment reports. We will define potential designs and develop the concept drawing engineering package, including one-line diagrams, schematics for conduit layout and mechanical design.

We will work with Louisville to validate the correct standards and requirements and provide sample drawing sets for review to confirm the approach and delivery. Once verified, our team will develop a repository of standards for the program, including, but not limited to Electrical One Line Diagrams and concept layout, Identified plating areas, and geotechnical results, notes and key specifications.

For sites at which Louisville indicates solar generation will be included, AECOM will analyze the site for solar generation potential considering the orientation of solar modules, and the available area for solar canopies. We will develop estimated energy generation on an annualized basis and typical daily energy generation in the summer, fall, winter, and spring. We will synthesize all collected data to develop up to two conceptual design alternatives, including the conceptual approach to spacing site/civil/architectural elements and a preliminary one-line diagram of electrical design.

**Deliverables**
- 30% design drawings for each facility (CAD files)
- Comment log documenting resolution of all City comments on the drawings (Excel)
- Pro forma budget (excel spreadsheet)

**Assumptions**
- The City will provide AECOM with a single set of consolidated adjudicated comments to all draft deliverables within 10 business days of submittal.
- Drafts will be submitted in Word and Excel. Final versions will be submitted as PDFs accompanied by final Excel files.

## Phase 2: Electrification/Energy Efficiency Implementation

As noted under Project Understanding, AECOM understands that the scale and schedule of projects that will advance to Phase 2 is unknown at this time. In this section, we describe our approach to this phase in terms broadly enough to accommodate each project type (i.e., solar, e/ee, construction), but specific enough to convey AECOM's capability and value. This section is written with the understanding that a full scope will be developed near or after the completion of Phase 1, and likely on a project-by-project basis, therefore, assumptions and deliverables are not included.

## AECOM's Construction Management Services

Our team lays the foundation for project success in the preconstruction phase, integrating our construction expertise early to drive cost savings, compress schedules, and align every decision with your goals; through rigorous constructability reviews we resolve challenges before they surface, refine phasing strategies, and create master construction schedules that serve as strategic roadmaps—keeping ambitious, multi-site efforts such as Louisville's Decarbonization initiative on track—while our on-site teams provide hands-on leadership during execution, coordinating logistics across locations, upholding quality, adapting in real time, and responding swiftly to unforeseen changes to safeguard cost and schedule, so from planning through close-out, AECOM delivers precision, predictability, and measurable value at any scale or complexity.

**Task 0: Project Management**

The general project management tasks described under Phase 1, Task 0, Project management, will continue through Phase 2. Specifically:

- Draft and final schedules per executed project
- Kickoff meetings per project, including agenda and meeting notes
- Project coordination meetings, including agenda and meeting notes
- Notification via email to the Louisville project manager of any project delays, including a written plan to help the project stay on track

**Task 1: Solar Power Design**

This AECOM team brings extensive expertise in the design and integration of photovoltaic (PV) solar power systems, consistently delivering efficient and cost-effective energy solutions, including for historic structures, while leveraging close collaboration with vendors, contractors, and stakeholders to coordinate seamlessly. We identify efficiency opportunities and address potential challenges early. Our comprehensive scope of work encompasses the electrical engineering design services necessary for the installation of PV solar power systems, all executed in accordance with the project's requirements, inclusions, and assumptions.

AECOM can provide the following for applicable projects in Phase 2:

- Plans indicating equipment locations and routing of major raceways and conduits over 3".
- Installation drawings showing array mounting, racking, and attachment methods.
- Single-line diagrams illustrating AC and DC circuitry, inverter integration, and point of interconnection.
- AC and DC electrical calculations necessary to support system sizing, wiring, protection, and compliance with applicable codes.
- Details and layouts to ensure adequate access for outside equipment, including transfer switches and required clearances.
- Project-specific specifications covering PV equipment and conductors.
- An opinion of probable construction cost including PV equipment and hardware, modifications for PV integration, Installation and construction costs associated with the PV system.

**Task 2: Electrification/Energy Efficiency (E/EE) Design**

AECOM leads in electrification and energy efficiency design, leveraging decades of industry experience to conduct in-depth analyses for Louisville. Our specialized knowledge meets modern electrification demands

while achieving efficiency targets. By combining proven methodologies with a strong grasp of regulatory frameworks, our team navigates complex technical challenges and delivers actionable insights that enhance performance.

**Preliminary Design**
As part of the preliminary design, our team will meet with Louisville, include a final one-line diagram, detail required information regarding the electric utility interconnection and point of entry, and comport with any requirements of the electric utility. We will identify required long-lead equipment including switchgear, transformers, inverters and proprietary equipment. We will show the locations of existing and planned features of the Project Site, both subsurface, and above-ground. Plan sheets will show essential information. Our Preliminary Design plan sheets will constitute draft versions of plan sheets envisioned in the Final Construction Documents.

**Final Design**
Our final design will incorporate comments from the Preliminary Design received from Louisville (inclusive of agencies/departments having jurisdiction), and other interested parties into a Draft Final Design. The Draft Final Contract Documents will consist of a final version of the contract documents for review by Louisville and information necessary to build the project. A licensed engineer will sign and seal the final drawings in a format acceptable to AHJs.

**Constructability Reviews**
Our Constructability Review Process (CRP) was designed to help improve a project's constructability level by mitigating construction risks. Our ultimate goal is to solve as many issues or questions as early as possible before the physical construction of the project begins. Our review team will engage in the project from the beginning of the design process through the end of construction to help with any questions that may arise along the way.

The first review occurs during project planning when the concept design is complete. Subsequent reviews will be conducted at 30 percent, 75 percent, and final stages of design. Depending on the contract structure, AECOM or the general contractor will perform the CRP review at 75 percent and Final design.

**Opinion of probable construction cost (OPCC)**
Cost management is a vital component of construction management, providing the means for cost and schedule projections and control. We have extensive estimating experience across a wide range of project types. of

Cost reduction decisions made during design and before significant monetary commitments will save time and money and encourage responsive construction bidding. Depending on the available plan and specification data, we can adjust the takeoff method to varying detail levels. This approach results in reliable estimates from very preliminary information.

Estimating process steps include:

- Development of Budget and Conceptual Estimate. We compare the initial budget with historical cost data for similar projects at this stage. This estimate takes into account specific project and site constraints and financial limits. Construction costs are compared with our industry databases to identify and adjust high-cost elements.
- Development of Initial Costs. We develop initial costs for defining major infrastructure components, such as site work, unit foundations, and electrical items. A more detailed review of the A/E's cost estimate is performed during the design development phase as building systems and equipment are better defined.

To achieve these goals, the CRP is composed of several constructability reviews performed at various stages during the Project Development Process. The first review occurs during project planning when the concept

design is complete. Subsequent reviews will be conducted at 30 percent, 75 percent, and final stages of design. Depending on the contract structure, AECOM or the General Contractor will perform the CRP review at 75 percent and Final design.

Cost Estimates will comport with the American Association of Cost Engineers (AACE) International Cost Estimating Classification levels of detail at the following design stages:

- Conceptual Design Alternatives: Class 4
- Schematic Design: Class 3
- Preliminary Design: Class 2
- Draft and Final Construction Documents: Class 1

**Tasks 3 and 4: Construction and External Party Management**
AECOM will provide comprehensive Construction Management and Administration Services for the subject facilities, covering scope advancement, budgeting, scheduling, supervision, monitoring, commissioning, activation, and project closeout. During construction, we will manage procurement, logistics, and quality control, with weekly meetings among design and construction teams, safety officers, subcontractors, and Louisville representatives. Periodic value engineering sessions will streamline the design to save time and costs, and dedicated meetings with local utilities and the AHJ will proactively resolve issues.

AECOM will develop and implement a construction management plan specific to each project site including at least Document control and progress reporting, Construction surveillance, witnessing, and inspection testing, RFI and change request processing and review, pay app preparation and processing, as-builts/O&M manual approval, look-aheads, communication, warranties and handoff.

AECOM will create a job closeout checklist early on and keep an eye on it throughout the project. It will become easy to identify areas that might create problems later when it's time for closeout. The list will include at least design approvals documentation, resolution of all Requests for Information, Certificate of Occupancy, Certificate of Substantial Completion, warranties, O&M Manuals, as-built documentation, permits closeout, and interconnection inspections.

**Commissioning and Retrocommissioning**
We will ensure all infrastructure has completed full testing and commissioning as the manufacturers and governing agencies require. These services include testing and commissioning of charging units and rectifiers, final inspection of all electrical, civil, and structural infrastructure, and final approval of the sites as a whole.

Our approach to retrocomissioning includes data request and review, site visit, data analysis and report development. Additional activities supporting our retrocomissioning work includes the following:

> **Performance Testing and Inspection**: Inspect equipment, perform functional testing, and collect information about the building systems. All equipment testing procedures that may impact occupant comfort will be submitted for approval prior to scheduling site visits.
>
> **Trend Data Collection: O**perating data of all major equipment included in the scope, i.e., HVAC, electrical, and water-related equipment parameters. AECOM will set up trend collection based on control system capabilities and bandwidth. Data loggers will be installed and programmed to collect data through the end of the verification process. Trend intervals will be determined based on the equipment and project types being evaluated.
>
> **Data Analysis and RCx Measure Development:** AECOM will analyze data to identify those systems and sequences that are not performing as intended or that can optimized to improve current performance. Based on our findings, RCx measures will be recommended and the accompanying energy and O&M cost savings calculated and presented in a final report.

# REFERENCES and COMMENDATIONS

# Awards & Recognition

For over a decade, AECOM has been named one of Fortune's World's Most Admired companies and most recently was named the #1 global design firm by Engineering News Record. We are consistently voted one of the world's most ethical companies by Ethisphere. We have been recognized by VIQTORY as a 2025 Military Friendly® Silver Employer and received a perfect score on the 2025 Human Rights Campaign Foundation's Corporate Equality Index for the fifth consecutive year.

Over the years, AECOM as a firm and individual employees have been recognized around the globe for our commitment to creating a workplace that is welcoming to everyone. Recent examples include:

**Inclusive Excellence Award 2023**
Winner for two categories by Employers Network for Equality and Inclusion: Inclusive Culture and DEI Influencer of the Year for AECOM's Rachel Billington, Head of Equity, Diversity and Inclusion, Europe and India. This recognition is a testament to our ongoing dedication to fostering an inclusive workplace and making a meaningful impact on equity, diversity and inclusion.

**American Water Works Association (AWWA)**
In 2020, Tina Houston (Vice President-Metro Market Leader, GA/AL), was awarded a national Diversity Award from AWWA, in honor of her leadership in building a more inclusive work environment in her home state of Georgia. Tina possesses the key attributes necessary for creating a diverse team, including awareness, commitment and accountability. Tina's understanding and recognition of one's potential to hold biases, whether they are aware of them or not, has helped to mitigate and eliminate bias from the workplace. She has been influential in building a diverse workforce that includes people of different ages, ethnicities, race, education, and abilities. By creating a space where each team member's unique lifestyle is valued and understood, she fosters a collaborative and dynamic team environment.

**Construction Management Association of America (CMAA)**
Ralph Colarusso, Associate Vice President, Project Manager, was awarded the 2019 Chair's Award for Diversity and Inclusion which recognizes a CMAA member or member firm (owner or service provider) with a demonstrated commitment to equity, inclusion, social justice, or community and social responsibility and a record of acting on that commitment.

**Women's Transportation Seminar (WTS)**
AECOM received the 2020 WTS Pittsburgh Employer of the Year and the 2019 WTS Chicago Employer of the Year awards. WTS International is a nonprofit organization management company committed to securing the professional advancement of women in the transportation industry. In addition to executing this mission, the company's goals are to create profound experiences for its members, provide leadership in the global transportation industry and expand the available opportunities for women within it.




# University of Texas Medical Branch (UTMB), Sealy Institute for Drug Discovery (IDD)

Client: University of Texas Medical Branch
Reference: Chris Escamilla, Senior Project Manager; (210) 364-4794

The IDD will establish a drug discovery program working at the interface of medicinal chemistry and emerging infectious diseases, and brain research. This initiative capitalizes on UTMB's current strengths in infectious diseases, neuroscience, computational and structural biology, and pharmacology to develop an integrated drug discovery expertise. Its location on the fifth floor of Building 17E, which is strategically connected to five other research buildings, will be advantageous to the work in the new drug discovery program. The original Building 17 was built in 2004 and updated in 2018 to feature a six-story expansion, which will be the home of the new IDD.

AECOM designed the laboratory for 24 principal investigators and focused on creating a modern and open lab layout that encourages collaboration between researchers and graduate students. Write-up areas will be located adjacent to the lab and separated with a glass wall to allow for a visual connection and to bring daylight into the lab space. The space has been planned to include 10 private offices, a large conference room for meetings, and a collaboration area for smaller group interactions.

Chris Imparato provided mechanical and plumbing technical quality reviews throughout the project.

**Business Operations and Facilities**
301 University Boulevard
Galveston, Texas 77555-1116
O 409.772.3500 F 409. 747.2941
W utmb.edu/bof

Sept 9th, 2024

University of Texas Medical Branch
Chris Escamilla, Senior Project Manager
1302 Mechanic, Galveston, TX 77555-1116

Letter of Reference for University of Texas Medical Branch, Sealy Institute for Drug Discovery Project

To whom it may concern,

AECOM and its subconsultants provided programming, planning and design (architecture, interior design, MEP, technology engineering, cost estimating, and construction administration) for the Sealy Institute of Drug Discovery at UTMB Galveston. The project consists of a 13,500-sf interior build out and included high end research laboratories and support spaces, in addition to workplace areas for staff and researchers.

From the outset, AECOM demonstrated strong proficiency in managing and being proactive on both the budget and schedule. Their team acted with professionalism in executing all aspects of the contract and provided a valuable, overarching knowledge of the building type. The AECOM team truly took the time to understand UTMB's user needs and integrated solutions to these needs into every aspect of the design. Their planning and coordination amongst subconsultants ensured that the project remained on track and within financial constraints, despite the complexity involved.

AECOM's collaboration with the General Contractor, Turner Construction, and all UTMB stakeholders was marked by fast communication and transparency. They maintained open lines of communication, providing regular updates and addressing any concerns during construction promptly. This proactive approach fostered a collaborative environment, ensuring that all UTMB stakeholders were aligned and informed throughout the project lifecycle.

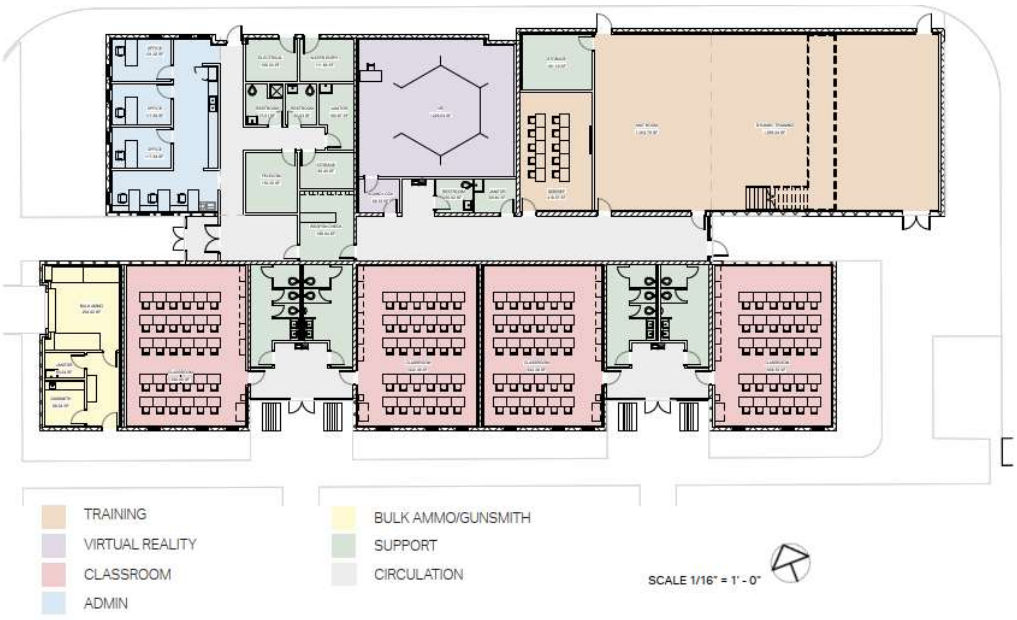
The quality of deliverables provided by AECOM was consistently high, reflecting their attention to detail. Their design team produced innovative and functional solutions to the research space, in addition to a practical and forward thinking overall design. The final design resulted in a space that is both inspiring and conducive to cutting-edge research.

In conclusion, I highly recommend AECOM due to their strong performance on this project. Their ability to manage complex projects, coupled with their dedication to quality, innovation, and communication, makes them a strong design partner.

Sincerely,

Chris Escamilla

Chris Escamilla
Senior Project Manager
UTMB – Design and Construction




# New Mexico Dept of Public Safety, Reality Based Training Facility

Client: New Mexico General Services Dept.
Reference: Carlos Barros, Project Manager; (505) 629-2302; carlos.barros@gsd.nm.gov

The Department of Public Safety is investing in upgrading their facilities to improve public safety through a reality-based training (scenario-based) facility and improving conditions at their outdoor firing ranges. AECOM was retained to conduct thorough observations, review current and future energy requirements, and provide facility and site planning ultimately leading to the design and construction administration of a new public safety training building coupled with strategic technological upgrades for electrification and improvements to the existing outdoor firing ranges.

Both the new building and range improvements required designing to stringent and comprehensive energy guidelines. Energy modeling, building envelope calculations, and mechanical equipment selection in concert with a detailed electrical systems analysis and design were all skillsets AECOM brought to bear for this project. AECOM's contract scope for this project includes full design and construction administration services, including closeout and warranty. In addition to basic design services, AECOM or its subcontractors provided the following additional services:

- Site survey
- Geotechnical investigation
- Electrical system analysis
- Energy code compliance
- Early work utility package
- Environmental soil sampling and characterization

Chris Imparato was mechanical and plumbing Engineer of Record (EOR). Provided oversight and design direction for all mechanical and plumbing systems. Jeff Bentley was electrical Engineer of Record (EOR). Provided oversight and design direction for all electrical systems.

**MICHELLE LUJAN GRISHAM**
GOVERNOR

**ROBERT E. DOUCETTE, JR.**
CABINET SECRETARY

**ANNA SILVA**
DIRECTOR, FACILITIES
MANAGEMENT DIVISION

# State of New Mexico
General Services Department

ADMINISTRATIVE SERVICES DIVISION
(505) 827-2000

FACILITIES MANAGEMENT DIVISION
(505) 827-2141

PURCHASING DIVISION
(505) 827-0472

RISK MANAGEMENT DIVISION
(505) 827-2036

STATE PRINTING & GRAPHIC DESIGN SERVICES
(505) 476-1950

TRANSPORTATION SERVICES DIVISION
(505) 827-1957

September 12, 2024

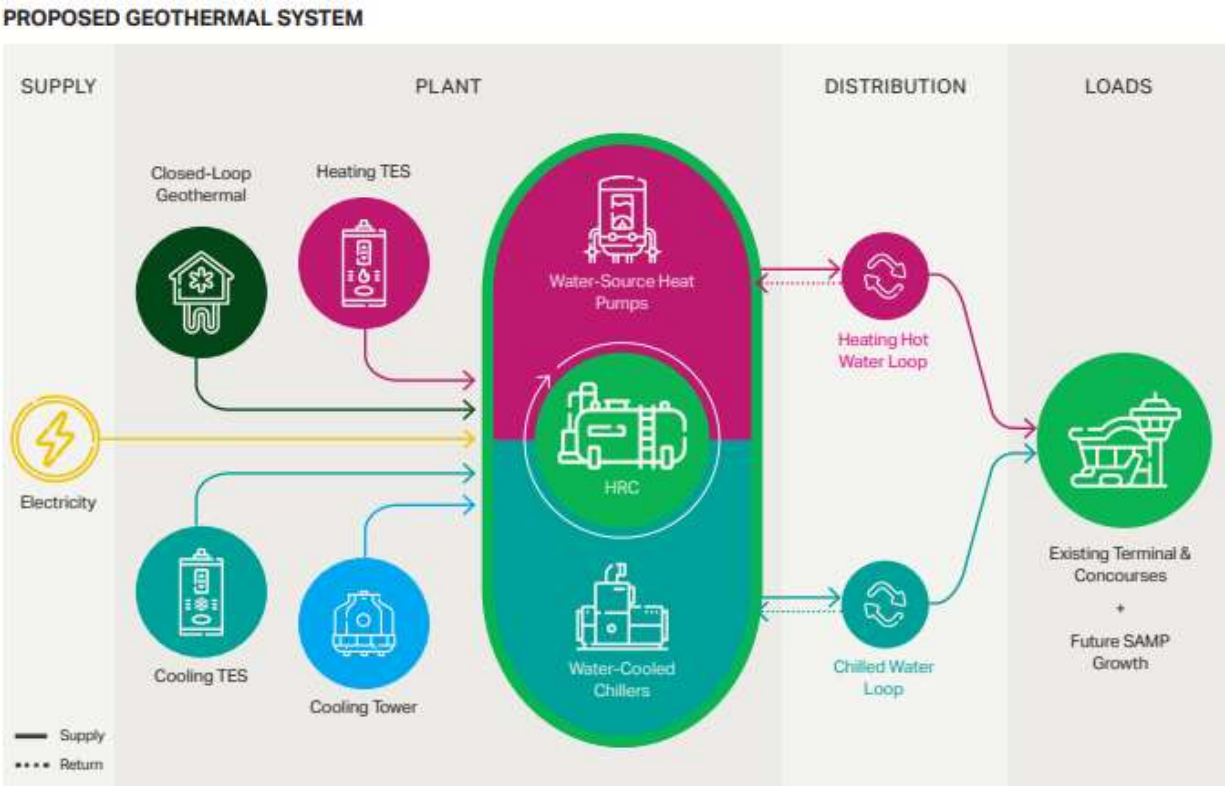
To whom it may concern:

AECOM has exceeded all of our expectations for professionalism and integrity in the completed phases for the design for the State of New Mexico Department of Public Safety Reality Based Training Facility project. Their dedication and expertise has been on full display in every step of the project as it has progressed. They have committed to maintaining efficient communication, and AECOM has the proven their dedication and ability to stick to the project schedule to make this project move at a smooth and steady pace. We are looking forward to working together with AECOM to complete the design for this project, and hopefully more projects in the future.

Respectfully,

Carlos Barros

Carlos Barros, Project Manager
Facilities Management Division
State of New Mexico General Services Department




# Seattle–Tacoma International Airport Central Mechanical Plant Decarbonization and Resiliency Study

Client: Port of Seattle
Reference: Joe Cook, PE, Mechanical Engineering Manager; (206) 605-6490

AECOM is developing a Central Mechanical Plant (CMP) decarbonization study to replace the existing steam boilers at the Seattle–Tacoma International Airport. Heating, domestic hot water and preconditioned air to aircraft is currently provided via a steam heating system served by three steam boilers and must decarbonize to meet their 2040 Carbon Neutrality goal. The process has included site infrastructure assessments and analysis of existing heating, cooling and electrical load profiles. Detailed CMP modeling of electrified options has included heat recovery chillers, geothermal heat pumps and airsource solutions, optimized in configuration and sizing in collaboration with the AECOM's financial modeling team that is conducting a detailed life cycle cost analysis into decarbonization scenarios. Coordination with local utility providers has occurred to verify available electrical capacity and timelines for necessary service upgrades.

Through engaging with the Port of Seattle and airport stakeholders, AECOM provided a qualitative analysis to analyze the risks associated with the different decarbonized solutions. This process included workshops to develop an evaluation criterion used to score the different solutions, and presentations to the Port of Seattle directors to inform airport leadership of the project status and decision-making protocol.

Chris Imparato is mechanical technical lead/advisor for the team. Identifying strategies, providing conceptual layouts, pipe sizing and pipe routing, and providing equipment selections to inform energy models. Energy modelling, costing, and maintenance efforts are compiled into life cycle cost analysis for final strategy selections. Working on creating the implementation plan through the end of 2025.

April 22, 2025

Seattle-Tacoma International Airport
Joe Cook, Mechanical Engineering Manager

**RE: Letter of Reference for Hartsfield–Jackson Atlanta International Airport, A Sustainable and Resilient Path to Net Zero Project**

To whom it may concern,

AECOM and its subconsultants are providing infrastructure analysis, energy modeling and analysis, implementation planning and state energy compliance documentation to support Seattle-Tacoma (SEA) International Airport in efforts to decarbonize the Central Mechanical Plant (CMP).

From the outset, AECOM demonstrated strong proficiency in managing and being proactive on both the budget and schedule. Their team acted professionally in executing all aspects of the contract and provided valuable insight and a strong knowledge into decarbonizing airport systems. The AECOM team took the time to understand SEA's user needs and integrated solutions to these needs into the planning process. Their planning and coordination amongst subconsultants ensured that the project remained on track and within financial constraints, despite the complexity involved.

The quality of deliverables provided by AECOM has been consistently high, reflecting their attention to detail. Their planning and engineering team produced several potential solutions and worked with SEA to assess the feasibility of each based on our operational experience, before selecting a single solution for implementation planning. We are confident the final solution selected will best meet SEA's long term sustainability goals.

In conclusion, I highly recommend AECOM due to their strong performance on this project. Their ability to manage complex projects, coupled with their dedication to quality, innovation, and communication, makes them a strong partner for any airport with decarbonization goals.

Sincerely,



Joe Cook, PE
Mechanical Engineering Manager
Aviation Facilities & Infrastructure
Phone: (206) 605-6490




# National Western Center District Energy System

Client: City and County of Denver and the National Western Center Authority
Reference: Brad Buchanan, CEO, National Western Center
b.buchanan@nationalwesterncenter.com, (720) 326-9506

AECOM designed a district energy system that captures the heat of effluent waste travelling through the sewer system under the campus. It is designed to provide 90% of the 250-acre site's energy demand. This system is the largest of its type in the nation and has inspired more waste-heat-to-energy systems in Colorado and throughout the US.

The project was designed and construction by a consortium of three firms: CenTrio Energy (formerly Enwave), AECOM, and Saunders Construction. AECOM developed the design and performed construction administration, including coordination of all parties through all of the phases, from project conception through turnover. AECOM worked closely with stakeholders and the construction contractors, and CenTrio performed daily system operations. The construction was completed without any disruption to campus operations, including during the peak season of the National Western Stock Show.

The EAS team offered National Western an innovative and holistic solution to its growing energy needs. The system was designed as a showcase of energy innovation and learning consistent with the overall National Western transformation objectives.



# Sijan Hall Renovation

Client: U.S. Air Force Academy & U.S. Army Corps of Engineers
Reference: Corine Weiss, RA, GS-13, Chief, Portfolio Optimization
(719) 651-9744 (requests to be contacted by phone)

Since 1999, AECOM has provided the U.S. Air Force Academy (USAFA) with a full range of planning, architecture, and engineering services. AECOM is providing engineering and architectural services in support of a U.S. Army Corps of Engineers design services contract for a 625,300 square-foot, 2,200-bed, five-phase renovation of Sijan Hall at the USAFA in Colorado Springs.

The work includes full interior and exterior gut and rebuild of systems and functions. AECOM's design team is reconfiguring shared spaces for studying and socializing to foster collaboration and improve cadet wellbeing. The modernization will incorporate energy-efficient materials and systems, smart building technologies such as occupancy sensors integrated with heating, ventilation and air conditioning, improved daylighting, and updated heating, ventilation and air conditioning systems, including geothermal energy and air conditioning for the first time - all while meeting U.S. Army Corps of Engineers high-performance and sustainable building requirements.

The scope of work includes planning, site investigations, site surveying and geotechnical investigations, space planning, design phasing/complete design documents for construction, interior design, parametric and construction cost estimating, other architectural and engineering.

# FEE PROPOSAL

# Cost Per Task

The cost estimate shown here is inclusive of labor and overhead. The only "other direct costs" anticipated at this time is mileage incurred for site visits and in person meetings.

| Task | Cost |
|---|---|
| **Task 0: Project management** | $31,602 |
| **Task 1: Power Needs Assessment** | |
| 1.1: Existing Conditions Review & Site Visits | $341,763 |
| 1.2: Data Evaluation & Power Projection | $217,536 |
| 1.3: Prepare Drawings | $83,582 |
| **ODCs** | $1,920 |
| **Total** | **$676,403** |

# Rate Table

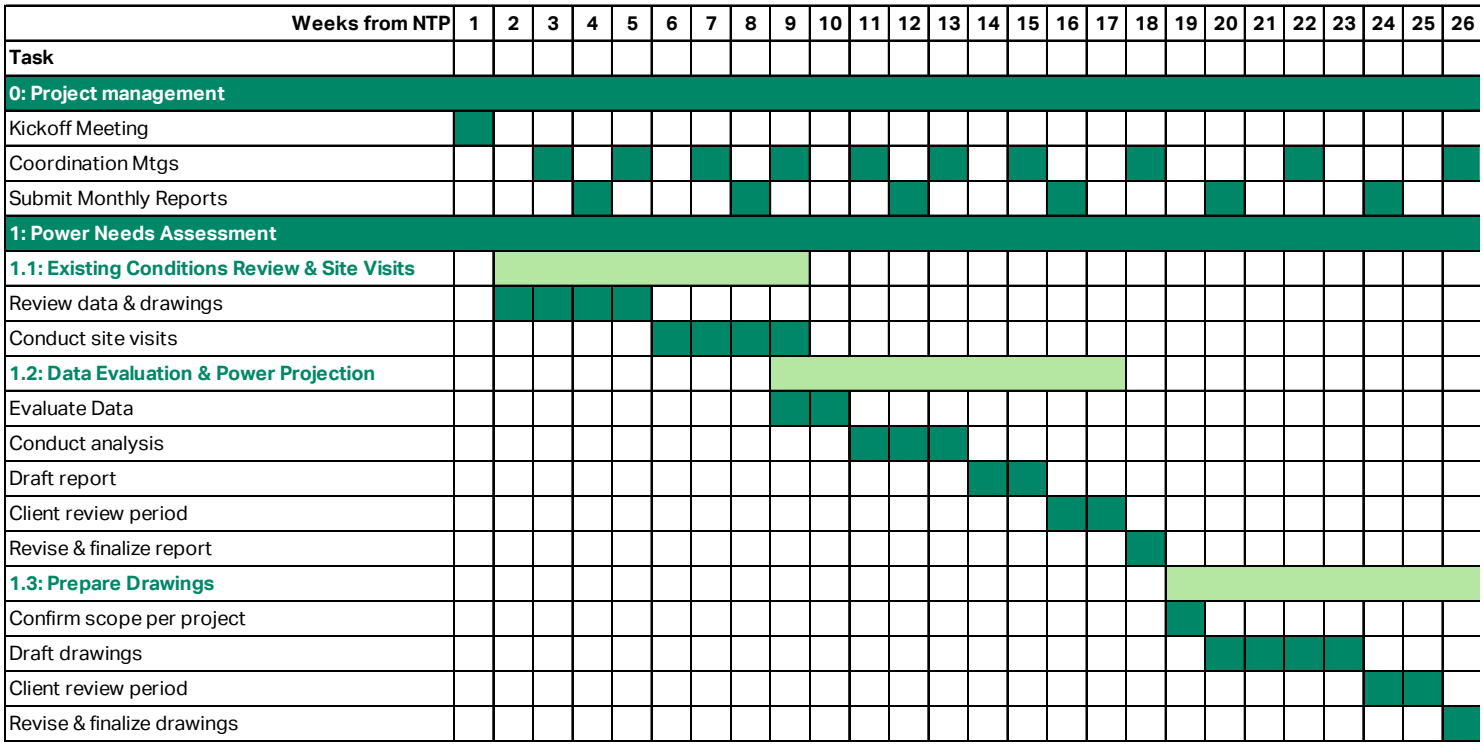
Our billing rate schedule is provided below. AECOM's fiscal year is October 1 to September 30 and our staff compensation is expected to increase by 4% on October 1, 2026.

| Title | Rate |
|---|---|
| Project Principal | $300 |
| Project Manager | $225 |
| Deputy Project Manager | $185 |
| Senior Mechanical Engineer | $225 |
| Mechanical Engineer I | $165 |
| Mechanical Engineer II | $145 |
| Mechanical Engineer III | $125 |
| Senior Electrical Engineer | $225 |
| Electrical Engineer I | $175 |
| Mechanical Engineer II | $160 |
| Mechanical Engineer III | $145 |

| Title | Rate |
|---|---|
| Senior Architect | $225 |
| Architect I | $165 |
| Architect II | $145 |
| Architect III | $125 |
| BIM Modeler | $60 |
| Senior Cost Estimator | $225 |
| Cost Estimator I | $165 |
| Cost Estimator II | $145 |
| Cost Estimator III | $125 |
| Project Controls | $150 |

## Project Schedule

It did not appear that a schedule was requested in the RFP or RFI responses, however, since the Pricing Form requests a start and end date, we are submitting this schedule to support our estimated timeline for Phase 1.



City of Louisville
COLORADO • SINCE 1878

**CITY OF LOUISVILLE**
**Internal Decarbonization Project – Electrification/Energy Efficiencies (E/EE)**

**Pricing & Information**

1. Check the correct boxes according to the scope and fee included in your Proposal and provide the lump sum cost for each phase:

☒ Phase 1 – Electrical Load Evaluation Only:

Phase 1 Cost: $ $676,403

☐ Phase 2 – Electrification/Energy Efficiency Implementation Only

Phase 2 Cost: $_____

☐ Phases 1 and 2:

Phase 1 Cost: $_____

Phase 2 Cost: $_____

2. Provide the proposed Project start and completion dates or timeline, as applicable:

Phase 1 – Electrical Load Evaluation

Start Date: Notice to Proceed End Date: 6 months after NTP

Phase 2 – Electrification/Energy Efficiency Implementation

Start Date: _____ End Date: _____

3. Details that are relevant to the Proposal and completion of the Project (may be attached separately):

Cost breakdown by task and schedule are provided in the proposal.

4. Additional Documents – The following documents are attached to and made a condition of this Proposal:

a) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Proposal,
b) Anti-Collusion Affidavit,
c) If Proposer is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

5. Communications concerning this proposal shall be addressed to:

The address of Proposer indicated below.
AECOM
7595 E. Technology Way, Suite 200
Denver, CO 80237

**SUBMITTED on** September 12 **, 2025.**

# APPENDIX

# Resumes

# Laurie Meyer-Lancisi, AIA

## Senior Project Manager

**Education**
Master of Urban and Regional Planning, University of Colorado, Denver
Master of Architecture, Univerity of Illinois
BS, Architectural Studies, University of Illinois

**Years of Experience**
With AECOM: <1
With Other Firms: 20

**Registrations/Certifications**
CA Architecture License C23479
CO License ARC.00405344
UT License: 14238742-0301
LEED GA

Laurie is a licensed architect with over 20 years of experience in the industry working on a variety of commercial building project types from preliminary design through construction contract administration. With a background in urban and regional planning, she has developed a deep understanding of how projects impact their end users, the communities they live in, and the environment. Her diverse project portfolio has strengthened her ability to navigate varying scopes, timelines, and resource constraints bringing an experienced but fresh approach to each project she manages.

## Selected Project Experience

**Mount Ogden Transit Administration Building and Canopy, Utah Transit Authority, Mount Ogden, Utah**
Deputy Project Manager. Laurie managed the project scope, schedule and fee during the preparation of construction documents for the Administration Building and the development of a new bus canopy to replace existing canopy areas displaced due to redevelopment of the site.

**Sugarhouse Electrical + Demo, Salt Lake City Community Reinvestment Agency, Salt Lake City, Utah**
Project Manager. Laurie is monitoring and coordinating this ongoing effort between the AECOM team, client and other stakeholders to prepare a site for redevelopment along the S-line extension in Salt Lake City.

**Fort Lyon Supportive Housing Steam Heat Replacement, State of Colorado Department of Local Affairs, Fort Lyons, Colorado**
Project Manager. Laurie is coordinating a multidisciplinary team to provide documents through design development for new HVAC equipment in twelve buildings at this historic campus in southeastern Colorado. The schematic design for this project will help the State determine an appropriate funding amount to complete the project.

**Theatre District/Convention Center Station Improvements, City and County of Denver, Colorado**
Project Manager. Laurie monitored and coordinated the design and construction document development for a renovation of the light rail station in downtown Denver.

**Denver Zoo Sea Lion Exhibit Renovation Denver Zoological Foundation, Denver, Colorado**
Project Manager. Laurie managed and coordinated a specialized engineering team to upgrade the water filtration system for the sea lion exhibit. This project included a study to determine the project budget and space planning for the new filtration system.

**Greenville Recreation Centers**
Project management responsibilities for this $47 million project including the renovation of an existing recreation center and the construction of a new 120,000 square foot recreation center in Greenville, Texas.

**Chico Aquatics Center**
Project management for the architectural components for this 10,245 square foot, $6 million project comprised of a bathhouse, administrative and meeting/party rooms in Chico, California.

**Yaquina Head Lighthouse Improvements, Bureau of Land Management, Newport, Oregon**
Project Manager. Managed and coordinated project scope with a specialized team to provide a structural investigation of the lighthouse, including approval of proposed destructive testing methods through the State Historic Preservation Office.

# Jeff Bentley, PE

## Senior Associate, Electrical Department Manager

**Education**
BS, Electronics Engineering Technology, DeVry University

**Years of Experience**
With AECOM: 2
With Other Firms: 19

**Registrations/Certifications**
Professional Engineer, Electrical
Colorado: 58933
Missouri: PE-2024003374
New Mexico: 29452
Utah: 14015404-2202
Washington: 24001643

Jeff is a Senior Electrical Engineer committed to sustainable designs, quality control, and mentoring. His specialties include indoor agriculture design, project management, jobsite services, and construction administration services. He has conducted feasibility studies, facility assessments, and electrical system evaluations as well as conceptual design, construction document production and construction administration for a wide variety of both existing and new facilities.

## Selected Project Experience

**USACE Omaha, SOC North Theater Operational Support Facility; Peterson SFB** - Perform electrical construction administration services for this project. Review submittals, reply to requests for information and participate in construction administration meeting with the general contractor and sub-contractors. AECOM, as a subconsultant, is providing A-E services for a design-build project to construct a special operations, command support facility. It will be constructed of precast concrete panels with exterior metal cladding to match the adjoining Command Complex area. A backup generator and protected distribution system will be provided for command and control systems. The scope of this project also includes the demolition of Building 104 (1,784 square meters) and associated temporary facilities constructed interim to the military construction. Facilities will be designed as permanent construction. The requirements include a secured area, non-standard space allocation to integrate command, control, communications, computers, intelligence systems, and robust audio/visual teleconferencing capability. This project will provide command and control, administrative, deployment, storage, and maintenance space.

**USACE Omaha, Cannon AFB Pilot Study and Hydraulic Containment** – Perform electrical construction administration services for this project. Review submittals, reply to requests for information and participate in construction administration meeting with the general contractor and sub-contractors. AECOM, as a subconsultant, is providing A-E services for a design-build project to perform a time-sensitive implementation of a hydraulic capture system at the boundary of Cannon AFB. The general Scope of Work includes initial site reconnaissance, bench scale study for media selection, capture zone analysis to include implementation of a system designed to effectively capture and treat PFAS groundwater below the LHA of 70 ppt and re-inject treated water into the affected aquifer.

**USACE Omaha, US Air Force Academy - Sijan Hall Renovation Design 2020-2025. Phase I Design Services (2023-2024) –** At the US Air Force Academy, provided support for A/E design services for the renovation of the existing academy dormitory. Estimated to be complete in five phases while maintaining building occupancy, the Phase 1 design includes removal of existing electrical service substations, and electrical distribution. The design also includes new fire alarm, lighting, and lighting controls. Services include site investigation, cost estimation, and issuance of ready-to-advertise construction documents for D-B-B project execution.

***Energy Conservation Investment Program (ECIP) – Defense Logistics Agency Susquehanna Distribution Center, New Cumberland, PA.** Electrical Design Lead for a lighting energy reduction design/build project. The design utilized new lighting technologies and lighting controls to reduce installed lighting power densities to meet energy conservation goals for four of the warehouses located on the Susquehanna Distribution Center Campus. Two of the warehouses were constructed during WWII and required adding egress and emergency lighting, and electrical distribution, panelboard, and branch circuit wiring replacement due to end of serviceable lifetime for the items being replaced. The project was managed by the U.S. Army Engineering and Support Center, Huntsville, Alabama.

# Chris Imparato, PE, HBDP, LEED AP

Mechanical Engineering Manager

**Education**
Bachelor of Science (BSc), Mechanical Engineering, Florida State University, 2008

**Years of Experience**
With AECOM: 8
With Other Firms: 8

**Registrations/Certifications**
Professional Engineer (PE): States of Colorado, Arizona, Florida, Washington, New Mexico, Utah

Chris is a Professional Mechanical Engineer with over sixteen years of experience. He is a mechanical design engineer for building HVAC and Plumbing systems and is highly proficient in mechanical and plumbing systems with a strong emphasis on energy efficient equipment, decarbonization, and controls.

Chris' project roles include project lead and discipline lead providing design guidance, oversight, and technical reviews of the HVAC and plumbing disciplines for new and existing facilities, as well as project engineer overseeing the multi-disciplined technical execution of the client's scope of work.

## Selected Project Experience

**Sijan Hall, U.S. Air Force Academy, Colorado Springs, CO:** Mechanical engineer provided building HVAC for 675,000 SF dormitory facility on the campus. The project included a ground source heat pumps throughout the facility to achieve high energy efficiency targets. A total of 180 boreholes were designed to provide enough energy transfer for the building without the need for any other outside heating or cooling sources. Project required cross coordination and design efforts across multiple offices within the region.

**Energy Study Anschutz Medical Campus, Aurora, Colorado:** Assisted with ASHRAE level 2 energy audits for 2 buildings on a medical campus. Collaborated across multiple internal offices to provide energy conservation measures to owners to implement the campus goals of reducing energy consumption and green-house gases.

**Energy Master Plan CU Boulder, Colorado:** Assisted with development of an Energy Master plan for the University of Colorado, Boulder Campus. Investigated the existing facilities and infrastructure to recommend energy efficient upgrades and plans to help the campus meet their Greenhouse Gas Emission (GHG) reduction goals.

**Northwater Treatment Plant, Golden, Colorado:** Assisted with the mechanical HVAC design for 12 different buildings on a new site for a 75 MGD water treatment facility. Provided an energy efficient design to suit the owner's requirements of heading towards a net zero energy facility. Collaborated with other engineering firms that provided the process and electrical designs. Worked closely with outside electrical/instrument engineers to come up with a control strategy for each building type. Site achieved Envision Gold certification through ISI and looking to achieve LEED Gold certification for the Operations Building through USGBC.

**National Western Complex Central Utility Plant, Denver, Colorado:** Mechanical project engineer provided the design of a Central Utility Plant. Collaborated across multiple business lines to include sewer waste heat energy recovery and other energy efficient technologies for use on a site-wide complex. The state-of-the-art central utility plant utilizes sewer heat recovery to provide 90% of its heating and cooling to buildings across the campus. The largest installation in North America to date, the sewer can provide up to 4 MW of heating for the campus. The sewer heat recovery systems pull thermal energy from wastewater instead of burning fossil fuels. Using this system, the 250-acre campus will avoid emitting an estimated 2,600 metric tons of carbon per year.

**Peterson Air Force Base, Data Center Energy Study, Colorado Springs, Colorado:** Mechanical project engineer provided ASHRAE Level 1 energy audits for 20 data center rooms across the campus. Recommended energy efficiency measures for each specific data center to reduce energy consumption and improve airflow management.

# David Blood, AIA

## Principal, Architecture Manager

**Education**
BArch, Architecture, University of Illinois

**Years of Experience**
With AECOM: 26
With Other Firms: 4

**Registrations/Certifications**
Registered Architect, Colorado, Guam, Illinois, Indiana, Maryland, Michigan, Missouri, Nevada, New Jersey, New Mexico, Northern Mariana Islands, Ohio, Oklahoma, South Dakota, Tennessee, Utah, Wisconsin

David has architectural experience in new construction and improvements to existing projects. His involvement has encompassed many scales of projects from focused renovation to large-scale master planning. He has participated in several site/building restoration projects that were of historical significance and integrated them into the existing infrastructure. His experience in construction and presentation documents development allows him to provide support in conveying complex information to clients. David has expertise in several industry standard CAD software programs allowing AECOM to be compatible with whatever software the client is currently using.

## Selected Project Experience

**Salt Lake City Department of Public Utilities, Salt Lake City Department of Public Utilities, New Water Reclamation Facility (WRF**), **Salt Lake City, UT.**
Lead Architect. Providing architectural services for a new 56-mgd WRF. The overall plant design provides an AECOM- developed campus aesthetic guideline and complies with the goals to achieve Envision for the plant and LEED Gold for the Administration building. The project includes facilities for a more traditional expanded permanent onsite staff.

**Denver Water, North Treatment Plant WRF, Golden, Colorado**
Lead Architect. As part of the overall Envision Gold plant design, AECOM provided an Operations facility design that is targeted to achieve a LEED Gold certification. The overall site design achieved compliance with Jefferson County zoning ordinates by using materials to complement the landscape and blending the facility into the topography. The Operations facility design is tailored to meet the personnel requirements of a plant that is anticipated to become increasingly automated and supported a focus on centralizing spare parts and maintenance staff to a system wide centralized location offsite.

**Chicago Department of Water Management Springfield Avenue Pumping Station Electrification - Phase III Services, Chicago, Illinois**
Responsible for the architectural design services during construction. The $65 million construction project included conversion of five existing steam- turbine-driven municipal water pumps to electric motor drives, renovation of an existing pump station and boiler building, and an addition to house the new power requirements. The entire project was designed to meet LEED certification and is anticipated to achieve a LEED Gold certification.

**Metropolitan Water Reclamation District of Greater Chicago, Stickney Water Reclamation Plant - New Sludge Thickening Facilities, Chicago, IL.**
Project Architect, Involved in data management for construction services records. Responsible for the architectural coordination of contractor change order requests, requests for quotes, and independent cost estimates among multiple disciplines and offices.

**Stickney Water Reclamation Plant, Biosolids Heat Drying Facility Design, Veolia Water North America, Stickney IL.** Performed 3D modeling for this structural, process piping, and equipment locations project, responsible for modeling of the equipment based on the manufacturer's two-dimensional drawing, location on equipment within the facility, and modeling the five-story support structure and routing all of the piping and duct work in the main processing building and adjacent mechanical building. Used Autodesk Building Systems software and incorporated all piping, including valve placement, into the 3D model. Created contract plans using the software to generate two-dimensional sections and plans. Liaison to the client, equipment manufacturers, and project engineers

# Jason Sielcken, AIA, LEED AP BD+C

## Vice President, Rocky Mountain Managing Principal

**Education**
MS, Architecture, University of Pennsylvania, 2003
B. ENVD, Architecture, University of Colorado Boulder, 2001

**Years of Experience**
With AECOM: <1
With Other Firms: 22

**Registrations/Certifications**
Registered Architect- CO (00405171)
Registered Architect- NY (00039254)
LEED AP BD+C Issued Mar 2009 Credential ID 10362978)
AIA (38336322)

With over 15 years of public sector experience, including his most recent role as Chief Architect for the U.S. General Services Administration (GSA) Rocky Mountain Region—Jason brings a unique client-centered perspective to our work. As Managing Principal, his focus is on harnessing the strength of our exceptionally talented team to drive design excellence, amplify our impact, and strengthen our client and community partnerships. Jason is passionate about delivering sustainable, high performing, and award-winning design guided by client priorities and shaped by adaptive, enduring solutions.

### Selected Project Experience

**Prior to AECOM*

**GSA, Denver Federal Center Deep Energy Retrofit, Denver, CO.***
Chief Architect & Project Executive. Oversaw the IGA and design award for a $140M Energy Savings Performance Contract at the Denver Federal Center, including a geothermal heat pump and solar PV system to provide heating, cooling, and power across 623 acres. The project will cut grid energy use by 51% and water use by 10%, saving 24 GWh of electricity and 85,000 MMBtu of natural gas annually.

**GSA, Frank E. Moss U.S. Courthouse Seismic Upgrade & Modernization, Salt Lake City, UT.*** Chief Architect and Project Executive. Led the CM/GC delivery of a 120-year-old, 250,000 SF historic structure, seismically stabilized and restored to create modern offices for nine federal agencies. The project is projected to achieve a 59% energy reduction, will convert to 100% electric, and targeting LEED Gold.

**GSA, Denver Federal Center Building 48 Modernization Project, Denver, CO.*** Chief Architect and Project Executive. Led the design-build adaptive reuse of a 150,000 SF warehouse and former munitions facility into offices for 700 Department of the Interior employees. The project achieved Net- Zero Energy and Operational Carbon, earned LEED Gold and SITES Silver, and received a 2024 GSA Design Excellence Award.

**GSA, FDA Laboratory, Denver, CO.*** Chief Architect. Led the design phase for the CM/GC delivery of a new three-story, 70,000 SF FDA laboratory, replacing an outdated facility. The project will be the nation's first Net-Zero Energy and Net-Zero Carbon Emissions BSL-3 lab, eliminating fossil fuels and setting a precedent for sustainable, high-containment research.

**GSA, Dunseith Land Port of Entry, Dunseith, ND.**
Chief Architect. Led the design of the design-build delivery of a new Land Port of Entry in Dunseith, ND, replacing an outdated facility while keeping operations fully functional. Designed for Net-Zero Energy with on-site renewables and geothermal, Net-Zero Water, and LEED Platinum, the project sets a benchmark for resilient, sustainable border infrastructure.

**GSA, USDA Consolidation Project, Salt Lake City, UT.***
Senior Project Manager - Jason led the design and construction of a six-story restack of the Wallace F. Bennett Federal Building in Salt Lake City, UT. The project consolidated multiple federal agencies and relocated the USDA from a costly private lease, implementing space optimization and workplace strategies that will save taxpayers over $75 million. For this achievement, Jason was honored with a 2020 Gears of Government Award from the White House.

**GSA, Wayne Aspinall Federal Building & U.S. Courthouse Modernization, Grand Junction, CO.***
Senior Project Manager. Jason led the nation's first Net-Zero Energy and Net Zero Operational Carbon project in a National Register of Historic Places building through a Design-Build contract. The modernization preserved historic elements while updating the facility for U.S. District Courts and executive agencies.

# Larry Davis, PE

## Senior Electrical Engineer

**Education**
BS, Electronics Engineering Technology, Metropolitan State University of Denver

**Years of Experience**
With AECOM: 2
With Other Firms: 23

**Registrations/Certifications**
Professional Engineer, Electrical
Colorado: 56830
Ohio: 91760
Master Electrician
Colorado: 29682

Larry is a Senior Electrical Engineer committed to exacting standards, innovative sustainable designs, authentic transparent client relationships, and quality control. Mr. Davis is also a licensed Master Electrician with an abundance of field experience in commercial, industrial, and residential applications. Engineering specialties include medium and low voltage power configuration, distribution system resiliency, emergency and standby backup systems, technical quality, construction feasibility, project oversight, and construction administration services. Larry has comprehensive experience conducting feasibility studies, facility assessments, and electrical system evaluations as well as conceptual design. He is highly skilled in designing and producing construction documents along with construction administration for a broad array of both existing and new facilities.

## Selected Project Experience

**USACE Omaha, Tinker AFB Pilot Study and Hydraulic Containment, Oklahoma City, OK.**
Mr. Davis was the lead engineer for the new construction of hydraulic recapture facility. Designing all aspects of the power, controls and lighting aspects and controls systems. AECOM, as a subconsultant, is providing A-E services for an innovative design-build project with a time-sensitive implementation roadmap for a hydraulic capture system at the boundary of Tinker AFB. The general Scope of Work includes initial site reconnaissance, bench scale study for media selection, capture zone analysis including the implementation of a system designed to effectively capture and groundwater.

**USACE Omaha, US Air Force Academy, Fairchild Electrical Systems Study, Colorado Springs, CO.**
Mr. Davis is the lead engineer for conducting a comprehensive electrical study for the 1.2 million sq/ft Fairchild Hall. His duties included performing client coordination, site observations, existing conditions analysis, arc flash, short circuit calculations, load study, mitigation recommendations, and issue solution prescriptions.

**USACE Omaha, Offutt AFB B500 Renovation, NE.**
Mr. Davis is the lead engineer providing the design, construction documents, and construction administration services for this comprehensive renovation of a 600,000 sq/ft facility housing some of the nation's critical defense mission teams and the necessary equipment to accomplish those mission sets. Power design comprised of medium voltage substations, local power distribution, mission critical power requirements, and complete lighting and controls systems.

**TXDOT Training Classroom Renovation, Texas Department of Transportation, Wichita Falls, TX.**
Mr. Davis is the lead engineer for a 10,000 sq/ft detailed classroom renovation. Mr. Davis is leading power and lighting design. He has been instrumental in consulting with and meeting our client's concerns and specific needs all while following an intense and rapid design schedule.

**DLA Arc Flash Assessment, Defense Logistics Agency, New Cumberland, PA.**
Mr. Davis was part of a team of engineers and SMEs leading an arc-flash assessment and selective coordination study for a multi-building campus of the United States defense logistics agency (DLA). Surveying the existing buildings' electrical services and distribution system. Developed recommendations for eliminating incident energies beyond acceptable levels and developed solutions for bringing outdated equipment up to current safety standards.

# Jimmy Logue

## Senior Associate Cost Consultant

**Education**
ND Quantity Surveying
NC Construction Management

**Years of Experience**
With AECOM: 15
With Other Firms: 0

**Training, Registrations, Affiliations**
CATO Estimating Software
CAD Measure Digital Takeoff
CostX Estimating Software
CostX 3D BIM Measurement Software
OST-On Screen Takeoff
NZIQS (Afil)
New Zealand Institute of Quantity Surveyors

As a trained Quantity Surveyor, Jimmy's experience includes providing clients with integrated solutions for preconstruction consulting, cost management, project controls and scheduling on complex construction projects. He has a diverse background with over fifteen years in the construction industry. Areas of expertise include preconstruction management, construction cost estimating from feasibility through to bid, value engineering, cash flow and trend analysis, construction phase cost management including change management, preparing and negotiating final construction cost agreements between clients and contractors. Jimmy also has a background on a range of projects acting as the funding manager, preparing initial project reports for construction funding institutions to assess lending requirements and preparing drawdown reports and recommendations.

## Selected Project Experience

**2025 World Expo USA Pavilion, Osaka Japan**
Our role, within an integrated AECOM team was to provide the Department of State with both Construction and Operations budgets for the 2025 World Expo in Osaka, Japan. This included analyzing / developing the best approach to construct a pavilion that is temporary in nature while not impacting the architectural form and function of the building. Our cost management team compiled detailed early stage budgets and tailored the budget to the clients reporting needs. This involved an integrated approach with our design and planning team as well as research and coordination with our partners locally in Japan.

**City and County of Denver RISE Bond Program**
Client: Denver Department of Transportation and Infrastructure
Our role was to provide DOTI with independent horizontal and vertical project cost estimates related to the RISE Bond Program. Our cost management team compiled parametric, detailed and tailored cost assessments of over 30 individual projects to provide an independent opinion of cost to compare against existing project estimates. The estimates also assisted DOTI with bond project prioritization.

**City and County of Denver ELEVATE Bond Program**
Client: Denver Department of Transportation and Infrastructure
Our role was to provide DOTI with four independent vertical project cost estimates related to the ELEVATE Bond Program. Our cost management team compiled parametric, detailed and tailored cost assessments for the specific individual projects to allow DOTI to update previously prepared capital budgets. The estimates also assisted DOTI monitoring how the escalation and construction market has been affected from 2019-2021.

**Northern Arizona Intergovernmental Public Transport Authority, Downtown Connection Center, Flagstaff, AZ**
Client: NIPTA
Our role was to provide concept - schematic level cost consulting and estimates for a two-phase project which includes a new 20,000 SF transit connection center and event space, bus transit center and associated site improvements.

**Cripple Creek Bus and Streetcar Operations Facility, Cripple Creek, CO**
Client: City of Cripple Creek
Our role was to early stage cost planning to assist the client in setting their capital budget for a new transit operations facility located in Cripple Creek, Colorado on a challenging sloped site. The 130,000 SF facility includes bus and streetcar maintenance areas, structured above grade parking, operations offices, history museum, secure police sallyport areas, core & shell office space and all associated site development.

# Shea Culbertson, PE

## Senior Electrical Engineer

**Education**
BS, Electrical Engineering, The Pennsylvania State University

**Years of Experience**
With AECOM: 6
With Other Firms: 6

**Registrations/Certifications**
PE, CA, E22311, 06.30.2026
PE, GA, PE050215, 12.31.2025
PE, ID, 2671432, 11.30.2026
PE, NC, 051793, 12.31.2025
PE, SC, 41359, 06.30.2026
PE, TN, 128149, 03.31.2027
PE, TX, 140570, 12.31.2025
PE, UT, 14191910-2202, 03.31.2027

Shea is a licensed senior electrical engineer with over ten years of experience in projects ranging from single-family residential to multi-building campuses. His portfolio of projects includes office, light industrial, airport, healthcare/life sciences, technology, mall/retail, university/higher education, data center, battery storage, photovoltaic, and microgrid. Shea is experienced in working with various federal, state, and local building codes and standards, and he is adept at working with many different design and calculation programs. He has extensive knowledge in electrical design, including design management, construction documentation, lighting design, power design, grounding design, and low- and medium-voltage electrical distribution design.

## Selected Project Experience

**Intuit Dome Microgrid, Clippers, Los Angeles, CA**
Lead electrical engineer for the design of the Intuit Dome's microgrid system. The microgrid featured 2.2MWac of PV, 5.7MW/11.5MWh BESS system, and 4MW of diesel generator backup. The microgrid sequence focused primarily on reduction of peak demand reduction for significant cost savings instead of reducing overall energy consumption. The microgrid sequence had different scenarios for non-event and event days to focus on different thresholds. Additionally, the microgrid allowed for unplanned and planned islanding of the facility in the event of outages or when disconnection from the utility was desired. The system met Southern California Edison's interconnection requirements for ramp rates, inverter certifications, limiting of PV export to less than 1MW, BESS non-export settings and protections, and closed-transition return to utility.

**SLO-L52 Advanced Air Mobility (AAM) Study, SLO County Airport, San Luis Obispo and Oceano, CA**
Lead electrical engineer for the study of SLO and L52 airports' AAM potential and electrical infrastructure impacts. The study utilized inputs from the AAM potential of each site and a basis-of-design AAM electric charger to develop future loading requirements and analyze the existing electrical distribution. Based on the analysis, recommendations were given for both airports including potential location of electrical services, the service size and loading, and utility points of connection.

**MV Infrastructure Upgrades, LACCD, Los Angeles, CA**
Lead electrical engineer for the creation of bidding documents (PPCs) for three (3) campuses for the installation of medium voltage (MV) infrastructure upgrades related to future PV systems, EVCS installation, decarbonization of campus facilities, future BESS installation, and future load growth. PPC reports included preliminary calculations, project requirements and guidelines, and conceptual drawings and diagrams for the MV upgrades, EVCS installation, and replacement of existing PV systems. Included high-level assessment of facilities to develop conceptual plans, coordination with the electric utility, and coordination with the campuses regarding new EVCS stall locations and ADA compliance, BESS locations, and master plans.

**B23 Cyber Ops TI, CA ANG, Van Nuys, CA**
Lead electrical engineer for the design of a 90kW ground mounted PV system at the Van Nuys ANG Station. The design featured a pre-manufactured mounting system, and load-side utility connection to the existing main switchgear with an existing PV system. Interconnections and PV equipment were designed to comply with LADWP requirements.

# Tracey Whaley PE, FPE, CCP

## Mechanical/Plumbing Commissioning Engineer

**Education**
BS, Architectural Engineering;
Kansas State University

**Years of Experience**
With AECOM: 6
With Other Firms: 31

**Registrations/Certifications**
Professional Engineer; Arkansas, California, Colorado, Florida, Oregon, Montana, Indiana, Texas, Wyoming
Certified Commissioning Professional (CCP) Building Commissioning Association (BCxA)
Top Secret Seurity Clearance

Tracey brings 36 years of experience in design as a mechanical and fire protection engineer and certified commissioning professional. Her project experience includes a wide range of public, state, local, and federal sectors. Tracey assists clients in achieving their goals by reducing project costs, eliminating wasted effort, optimizing project goals and intent, improving user and occupant satisfaction, and using quality statistical tools. Her expertise in total building commissioning, combined with extensive design experience, leads to a technical commissioning process geared towards critical facilities.

## Selected Project Experience

**McCarran International Airport, Las Vegas, NV**
Facility Condition Assessment/Retro-Commissioning. Commissioning Manager providing retro-commissioning support for the airport. Assessment and retro-commissioning was provided for select AHU systems in the aging terminals. Data loggers were installed to monitor the temperature, humidity, airflows, and power used by the HVAC units that are past the useful life. Retro-commissioning reports offer solutions for sustaining the existing equipment until a plan for renovation and replacement of the equipment is developed.

**Department of State, Overseas Building Operations, Merida Mexico New Consulate Compound.**
Commissiong Manager and mechanical commissioning engineer for the design and construction phase for Whole Building commissioning services on a new overseas consulate compound. Responsibilities include commissioning design reviews, development of commissioning procedures, coordination and scheduling of the commissioning requirements with the Government and design-build team. Our tasks include building enclosure assemblies, building systems, and building equipment including the chiller plant, air handling systems, plumbing systems, electrical systems with power monitoring, multi-generator back up power supply, paralleling gear, and hybrid solar photovoltaic panels.

**Department of Veteran Affairs, Spinal Cord Injury/Community Living Center, San Diego, CA.**
Ms. Whaley is the lead Mechanical/Plumbing/Fire Protection Commissioning Engineer on the new Medical Center Hospital located on the San Diego VA Campus. The project includes a central plant, site infrastructural upgrades and a new 800-car parking structure. The commissioning scope includes the VA Whole Building Commissioning Scope and standards. The new expansion project is on the site of an existing fully operational hospital which requires considerable coordination between construction activities and the commissioning process.

**Arlington County, Long Bridge Aquatics & Fitness Center, Arlington, VA**
Commissioning Engineer. Performed LEED Fundamental and Enhanced Commissioning for a new recreation facility. Commissioned systems included the HVAC Systems and associated controls, Power Distribution, Lighting, Domestic Water, Fire Alarm, Fire Protection, Building Enclosure, and Specialty Pool Systems.

**Alton Lennon Federal Building, Wilmington, NC:**
Renovation of the federal building and US Courthouse that was damaged by Hurricane Florence in 2018. Commissioning support for the design and renovation of the building. The General Services Administration (GSA) intends to replace the existing roof, conduct repairs and replacement of portions of the facade, repair/replace existing exterior historic windows and doors, replace and upgrade the MEP systems, provide updated normal and emergency power service for the new equipment, update the life safety systems, abatement of hazardous materials, remediate mold, and repair and replace interior finishes.

# Andy Paddock, PE

## Senior Engineering Manager

**Education**
Bachelor of Science (BSc), Civil Engineering, Colorado State University

**Years of Experience**
With AECOM: <1
With Other Firms: 12

**Registrations/Certifications**
Professional Engineer, Colorado, PE.0037607
Professional Engineer, Wyoming, 12330
Professional Engineer, Wisconsin, 39110-6
Professional Engineer, Utah, 7997493-2202
Professional Engineer, New Mexico, 21630
Professional Engineer, Nebraska, E-13748
Professional Engineer, Mississippi, 19297
Professional Engineer, Iowa, 18995
Professional Engineer, Arkansas, 13283
Professional Engineer, Arizona, 48385

Andy is the engineering director for buildings and places sector in the Rocky Mountain Region, where he coordinates and leads multidisciplinary teams composed of hundreds of engineers. Andy has successfully managed large-scale programs and guided diverse teams across various market sectors, including intricate infrastructure projects. His career is marked by a profound ability to anticipate and address challenges in project delivery and management through innovative solutions and strategic foresight. Committed to excellence, Andy ensures alignment with industry standards and fosters a culture of continuous improvement within his teams, driving the adoption and implementation of best practices.

## Selected Project Experience

**US Department of Commerce - National Institute of Standards and Technology, Building 1 Renovation: Wing 4, Wing 5, and Spine, Boulder, Colorado.**
Senior engineering manager responsible for overseeing multidisciplinary engineering aspects, including civil, structural, mechanical, plumbing, fire protection, electrical, telecommunications, and laboratory planning. Provided mechanical, plumbing, and fire protection planning and design for a 30% construction document package/design-build RFP. The project focused on transforming a 1960s historic building into a modern laboratory, supporting advanced fields such as electronics, nanotechnology, time and frequency studies, quantum computing and communications, laser science, optics, radiofrequency communications, and magnetic field measurements. The design emphasized the integration of modern mechanical systems to meet stringent requirements for temperature, humidity, and vibration control, ensuring the facility met the needs of advanced research and development.

**Denver Water, Northwater Treatment Plant Site and Civil Improvements, Denver, Colorado.**
Senior engineering manager who contributed to the NTP project, encompassing 12 distinct buildings and numerous treatment structures within a new campus for a 75 MGD water treatment facility in the Denver Metro area—the largest project in Denver Water's history. Responsibilities included managing QA inspections and inspectors, reviewing submittals and RFIs for contract compliance, coordinating field activities with the CMAR, designing facilities for future phases of the project (Moffat Expansion), and verifying that construction adhered to quality standards. The site achieved Envision Gold certification through ISI and is pursuing LEED Gold certification for the Operations Building through USGBC.

**US Air Force Academy, National A-E IDIQ 2010-2015 - Cadet Chapel Restoration Design, US Air Force Academy, Colorado.**
Senior engineering manager who led the design for building envelope repairs, ensuring the integrity and functionality of the structure. Updated AT/FP provisions and redesigned the deteriorated exterior while preserving the National Historic Landmark's historic context. Developed and implemented structural protocols for measuring in-situ wind speeds, pressures, and corresponding structural deflections, which were utilized to calibrate wind tunnel studies and structural software for analyzing tetrahedral frames and determining glazing tolerances.

# Phillip Meffert, EI

## Structural Engineer II

**Education**
MS, Civil Engineering, Michigan State University
BS, Civil Engineering, Michigan State University

**Years of Experience**
With AECOM: 4
With Other Firms: 0

**Registrations/Certifications**
Engineer Intern (EI) Colorado – EI.0047800

Phillip is a Structural Engineer in Training in the AECOM Buildings + Places Group in Denver, CO with 4 years of industry experience, all at AECOM. He is a goal driven and process-oriented individual, who strives for team success. He has experience in structural steel, concrete, masonry, and light gauge steel design and analysis, structural modeling, discipline coordination, and creation of project documentation.

Phillip is passionate about working through challenges that require unique structural engineering solutions. He is proficient in many structural engineering computer applications, such as ETABS, RAM products, and modular applications, as well as drafting software. He enjoys collaboration across disciplines to expand his knowledge of building systems.

## Selected Project Experience

**United States Air Force Academy, Sijan Hall Renovation, Colorado Springs, CO: (2021 – present)**
Structural engineer for a $500 million dollar renovation of historic student housing of the Sijan Hall dormitory on the USAFA campus. Investigated as built drawing from the 1960's. Analyzed existing structural elements including two-way slabs, built up steel columns, load bearing RC walls, and prestressed double tee concrete beams. Designed retrofit solutions for the above items. Designed a 20'x140' floor frame to infill an existing two-story space. Responsible for coordination with MEP engineers and architects, coordinated structural team task delegation, and the development and submittal of project documents.

**United States Air Force Academy, McDermott Library Renovation, Colorado Springs, CO: (2022 – 2024)**
Structural engineer for an extensive renovation of historic library on the USAFA campus. Responsibilities included obtaining information from as built drawings from 1950's and 1980's, performing a schematic design and detailing of a new entranceway and canopy steel frame and connections at the face of the existing building, analyzing existing structural elements including structural steel beams, joists, and columns. Provided analysis of 84-foot-long existing steel truss. Assisted in providing load design criteria per building codes, including national, federal, and local codes. Coordinated with several disciplines to provide guidance on placement of electrical floor boxes.

**Peterson AFB, Colorado Springs, CO: (2021)**
Phillip served as a structural engineer for a two-story steel frame Theatre Operational Support Facility for Peterson Air Force Base. As a member of the structural team, he designed multiple structural elements, including steel connections, retaining wall systems, and column pedestals, and was responsible for the design of an exterior steel frame canopy. In addition, he analyzed the gravity and lateral structural systems.

**Water Reclamation Facility, Salt Lake City, UT: (2021-2022)**
Phillip worked as a structural engineer for one of the largest buildings in the project. Engineered an internal 8'x28' self-supporting light gauge steel structure. Designed load bearing masonry structural elements. Participated in the creation of project documentation.

**Denver Public Library -Denver, CO: (2021 – 2023)**
Structural EIT in the renovation of historical Denver Public Library designed by Michael Graves. Investigated existing drawings and provided demolition details. Designed new steel assemblies and post-installed anchorage connections for a new grand stairway. Participated in site visit engineer inspection.

# Connie Ruelas-Flores

## Architecture II

**Education**
Master of Architecture and BS of Architecture, University of Colorado, Denver

**Years of Experience**
With AECOM: 5
With Other Firms: 0

Connie is an architecture designer and the BIM lead for AECOM's Denver office.

### Selected Project Experience

**USAFA Preparatory Athletics Facilities, U.S. Army Corps of Engineers, Colorado Springs, CO.**
Modeler
BIM Manager

**Space Force Education Facility, U.S. Army Corps of Engineers, Colorado Springs, CO.**
Modeler/Drafter
BIM Manager

**McDermott Library Renovation, U.S. Army Corps of Engineers, Colorado Springs, CO.**
Modeler/Drafter
BIM Manager

**SOCNORTH Theater Special Operations Forces Operational Support Facility, U.S. Army Corps of Engineers, Peterson Air Force Base, CO.**
Modeler/Drafter
BIM Manager

**Improve Military Housing PAIP 8B, U.S. Army Corps of Engineers – Japan Engineering District, Yokota Air Base, Japan.**
Modeler/Drafter
BIM Manager

**Improve Military Housing PAIP 9B, U.S. Army Corps of Engineers – Japan Engineering District, Yokota Air Base, Japan.**
Modeler/Drafter
BIM Manager

**Renovate Building 406, 50th Civil Engineering Squadron, Shriever Space Force Base, CO.**
Modeler/Drafter
BIM Manager

**Denver Water Roof Assessments, Denver Water, Denver, CO.**
Site Assessor

**SNL Strategic Capital – Chain 12, NNSA/SANDIA Site Office U.S. Department of Energy, Albuquerque, NM.**
Site Assessor

**MT. Ogden Administration Building, Utah Transit Authority, Ogden, UT.**
Modeler/Drafter

**Building 500, U.S.AF 55th Wing, U.S. Army Corps of Engineers Omaha District, Offutt Air Base, NE.**
Modeler/Drafter
BIM Manager

**Renovate MOD 3/4A Building 400, 50th Civil Engineering Squadron, Shriever Space Force Base, CO.**
Modeler/Drafter
BIM Manager

**DOLA Steam Heat Replacement, Colorado Department of Local Affairs, Las Animas, CO.**
Modeler/Drafter
BIM Manager

# Agreement Exceptions

**AN AGREEMENT BY AND BETWEEN THE CITY OF LOUISVILLE AND _____ FOR CONSULTING SERVICES**

## 1.0 PARTIES

This AGREEMENT FOR CONSULTING SERVICES (this "Agreement") is made and entered into this ____ day of _____, 20____ (the "Effective Date"), by and between the **City of Louisville**, a Colorado home rule municipal corporation, hereinafter referred to as the "City", and **_____**, a Colorado [entity type], hereinafter referred to as the "Consultant".

## 2.0 RECITALS AND PURPOSE

2.1 The City desires to engage the Consultant for the purpose of [_____]as further set forth in the Consultant's Scope of Services (which services are hereinafter referred to as the "Services").

2.2 The Consultant represents that it has the special expertise, qualifications and background necessary to complete the Services.

## 3.0 SCOPE OF SERVICES

The Consultant agrees to provide the City with the specific Services and to perform the specific tasks, duties and responsibilities set forth in Scope of Services attached hereto as **Exhibit A** and incorporated herein by reference.

## 4.0 COMPENSATION

4.1 The City shall pay the Consultant for services under this agreement a total not to **_____ Dollars ($_____)** as set forth in **Exhibit A** attached hereto and incorporated herein by this reference. For Services compensated at hourly or per unit rates, or on a per-task basis, such rates or costs per task shall not exceed the amounts set forth in **Exhibit A.** The City shall not pay mileage and other reimbursable expenses (such as meals, parking, travel expenses, necessary memberships, etc.), unless such expenses are (1) clearly set forth in the Scope of Services, and (2) necessary for performance of the Services ("Pre-Approved Expenses"). The foregoing amounts of compensation shall be inclusive of all costs of whatsoever nature associated with the Consultant's efforts, including but not limited to salaries, benefits, overhead, administration, profits, expenses, and outside consultant fees. The Scope of Services and payment therefor shall only be changed by a properly authorized amendment to this

Agreement. No City employee has the authority to bind the City with regard to any payment for any services which exceeds the amount payable under the terms of this Agreement.

4.2 The Consultant shall submit monthly an invoice to the City for Services rendered and a detailed expense report for Pre-Approved Expenses incurred during the previous month. The invoice shall document the Services provided during the preceding month, identifying by work category and subcategory the work and tasks performed and such other information as may be required by the City. The Consultant shall provide such additional backup documentation as may be required by the City. The City shall pay the invoice within thirty (30) days of receipt unless the Services or the documentation therefor are unsatisfactory. Payments made after thirty (30) days may be assessed an interest charge of one percent (1%) per month unless the delay in payment resulted from unsatisfactory work or documentation therefor.

**5.0 PROJECT REPRESENTATION**

5.1 The City designates _____ as the responsible City staff to provide direction to the Consultant during the conduct of the Services. The Consultant shall comply with the directions given by such person and such person's designees.

5.2 The Consultant designates _____ as its project manager and as the principal in charge who shall be providing the Services under this Agreement. Should any of the representatives of Consultant be replaced, and such replacement require the City or the Consultant to undertake additional reevaluations, coordination, orientations, etc., the Consultant shall be fully responsible for all such additional costs and services.

**6.0 TERM**

6.1 The term of this Agreement shall be from the Effective Date until all the Services have been fully performed, unless sooner terminated pursuant to Section 13, below. The Consultant's Services under this Agreement shall commence on the Effective Date and Consultant shall proceed with diligence and promptness so that the Services are completed in a timely fashion consistent with the City's requirements.

6.2 Nothing in this Agreement is intended or shall be deemed or construed as creating any multiple-fiscal year direct or indirect debt or financial obligation on the part of the City within the meaning of Colorado Constitution Article X, Section 20 or any other constitutional or statutory provision. All financial obligations of the City under this Agreement are subject to annual budgeting and appropriation by the Louisville City Council, in its sole discretion. Notwithstanding anything in this Agreement to

the contrary, in the event of non-appropriation, this Agreement shall terminate effective December 31 of the then-current fiscal year.

**7.0 INSURANCE**

7.1 The Consultant agrees to procure and maintain, at its own cost, the policies of insurance set forth in Subsections 7.1.1 through 7.1.4. The Consultant shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. The coverages required below shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained from the date of commencement of services hereunder. The required coverages are:

7.1.1 Workers' Compensation insurance as required by the Labor Code of the State of Colorado and Employers Liability Insurance. Evidence of qualified selfinsured status may be substituted.

7.1.2 General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each occurrence and TWO MILLION DOLLARS ($2,000,000) aggregate. The policy shall include the City of Louisville, its officers and its employees, as additional insureds, with primary coverage as respects the City of Louisville, its officers and its employees, and shall contain a severability of interests provision.

7.1.3 Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than FOUR HUNDRED THOUSAND DOLLARS ($400,000) per person in any one occurrence and ONE MILLION DOLLARS ($1,000,000) for two or more persons in any one occurrence, and auto property damage insurance of at least FIFTY THOUSAND DOLLARS ($50,000) per occurrence, with respect to each of Consultant's owned, hired or non-owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests provision. If the Consultant has no owned automobiles, the requirements of this paragraph shall be met by each employee of the Consultant providing services to the City of Louisville under this Agreement.

7.1.4 Professional Liability coverage with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each claim and ONE MILLION DOLLARS ($1,000,000) aggregate.

Deleted: occurrence

7.2 The Consultant's general liability insurance, automobile liability and physical damage insurance, and professional liability insurance shall be endorsed to include the City, and its elected and appointed officers and employees, as additional insureds, unless the City in its sole discretion waives such requirement. Every policy required above, except Professional Liability and Worker's Compensation and Employer's Liability, shall be primary insurance, and any insurance carried by the City, its officers, or its employees, shall be excess and not contributory insurance to that provided by the Consultant. Such policies shall contain a severability of interests provision. The Consultant shall be solely responsible for any deductible losses under each of the policies required above.

7.3 Certificates of insurance shall be provided by the Consultant as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the City. No required coverage shall be cancelled, terminated or materially changed until at least 30 days' prior written notice has been given to the City. The City reserves the right to request and receive a certified copy of any endorsement thereto.

7.4 Failure on the part of the Consultant to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the City may immediately terminate this Agreement, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Consultant to the City upon demand, or the City may offset the cost of the premiums against any monies due to Consultant from the City.

7.5 The parties understand and agree that the City is relying on, and does not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S., as from time to time amended, or otherwise available to the City, its officers, or its employees.

**8.0 INDEMNIFICATION**

8.1 To the fullest extent permitted by law, the Consultant agrees to indemnify and hold harmless the City, and its elected and appointed officers and its employees, from and against all liability, claims, and demands, on account of any injury, loss, or damage, which arise out of or are connected with the services hereunder, if and to the extent such injury, loss, or damage is caused by the negligent act, omission, or other fault of the Consultant or any subcontractor of the Consultant, or any officer, employee, or agent of the Consultant or any subcontractor, or any other person for whom Consultant is responsible. The Consultant shall investigate, handle, respond



**Commented [JB2]:** Requiring a primary non-contributory endorsement is not available on a Professional Liability policy – only policies that allow Additional Insured status (e.g. General Liability, Automobile Liability) can be designated as primary and non-contributory. Professional Liability covers AECOM's legal liability for damages arising out of our professional services. Only lines of coverage that allow additional insured endorsements will be provided on a primary basis. Workers' Compensation and Employer's Liability are the express responsibility of each company or organization to provide on behalf of their own employees, and Professional Liability is designed solely to cover claims to other parties who experience a loss as a result of the Consultant's professional services. These lines of coverage do not allow additional insured endorsements and cannot be provided on a primary basis. This is an insurance standard and is not unique to AECOM.

**Deleted:** policy

**Deleted:** and any

to, and provide defense for and defend against any such liability, claims, and demands. The Consultant shall further bear all other costs and expenses incurred by the City or Consultant and related to any such liability, claims and demands, including but not limited to court costs, expert witness fees and attorneys' fees if the court determines that these incurred costs and expenses are related to such negligent acts, errors, and omissions or other fault of the Consultant.

8.2 The City shall be entitled to its costs and attorneys' fees incurred in any action to enforce the provisions of this Section 8.0. The Consultant's indemnification obligation shall not be construed to extend to any injury, loss, or damage which is caused by the act, omission, or other fault of the City.

8.3 If the Consultant is providing architectural, engineering, surveying or other design services under this Agreement, the extent of the Consultant's obligation to indemnify and hold harmless the Town may be determined only after the Consultant's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement between the parties, as provided by C.R.S. § 13-50.5-102(8)(c).

**9.0 QUALITY OF WORK**

Consultant's professional services shall be in accordance with the prevailing standard of practice normally exercised in the performance of services of a similar nature in the Denver metropolitan area.

**10.0 INDEPENDENT CONTRACTOR**

It is the expressed intent of the parties that the Consultant is an independent contractor and not the agent, employee or servant of the City, and that:

10.1. Consultant shall satisfy all tax and other governmentally imposed responsibilities including but not limited to, payment of state, federal, and social security taxes, unemployment taxes, worker's compensation and self-employment taxes. No state, federal or local taxes of any kind shall be withheld or paid by the City.

10.2. **Consultant is not entitled to worker's compensation benefits except as may be provided by the Consultant nor to unemployment insurance benefits unless unemployment compensation coverage is provided by the Consultant or some entity other than the City.**

10.3. Consultant does not have the authority to act for the City, or to bind the City in any respect whatsoever, or to incur any debts or liabilities in the name of or on behalf of the City.

10.4. Consultant has and retains control of and supervision over the performance of Consultant's obligations hereunder and control over any persons employed by Consultant for performing the Services hereunder.

10.5. The City will not provide training or instruction to Consultant or any of its employees regarding the performance of the Services hereunder.

10.6. Neither the Consultant nor any of its officers or employees will receive benefits of any type from the City.

10.7. Consultant represents that it is engaged in providing similar services to other clients and/or the general public and is not required to work exclusively for the City.

10.8. All Services are to be performed solely at the risk of Consultant and Consultant shall take all precautions necessary for the proper and sole performance thereof.

10.9. Consultant will not combine its business operations in any way with the City's business operations and each party shall maintain their operations as separate and distinct.

**11.0 ASSIGNMENT**

Consultant shall not assign or delegate this Agreement or any portion thereof, or any monies due or to become due hereunder without the City's prior written consent.

**12.0 DEFAULT**

Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event either party should fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

**13.0 TERMINATION**

13.1 This Agreement may be terminated by either party for material breach or default of this Agreement by the other party not caused by any action or omission of the other party by giving the other party written notice at least thirty (30) days in advance of the termination date. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

13.2 In addition to the foregoing, this Agreement may be terminated by the City for its convenience and without cause of any nature by giving written notice at least fifteen (15) days in advance of the termination date. In the event of such termination, the Consultant will be paid for the reasonable value of the services

rendered to the date of termination, not to exceed a pro-rated daily rate, for the services rendered to the date of termination, and upon such payment, all obligations of the City to the Consultant under this Agreement will cease. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

**14.0 INSPECTION AND AUDIT**

The City and its duly authorized representatives shall have access to any books, documents, papers, and records of the Consultant that are related to this Agreement for the purpose of making audits, examinations, excerpts, and transcriptions.

**15.0 DOCUMENTS**

All computer input and output, analyses, plans, documents photographic images, tests, maps, surveys, electronic files and written material of any kind generated in the performance of this Agreement or developed for the City in performance of the Services are and shall remain the sole and exclusive property of the City. All such materials shall be promptly provided to the City upon request therefor and at the time of termination of this Agreement, without further charge or expense to the City. Consultant shall not provide copies of any such material to any other party without the prior written consent of the City.

**16.0 ENFORCEMENT**

16.1 In the event that suit is brought upon this Agreement to enforce its terms, the prevailing party shall be entitled to its reasonable attorneys' fees and related court costs.

16.2 This Agreement shall be deemed entered into in Boulder County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Agreement shall be filed in the District Court of Boulder County of the State of Colorado, and in no other court. Consultant hereby waives its right to challenge the personal jurisdiction of the District Court of Boulder County of the State of Colorado over it.

**17.0 COMPLIANCE WITH LAWS**

17.1 Consultant shall be solely responsible for compliance with all applicable federal, state, and local laws, including the ordinances, resolutions, rules, and regulations of the City; for payment of all applicable taxes; and obtaining and keeping in force all applicable permits and approvals.

17.2 Consultant acknowledges that the City of Louisville Code of Ethics provides that independent contractors who perform official actions on behalf of the City which involve the use of discretionary authority shall not receive any gifts seeking to influence their official actions on behalf of the City, and that City officers and employees similarly shall not receive such gifts. Consultant agrees to abide by the gift restrictions of the City's Code of Ethics.

**18.0 INTEGRATION AND AMENDMENT**

This Agreement represents the entire Agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties.

**19.0 NOTICES**

All notices required or permitted under this Agreement shall be in writing and shall be given by hand delivery, by United States first class mail, postage prepaid, registered or certified, return receipt requested, by national overnight carrier, or by facsimile transmission, addressed to the party for whom it is intended at the following address:

If to the City:

City of Louisville
Attn: City Manager
749 Main Street
Louisville, Colorado 80027
Telephone: (303) 335-4533
Email: dlangley@louisvilleco.gov

If to the Consultant:

_____
_____
_____
Email:

Any such notice or other communication shall be effective when received as indicated on the delivery receipt, if by hand delivery or overnight carrier; on the United States mail return receipt, if by United States mail; or on facsimile transmission receipt. Either party may by similar notice given, change the address to which future notices or other communications shall be sent.

**20.0 EQUAL OPPORTUNITY EMPLOYER**

20.1 Consultant will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, disability or national origin. Consultant will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, age, sex, disability, national origin, sexual orientation, gender identify or expression, marital status or any other protected basis. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

20.2 Consultant shall be in compliance with the applicable provisions of the American with Disabilities Act of 1990 as enacted and from time to time amended and any other applicable federal, state, or local laws and regulations. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of this Agreement or any renewal thereof.

**21.0 NO THIRD PARTY BENEFICIARIES**

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to City and Consultant, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than City or Consultant receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

**22.0 SUBCONTRACTORS**

Consultant may utilize subcontractors identified in its qualifications submittal to assist with non-specialized works as necessary to complete projects. Consultant will submit any proposed subcontractor and the description of its services to the City for approval. The City will not work directly with subcontractors.

**23.0 AUTHORITY TO BIND**

Each of the persons signing below on behalf of any party hereby represents and warrants that such person is signing with full and complete authority to bind the party on whose behalf of whom such person is signing, to each and every term of this Agreement.

In witness whereof, the parties have executed this Agreement to be effective on the date first above written.

CITY OF LOUISVILLE, a
Colorado Municipal Corporation

By:_____

Attest:_____

CONSULTANT:
_____

By:_____
Name: _____
Title: _____

**Exhibit A – Scope of Services and Fees**

# Required Forms

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/03/2025

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

**PRODUCER**
Marsh Risk & Insurance Services
CA License #0437153
633 W. Fifth Street, Suite 1200
Los Angeles, CA 90071
Attn: LosAngeles.CertRequest@Marsh.Com

CN101348564-STND-GAUE-25-26 09 2025

**CONTACT NAME:** Marsh | U.S. Operations
**PHONE (A/C, No, Ext):** 866-966-4664 **FAX (A/C, No):** 212-948-0533
**E-MAIL ADDRESS:** LosAngeles.CertRequest@marsh.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : ACE American Insurance Company | 22667 |
| INSURER B : N/A | N/A |
| INSURER C : N/A | N/A |
| INSURER D : | |
| INSURER E : | |
| INSURER F : | |

**INSURED**
AECOM
AECOM Technical Services, Inc.
7595 East Technology Way
Suite 200
Denver, CO 80237

**COVERAGES** **CERTIFICATE NUMBER:** LOS-002824560-01 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X **COMMERCIAL GENERAL LIABILITY**<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>X POLICY PRO-JECT LOC<br>OTHER: | | | HDO G48971714 | 04/01/2025 | 04/01/2026 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG | $ 1,000,000<br>$ 1,000,000<br>$ 5,000<br>$ 1,000,000<br>$ 2,000,000<br>$ 2,000,000 |
| A | **AUTOMOBILE LIABILITY**<br>X ANY AUTO<br>OWNED AUTOS ONLY<br>SCHEDULED AUTOS<br>HIRED AUTOS ONLY<br>NON-OWNED AUTOS ONLY | | | ISA H11370494 | 04/01/2025 | 04/01/2026 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident) | $ 1,000,000<br>$<br>$<br>$ |
| | **UMBRELLA LIAB** OCCUR<br>**EXCESS LIAB** CLAIMS-MADE<br>DED RETENTION $ | | | | | | EACH OCCURRENCE<br>AGGREGATE | $<br>$ |
| A<br>A | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY**<br>ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **(Mandatory in NH)** Y / N: N<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | WLR C72792300 (AOS)<br>SCF C72792312 (WI Retro) | 04/01/2025<br>04/01/2025 | 04/01/2026<br>04/01/2026 | X PER STATUTE OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$ 2,000,000<br>$ 2,000,000<br>$ 2,000,000 |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

RE; Project is to decarbonize up to 10 municipal facilities through HVAC equipment replacements, new windows, new lighting. Scope of work includes electrical load study, engineering design, construction administration. For RFP/RFQ Purposes.

City of Louisville is named as additional insured for GL & AL coverages, but only as respects work performed by or on behalf of the named insured and where required by written contract.

**CERTIFICATE HOLDER**

City of Louisville, Colorado
Attn: Civil Engineer III
749 Main Street
Louisville, CO 80027

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

*Marsh Risk & Insurance Services*

**© 1988-2016 ACORD CORPORATION. All rights reserved.**

## ANTI-COLLUSION AFFIDAVIT

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a BIDDER or potential prime BIDDER.

2A. Neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a BIDDER or potential prime BIDDER on this project, and will not be so disclosed prior to bid opening.

2B. Neither the prices nor the amount of the Bid of any other firm or person who is a BIDDER or potential prime BIDDER on this project have been disclosed to me or my firm.

3A. No attempt has been made to solicit, cause or induce any firm or person who is BIDDER or potential prime BIDDER to refrain from bidding on this project, or to submit a Bid higher than the Bid of this firm, or any intentionally high or noncompetitive Bid or other form of complementary Bid.

3B. No agreement has been promised or solicited for any other firm or person who is a BIDDER or potential prime BIDDER on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.

4. The Bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.

8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the OWNER of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

| CONTRACTOR'S FIRM OR COMPANY NAME | SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE) |
|---|---|
| AECOM TECHNICAL SERVICES, INC. | |
| BY: RYAN E. MEADOR | BY: |
| TITLE: ASSOCIATE VICE PRESIDENT | TITLE: N/A |
| DATE: 09 SEP 2025 | DATE: |

SWORN BEFORE ME THIS 9th DAY OF, September, 2025

NOTARY PUBLIC: Kim Herr MY COMMISSION EXPIRES: 10/21/25

Kim Herr
**NOTARY PUBLIC**
**STATE OF COLORADO**
NOTARY ID 20214041525
MY COMMISSION EXPIRES October 21, 2025

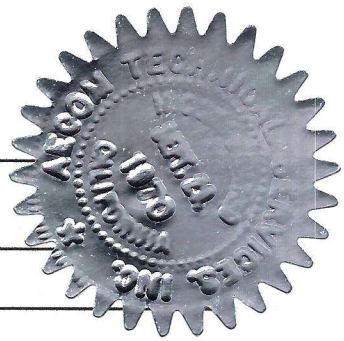
**A Corporation**

By AECOM Technical Services, Inc. (California Corporation)
(Corporation Name, State of Incorporation)

By Ryan Meador
(Name of person authorized to sign)

Authorized Signatory
(Title)

(CORPORATE SEAL)



Attest _____
(Assistant Secretary)

Business address: 300 S. Grand Ave., 9th Floor, Los Angeles, CA 90071

Phone No.: 1-626-710-2951

Date of Qualification to do business: 4/14/2003

**A Joint Venture**

By _____
(Name)

_____
(Address)

By _____
(Name)

_____
(Address)

Phone Number and Address for receipt of official communications:

(Each joint venture partner must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

AECOM Technical Services, Inc. 213.593.8100 tel
300 South Grand Avenue 213.593.8730 fax
9th Floor
Los Angeles, CA 90071
www.aecom.com

# SECRETARY'S CERTIFICATE

## AECOM TECHNICAL SERVICES, INC.
## a California corporation

I, Armond Tatevossian, DO HEREBY CERTIFY that I am a duly elected and acting Secretary of AECOM Technical Services, Inc., a corporation organized under the laws of the State of California ("ATS" or "Corporation"), and the keeper of its records and corporate seal.

I FURTHER CERTIFY that the Corporation's principal place of business is 300 South Grand Avenue, 9th Floor, Los Angeles, California 90071.

I FURTHER CERTIFY that pursuant to the Written Consent of the Board of Directors of ATS, adopted on June 23, 2025, and attached hereto as Exhibit A, Ryan Meador has signatory authority for ATS and is authorized to execute contracts and other documents on behalf of the Corporation.

IN WITNESS WHEREOF, I have subscribed my name and affixed the seal of the Corporation, this 10th day of September 2025.

Armond Tatevossian
Secretary

# UNANIMOUS ACTION OF THE BOARD OF DIRECTORS
# OF
# AECOM TECHNICAL SERVICES, INC.

The undersigned, being all the members of the Board of Directors of AECOM TECHNICAL SERVICES, INC. (the "Corporation"), a California corporation, hereby take the following action:

**RESOLVED:** That, “the following U.S. based persons are designated with authority by the Board of Directors to execute contracts and other legal documents on behalf of the Corporation within the boundaries of specific Regions and Business Lines as noted and effective as of the dates set forth below:”

Effective June 23, 2025:

| Last Name | First Name | Region | Business Line |
|---|---|---|---|
| Meador | Ryan | West | Buildings & Places |

**IN TESTIMONY WHEREOF**, all the Directors have hereunto set their hands this 23rd day of June, 2025.

Allison Hall

Matthew Crane

Karl Jensen

Armond Tatevossian

# SECRETARY'S CERTIFICATE

**AECOM TECHNICAL SERVICES, INC.**
**a California corporation**

I, Armond Tatevossian, DO HEREBY CERTIFY that I am the duly elected and acting Secretary of AECOM Technical Services, Inc., a corporation organized under the laws of the State of California (the "ATS"), and the keeper of its records and corporate seal.

I FURTHER CERTIFY that ATS's full legal address is c/o CT Corporation System, 818 West 7th Street, Los Angeles, CA 90017-0000 and that the principal place of business is 300 South Grand Avenue, 9th Floor, Los Angeles, California 90071.

I FURTHER CERTIFY that the person named below presently holds the office in the Corporation set forth opposite such person's name, and that the person has the authority to execute documents on behalf of the company.

| NAME | OFFICE | APPOINTMENT DATE |
|---|---|---|
| Bryan Rash | Assistant Secretary | 02/13/2023 |

IN WITNESS WHEREOF, I have subscribed my name and affixed the seal of the Corporation, this 10th day of September, 2025

Armond Tatevossian
Secretary



IMEG
The FUTURE. Built Smarter.



City of Louisville

# City of Louisville, Colorado - Internal Decarbonization Project
## Electrification/Energy Efficiencies

**September 12, 2025**

**ACKNOWLEDGED ADDENDUMS:**
NO. 1 – 08/22/2025
NO. 2 – 09/05/2025
NO. 3 – 09/05/2025
NO. 4 – 09/05/2025
NO. 5 – 09/05/2025

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2. Project Team
3. Work Plan
4. Commendations/References
5. Fee Proposal

APPENDIX

- Hourly Rates
- Resumes
- Certificates Of Insurance

SECTION 1

# COVER LETTER/BRIEF INTRO

IMEG
The FUTURE. Built Smarter.

# Section 1 | Cover Letter

**Top 3 Engineering Firm in the U.S.** (BD+C)

**115 Years of History in the making**

**100 Locations**

**3,000 Employees**

**September 12, 2025**

**Taylor McCauley**
**Civil Engineer III**
**T: 303.335.4616**
**M: 408.896.0370**
**E: tmccauley@louisvilleco.gov**

**RE: City of Louisville, CO - Internal Decarbonization Project - Electrification/Energy Efficiencies**

IMEG is pleased to submit our proposal for Energy Consulting Services for the City of Louisville. We understand the critical role energy planning and optimization play in creating a sustainable campus, and our team is uniquely positioned to provide the expert consulting services outlined in your RFP.

As a full-service engineering and consulting firm with a local presence and national resources, IMEG brings unmatched expertise and a collaborative approach to every project. Our team will continue from the efforts of the 2020 Sustainability Plan and the 2023 Decarbonization Audit Report to march toward effective implementation. The mindset will be to ensure that both the functional and aesthetic aspects of the renewable energy plan align with City of Louisville's vision. This partnership leverages our deep understanding and technical proficiency to deliver a comprehensive, high-impact solution that meets the City's long-term sustainability targets. Our team's qualifications make us an ideal partner for your IPD energy planning needs:

- **Diverse Expertise:** Our team includes professionals with backgrounds in energy infrastructure, renewable energy systems, energy modeling, commissioning, mechanical and electrical design, and construction, ensuring a holistic approach to energy solutions.
- **Cutting-Edge Tools and Analytics:** We utilize advanced platforms like CxAlloy for retro-commissioning management and state-of-the-art energy modeling software to support analysis, optimization, and reporting, providing data-driven insights for strategic decision-making.
- **Carbon Reduction Strategies:** We will develop a detailed renewable energy plan. This project is part of the City's larger Internal Decarbonization Plan (IDP). The high-level goals of this plan are to meet all of Louisville's municipal electrical needs with 100% carbon-free sources, to reduce emissions 60% by 2030, and to become carbon newutral by 2050.
- **Strategic Spending and Feasibility Analysis:** Our approach ensures cost-effective and efficient integration of electrification strategies and renewable energy, supported by a feasibility analysis justifying proposed solutions.
- **Efficiency Optimization:** We will identify operational process and equipment efficiency improvements that energy use and effectiveness while reducing the overall campus carbon footprint.
- **Renewable Energy Placement:** IMEG will assess and map optimal locations for renewable energy deployment at City propoerties, specifying project sites and grid connection points to maximize system efficiency and cost-effectiveness.
- **Grant Maximization:** We will provide guidance and supporting documentation to help maximize eligibility for renewable energy grants and funding opportunities, ensuring financial viability for proposed initiatives.
- **Offsite Green Energy Assessment:** Our team will analyze the feasibility and benefits of procuring offsite renewable energy from public utilities and private businesses to complement onsite renewable strategies.
- **Implementation Timeline:** We will develop a comprehensive project timeline that aligns with 2030 and 2050 carbon reduction goals, ensuring timely and measurable progress.

We commend City of Louisville's commitment to decarbonization and look forward to the opportunity to collaborate on this transformative initiative. Thank you for considering our proposal.

Sincerely,



**Ken A. Urbanek, PE, LEED AP, ASHRAE HBDP**
*Senior Principal / Client Executive*
7600 E. Orchard Road, Suite 250-S
Greenwood Village, CO 80111
T: 303.796.6000 | M: 970.216.1365
E: kenneth.a.urbanek@imegcorp.com

**SUBCONSULTANTS:**

- **Saunders Construction**
  **Role: Cost Estimating**
  86 Inverness Place North, Centennial, CO 80112
- **Davis Partnership**
  **Role: Architecture**
  2901 Blake Street, Suite #100, Denver, CO 80205

*The information and data submitted is true and complete to the best of my knowledge*

# Section 1 | Brief Intro - Team Firm Profiles

## AT-A-GLANCE

- Top 3 Engineering Firm in U.S. (BD+C)
- 100% Employee-Owned
- Full-service Engineering & Consulting
- 100 Locations
- 3,000 Team Members
- 650+ Licensed Engineers
- $542M in Annual Revenue
- #48/ Top 500 Design Firm List (ENR)



## SUSTAINABILITY AND ENERGY SOLUTIONS

As an ENR Top 30 Green Design Firm, IMEG provides a full spectrum of sustainability and energy services to assist clients in reaching and maintaining their environmental goals, from concept to consumption. Starting with a baseline of proven and collaborative strategies and integration—building massing and orientation, envelope optimization, and right-sized mechanical equipment—our experts then incorporate additional sustainability strategies and resources for those seeking exceptional levels of building performance. The goals are to maximize efficiency; reduce energy use, water consumption, and carbon emissions; and provide safe and comfortable environments for occupants.

**IMEG's sustainability experts have designed more than 500 buildings that are LEED or WELL certified as well as several net zero and net-zero ready projects.**

In addition to WELL- and LEED-certified designers, IMEG has accredited experts in ASHRAE-Certified Building Energy Modeling and Building Energy Assessment. We are also a founding member of the Carbon Leadership Forum's MEP 2040 Challenge, calling on all systems engineers to "advocate for and achieve net zero carbon in their projects— operational carbon by 2030 and embodied carbon by 2040." We are signatories of the U.S. Department of Energy's Better Buildings Alliance, the AIA 2030 Commitment, the National Academy of Medicine's Action Collaborative on Decarbonizing the U.S. Health Sector, and have joined the Structural Engineers 2050 Commitment Program to eliminate embodied carbon in our project designs.

## SERVICES

**Planning & Design Services**

- Daylighting
- Decarbonization
- Computational Fluid Dynamics (CFD)
- Energy modeling
- LEED, WELL, Phius certification
- Life cycle cost analysis
- Net zero consulting
- Rapid performance modeling
- Renewable energy assessments
- Total carbon analysis

**Green Technologies**

- Biomass conversion
- Battery energy storage
- Cogeneration
- Chilled beam
- Daylight harvesting
- Displacement ventilation
- GeoExchange
- Green roofs
- Grey water recycling
- Heat recovery
- Microgrids
- Natural ventilation
- Photovolataics
- Occupancy controls
- Rainwater harvesting
- Thermal energy storage
- Wind turbines

**Performance & Energy**

- Building performance and optimization
- Commissioning
- Retrocommissioning

DAVIS PARTNERSHIP ARCHITECTS

For more than 58 years, Davis Partnership Architects has been providing innovative design solutions and earning the trust and respect of our clients and peers alike. The result is an innovative and influential practice, with specialization in architecture, landscape architecture, interior, lighting, and signage design. Davis Partnership Architects prides itself on being one of the last large independent firms in the Rocky Mountain West. The fact that 90% of our clients are repeat customers is a testament to our long history of outstanding service and performance. Over this tenure we have received numerous awards and recognitions, including being named "Firm of the Year" by both AIA Denver and Colorado, and the AIA Colorado Innovative Practices Award. Our projects have also graced numerous magazine covers and been featured in local, national, and global publications.

SAUNDERS

Saunders is one of the Rocky Mountain region's most notable and respected construction and development companies. Founded in 1972, Saunders provides collaborative project delivery focused on guiding customers through the process of turning an idea into a landmark. An employee-owned organization, Saunders has a diverse portfolio of work across 19 market types. Saunders crafts a genuine connection among clients, industry partners and the community. Driven by our vision, we're focused on building for both the present and the future, while constantly evolving to meet our clients' dynamic needs.

## AT-A-GLANCE

- #1 Government/Public Building Contractor by ENR Mountain States 2023)
- #1 Renovation/Restoration Contractor by ENR Mountain States 2023
- Contractor of the Year by ENR Mountain States 2024
- Top 5 Green Builder by ENR Mountain States 2023
- 145+ Completed municipal projects in Colorado
- 75+ Sustainable projects completed
- 29 Municipal clients across Colorado

SECTION 2

# PROJECT TEAM

IMEG
The FUTURE. Built Smarter.

# Section 2 | Project Team

**IMEG**

**Ken Urbanek, PE, LEED AP, ASHRAE HBDP**
*Project Principal*
Key Contact

**Chris Edward, PE**
*Project Manager*

## Support Team

**Nathan Miller, PE, CEM, LEED AP BD+C**
Senior Energy Engineer

**William Bishop, PE, CEM, LEED AP, BEMP, BEAP**
Senior Energy Engineer

**Stephanie Gerakos-Rooker, PE, LEED AP, CGD**
Mechanical Engineer

**Carrie Burgardt, PE**
Senior Electrical Engineer

**James Ness, PE**
Structural Engineer

**Curtis Underwood**
Construction Manager/Cost Estimating *(Saunders)*

**Brian Rankin, LEED GA**
Preconstruction Lead/Cost Estimating *(Saunders)*

**Joe Lear AIA, LEED AP**
Architecture/Interior Principal-in-Charge *(Davis)*

**Animish Kudalkar Associate AIA**
Architecture/Interior
Job Captain, Sr. Architectural Staff *(Davis)*

| Team Member | Role | Level of involvement and availability with existing and upcoming project workloads |
|---|---|---|
| **IMEG** | | |
| Ken Urbanek, PE, LEED AP, ASHRAE HBDP | Project Principal | 10% |
| Chris Edward, PE | Project Manager | 25% |
| Nathan Miller, PE, CEM, LEED AP BD+C | Senior Energy Engineer | 50% |
| William Bishop, PE, CEM, LEED AP, BEMP, BEAP | Senior Energy Engineer | 50% |
| Stephanie Gerakos-Rooker, PE, LEED AP, CGD | Mechanical Engineer | 25% |
| Carrie Burgardt, PE | Electrical Engineer | 25% |
| James Ness, PE | Structural Engineer | 10% |
| **Subconsultants** | | |
| **Davis Partnership \| Role: Architecture/Interiors** | | |
| Joe Lear AIA, LEED AP | Architecture/Interior Principal-in-Charge | 10% |
| Animish Kudalkar, Associate AIA | Architecture/Interior Job Captain, Sr. Architectural Staff | 10% |
| **Saunders Construction \| Role: Construction/Cost Estimating** | | |
| Curtis Underwood | Construction Manager | 10% |
| Brian Rankin, LEED GA | Preconstruction Lead | 10% |

*Individual resumes included as part of Appendix - no members of our team will be replaced during awarded projects without approval from the City.*

# Section 2 | Project Team

## Ken Urbanek, PE, LeED AP, HBDP

Client Executive/Project Principal - Key Contact

*Total Experience: 22+ Years*
*with IMEG: 21+ Years*



Ken is the Client Executive that leads IMEG's Denver Office where he is responsible for ensuring project success of all projects going through the Denver Office. Ken will lead IMEG's multi-discipline team and be the main point of contact for IMEG. Ken has a broad design and construction background that has been focused on high performance sustainable building design. His specific expertise includes, but is not limited to, multi-discipline project management, central utility plants, campus distribution systems, radiant cooling systems, chilled beams, under-floor air distribution, optimized variable air systems, variable refrigerant flow systems, smoke control systems, and black/grey water systems.

## Chris Edward, PE

Client Executive/Project Manager

*Total Experience: 15+ Years*
*with IMEG: 15+ Years*



Chris is the principal and client executive of IMEG's Sustainability and Energy Team. This is a nationwide group of engineers and consultants providing energy-focused services for IMEG's clients. Chris leads his team in its mission to support all of IMEG in sustainability, energy, and carbon analysis and to provide a hub of expertise for large-scale and energy-focused design projects. He is an electrical engineer, actively designing renewable energy and advanced power generation systems. He has spent his entire career at IMEG.

## Nathan Miller, PE, CEM, LEED AP BD+C

Senior Energy Engineer

*Total Experience: 21+ Years*
*with IMEG: 21+ Years*



Nathan brings expertise in natural ventilation and energy modeling and an inherent talent for communicating complex concepts and systems in an easily understandable, straightforward manner. Nathan was the mechanical engineer and energy analyst on the first Living Building Challenge v2.0 project to be designed, built, and certified in Washington State and the first v2.0 project to be built in an urban setting globally. He specializes in quantifying cost and energy-saving strategies and establishing energy benchmarks to measure their feasibility of achievement. Nathan is serving on the Technical Advisory Group responsible for developing the 2024 Washington State Energy Code Commercial Provisions.

## William Bishop, PE, CEM, LEED AP, BEMP, BEAP

Senior Energy Engineer

*Total Experience: 21+ Years*
*with IMEG: 19+ Years*



Bill is a Senior Energy Engineer and leads a dedicated team of Sustainability & Energy engineers at IMEG's Rochester office. He serves as a project engineer for energy master planning, comprehensive energy audits, NYSERDA programs and studies featuring building energy simulation. He is a passionate advocate for sustainable principles and has given dozens of presentations on decarbonization, electrification, energy master planning, climate change science and mitigation. He helped complete the Energy Efficiency Design Guide for the SUNY Net Zero Portfolio project, and recently added ASHRAE Certified Decarbonization Professional (CDP) to his credentials.

## James Ness, PE

Lead Structural Engineer

*Total Experience: 40+ Years*
*with IMEG: 30+ Years*



Jim provides complete project management services including preliminary design, construction documentation, and construction administration. Projects include remodeling of existing facilities, police facilities, municipal maintenance buildings, fire stations, and modifications to existing facilities. Jim has experience working on projects that require the extra attention to structures subjected to extensive wear and tear.

## Stephanie Gerakos-Rooker, PE, LEED AP, CGD

Lead Mechanical Engineer

*Total Experience: 19+ Years*
*with IMEG: 9+ Years*



Stephanie has extensive knowledge of mechanical systems, energy modeling, and load calculations including a unique breadth of experience in HVAC system design and construction. Stephanie has significant net zero solutions, and project and client management experience. Stephanie combines her sustainability experience with deliberate, energy-saving solutions that provide long-term value to owners, while maintaining occupant comfort. Stephanie's mechanical engineering experience for building systems includes HVAC, boiler plants, chiller plants, plumbing and fire protection systems. She is exceptionally skilled in applying required building codes, including LEED standards, and preparing project specifications and construction documents.

## Carrie Burgardt, PE

Lead Electrical Engineer

*Total Experience: 24+ Years*
*with IMEG: 13+ Years*



As a Senior Electrical Engineer, Carrie is responsible for all design phases of a project which includes designing and presenting multiple solutions in the preliminary design phases of projects to provide effective electrical system solutions within a set budget for our clients, implementing and coordinating the design for construction documents and working with the contractors and owners during the construction phase to deliver a completed project that will meet or exceed owner expectations.

## Joe Lear AIA, LEED AP

Architecture/Interior | Principal-in-Charge

*Total Experience: 30+ Years*
*with Davis: 17+ Years*

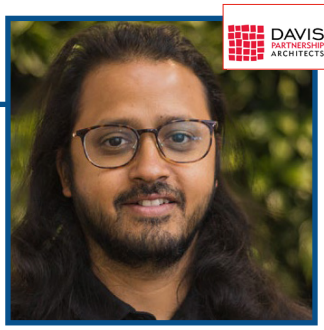


Joe is a Principal with over 30 years of experience and is known for his creativity, pragmatism, technical knowledge, and strong communication, ultimately resulting in thoughtful solutions for his clients. Joe has also become recognized as a leader regionally in the design of public safety facilities that balance design, operational goals, and the needs of each community he serves. His experience informs his approach, and he thrives on developing innovative solutions to challenges, engaged throughout the entire design process, and working with user groups throughout the life of the project.

## Animish Kudalkar, Associate AIA

Architecture/Interior | Job Captain, Senior Architectural Staff

*Total Experience: 17+ Years*
*with Davis: 3+ Years*



Animish's breadth of architecture design collaborations with industry leaders includes innovative fire stations, office buildings, workplace environments, educational facilities & civic projects. His drive for design has led him to practice architecture in Mumbai, Seattle, Boston, Chicago & Denver. Animish is passionate about designing for the community with careful consideration how the built environment engages, impacts & educates its surroundings towards sustainable practices, technology, and unconventional ideas.

## Curtis Underwood

Construction Manager/Cost Estimation

*Total Experience: 17+ Years*
*with Saunders: 5+ Years*



Curtis Underwood started his career in construction over 16 years ago, and joined Saunders in 2020 as a senior project manager. He has extensive experience building projects that include central utility plants and mechanical upgrades. He understands the importance of mechanical elements, with experience building critical healthcare, manufacturing and university facilities. Underwood is involved in beginning stages of preconstruction all the way through turnover – leading the project team and making sure the client receives a building they deserve.

## Brian Rankin, LEED GA

Preconstruction Lead/Cost Estimation

*Total Experience: 18+ Years*
*with Saunders: 15+ Years*



Brian Rankin has been in construction since 2007, starting out as a laborer and intern, and has held subsequent roles in preconstruction, operations and business development. As construction manager for Saunders Express, he focuses on continuous improvement from project inception to completion. Maintaining close client interface, Rankin operates with the same philosophy, transparency and commitment that clients have come to expect from Saunders. His relationship focused approach gives him the unique ability to motivate and manage the teams he is part of.

# Section 2 | Project Experience - Past 5 Years

## Denver Water
## Operations Complex Redevelopment

**Denver, CO**

### SUM OF THE WHOLE IS GREATER THAN ITS PARTS

LEED Platinum, WELL Building, Net Zero Energy, and "One Water"

The 36-acre Denver Water Operations Complex Redevelopment is a true model for sustainable design and one of the most multi-facetted sustainable projects in the nation. Its many challenging goals – including energy and water efficiency, water reuse, and zero on-site carbon emissions – required intricate campus-wide solutions.

The design needed to strike a balance between providing functional and efficient spaces, incorporating design concepts that would provide wellness and benefit to the employees, and remaining within the project budget as a responsibility to the ratepayers. Denver Water utilized the design concepts presented by the design team, garnered feedback from the employees through feedback sessions, and provided a continuous feedback loop on constructability and costs.

IMEG implemented many unique and innovative designs to support key project goals, including:

- The One Water concept, which uses the right water for the right use and minimizes consumption through efficiency whenever possible. The campus uses potable water treated and provided by Denver Water for potable requirements while maximizing reclamation and recycled water for other non-potable uses. To conserve this critically precious potable water resource, no water is used for evaporative building cooling, which is nearly unheard of for a campus of this size.
- On-site wastewater treatment, including an innovative on-site treatment system in the administration building lobby.
- The zero on-site carbon emissions goal, which required a primary heating source other than burning fossil fuels. IMEG implemented the application of air-to-water low ambient air source heat pumps, which are successfully used throughout Europe but are rarely used in the U.S., along with water-to-water magnetic heat recovery chillers.
- Campus energy recovery. A central heat recovery system, with 70,000 gallons of thermal storage, can achieve system efficiency near 30 COP.

The Denver Water Operations Complex Redevelopment's One Water framework, combined with its LEED and net-zero energy goals, set many new precedents for sustainable project delivery. Denver Water can leverage its status as a water utility to help distribute these design concepts, using the campus as an educational tool across the Colorado market and beyond.

*Watch the Grand Conceptor Award project video produced by the American Council of Engineering Companies.*



| | |
|---|---|
| **Size** | 186,000-sf LEED Platinum, Net-Zero Energy and "One Water" Administration Building;<br>7,400-sf, LEED Gold Wellness Building;<br>15,400-sf, LEED Gold 3-Stones Building Renovation<br>155,000-sf Parking Structure |
| **Cost** | $195 million |
| **Completion** | 2019 |
| **Services** | Mechanical, Electrical, Plumbing, Energy Modeling |
| **Awards** | 2021 BD+C's Building Team Awards - Platinum<br>2021 ACEC Engineering Excellence Grand Conceptor Award<br>2021 ACEC National Engineering Excellence Grand Award |

# Section 2 | Project Experience - Past 5 Years

## City of Aspen
## New City Hall

Aspen, CO

### ONE-OF-A-KIND GEOEXCHANGE SYSTEM IN CITY HALL

Pursuing LEED Gold and WELL Silver

**The project:** The City of Aspen's new city hall houses multiple city departments consolidated from other offices, community meeting space, and the main city council chambers.

**The goal:** The city had three main goals for the design of their building: it needed to be flexible, run on an electrified system to meet the city's carbon reduction goals, and meet the city's energy reduction goals.

**Design approach:** IMEG was instrumental in finding innovative solutions to meet the city's goals and carbon reduction initiatives while providing a layout that could be easily modified as the city's needs expand. IMEG needed to provide a highly efficient electrified system to meet the carbon reduction goals while also meeting the needs of the building.

**Challenge:** While the team initially pursued a traditional vertical bore geoexchange system, the excessive cost and limited area for the wells proved to be problematic. **Solution:** The team discovered that Aspen's history as a mining town presented a one-of-a-kind opportunity for an alternate type of geoexchange system. The town's mines greatly impacted the underground water dynamics of the valley, which meant that each minute 1,000 to 1,500 gallons of water were gushing through an adjacent 1980s-era parking garage's groundwater dewatering system. Given that the new building would be connecting to this parking garage, IMEG engineers harnessed this energy source by connecting it to a series of buffer tanks and heat exchangers to create usable energy for heating and cooling. The temperature of the water running through the system averages below 45 degrees F, providing the city hall with a free cooling source. Running the water through high-efficiency heat pumps provides hot water for not only the building but also for snow melt on the city's public walkways and a grand staircase on the site. This solution provided a very economical and efficient geoexchange system that would have otherwise cost the city around $1 million.

**Challenge:** The building's tight site on a hillside. **Solution:** To fit within the available space, the building is very short and is tightly wedged into the site. This required careful coordination among the entire design team, which avoided significant in-field conflict, and allowed the team to align the new floors with the existing parking garage. This also presented the opportunity to include rooftop photovoltaics, so all mechanical equipment is located within the building.

**The outcome:** IMEG engineers and sustainability team worked closely with the architect to optimize energy performance and provide an extremely low energy use building. The project's sustainable features (including the geoexchange system, energy recovery, demand control ventilation, automated windows, and high-performance lighting system) and energy efficiency lend to its pursuit of LEED Gold and WELL Silver certifications. With its new city hall, the City of Aspen sets an example for other municipalities seeking an alternative way to achieve electrification.







| | |
|---|---|
| **Size** | 37,000-sf New |
| **Cost** | $32.6 million |
| **Completion** | 2021 |
| **Services** | Mechanical, Electrical, Plumbing, Fire Protection, Energy Modeling |
| **Awards** | 2023 ACEC National Recognition Award<br>2023 ACEC Colorado Engineering Excellence Award<br>ENR Colorado/Wyoming/Dakotas 2022 Best Project Award of Merit, Government/ Public Buildings |

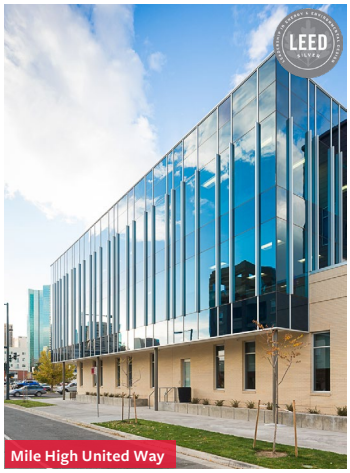
# Section 2 | Project Experience - Past 5 Years

DAVIS PARTNERSHIP ARCHITECTS

## Relevant Experience



City of Boulder Fire Station No.3

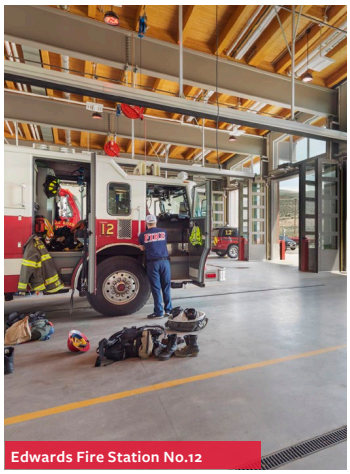


Mile High United Way


Town of Cordillera Community Center Planning



Town of Avon Town Hall Offices



Edwards Fire Station No.12


NREL - RAIL


Town of Avon & Eagle River Fire Protection District Public Safety Facility



Town of Avon & Eagle River Fire Protection District Public Safety Facility



Eagle River Fire Protection District Edwards Fire Station No.12, Training and Administrative Facility

### Projects

City of Boulder
Fire Station No.3
Boulder, Colorado
– 29,000 sf fire station
– 5,000 sf administration

Town of Avon
Town Hall Offices
Avon, Colorado
– 15,000 sf 3-story town hall & offices, LEED Silver
– Building fit out with flex space for town hall, court, offices, and rentable areas for future tenants

Mile High United Way
Morgridge Center for Community Change
Denver, Colorado
– New 63,000 sf office building & parking garage & LEED Silver

Town of Avon & Eagle River Fire Protection District, Public Safety Facility
Avon, Colorado
– 18,000 sf fire & police facility
– Fire station #7 with 3 apparatus bays, living quarters and support spaces
– Police station with offices, sally port, holding cells, and evidence storage/handling

Eagle River Fire Protection District, Fire Station 12, Admin. & Training Facility
Edwards, Colorado
– 16,835 sf fire station
– 2,381 sf integrated admin function
– 7,050 sf training facility

National Renewable Energy Laboratory (NREL) - Research & Innovation Laboratory (RAIL)
Golden, Colorado
– 16,000 sf flexible laboratories

Mile High United Way
Morgridge Center for Community Change

Town of Cordillera
Community Center Planning

City of Steamboat Springs
Fire Station & City Hall

# Section 2 | Project Experience - Past 5 Years

SAUNDERS

## LOUISVILLE RECREATION AND SENIOR CENTER & MEMORY SQUARE POOL

The 130,000-square-foot Louisville Recreation and Senior Center entailed a complex renovation and addition to the existing facility.

The addition included two new indoor pools — a zero-entry leisure pool with lazy river, slide and play features and a six-lane, 25 meter lap pool — along with new family locker rooms. Complex mechanical, lighting and special systems were required for the new addition.

The renovation included new fitness rooms, training and classrooms, turf gym, child care, free weights area, updated lobby/entry area, and a remodeled senior center.

Outside, site amenities included new parking, expansive outdoor patio, outdoor aquatics park, and new landscaping.

All work was completed while the facility remained operational, requiring a complex, occupied and multi-phase plan. The team adjusted phasing and site logistics to accommodate seasonal visitor count and special events.

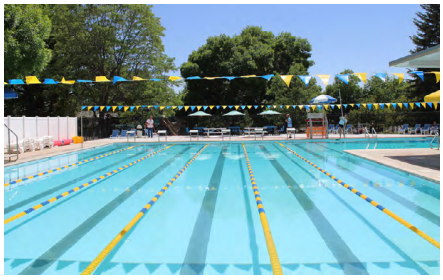
The Memory Square Pool Remodel was a comprehensive endeavor conducted concurrently with the Louisville Recreation Center remodel. Focused on the outdoor pool in downtown Louisville, the project encompassed a full-scale demolition and reconstruction of the existing bath house, coupled with the removal of the outdated kiddie pool. In its place, a state-of-the-art zero-entry kiddie pool was constructed to meet contemporary safety and recreational standards.



The scope of work extended beyond pool enhancements, incorporating an expanded sun deck, thoughtfully designed landscaping, and upgraded site paving to enhance both aesthetics and functionality.

Saunders' preconstruction and operations teams did an exceptional job of identifying the complete scope of the project through extensive study of the construction drawings and specifications, and evaluation of subcontractor proposals, culminating in the establishment of a GMP that truly pinpointed the final cost of construction.

The Memory Square Pool renovation was completed within an impressive five-month timeline over the winter months, culminating in the grand reopening on Memorial Day, offering the community a revitalized and modernized recreational space.



**"IT'S JUST A REAL STATEMENT ON WHAT A QUALITY CITY THIS IS – IT'S REALLY A QUALITY FACILITY, AND IT'S GONNA MAKE IT EASIER FOR FAMILIES TO DO SOME HEAVY-DUTY RECREATION."**

- Councilwoman Susan Loo
City of Louisville

**900 Via Appia Way**
**Louisville, Colo. 80027**

**SIZE**
131,000 Square Feet

**OWNER**
Kathy Martin
City of Louisville
720.771.6752
kathym@louisvilleco.gov

**ARCHITECT**
Sinks Combs Dethlefs
Chris Kastelic
303.308-0200
Chris.Kastelic@perkinswill

**SCHEDULE**
September 2017 – January 2019

**CONTRACT VALUE**
$30,438,000*

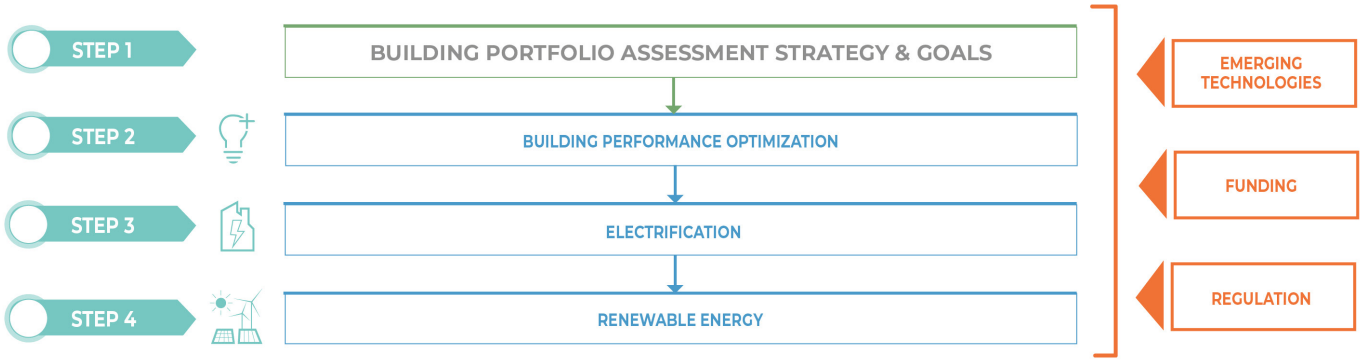
SECTION 3

# WORK PLAN

IMEG
The FUTURE. Built Smarter.

# Section 3 | Work Plan

# Decarbonization Planning




IMEG is leading the way in building performance optimization, and our team of specialists work to maximize our clients' energy savings and return on investments. Through a unique process that combines optimization strategies and analytics, we help building owners create an environment that delivers energy savings, reduces carbon emissions, and improves the health, comfort, and productivity of building occupants.

**IMEG's tailored, enterprise-wide decarbonization planning services are a component of our continuous, integrated process for building performance optimization that maximizes our clients' return-on-investment.**

## OUR UNIQUE DECARBONIZATION PLANNING PROCESS

Our goal is to be our clients' trusted advisor and partner in decarbonizing their building portfolio. IMEG helps each client customize a comprehensive, continuous, and integrated decarbonization planning process that includes:

**Maximum return on investment**

- Reduced energy cost
- Utility incentives
- Reduced O&M
- Improved comfort/health/productivity
- Reduced carbon emissions

**Planning now to:**

- Understand your building portfolio future
- Identify immediate, quick payback options
- Maximize reduction of energy usage
- Align with your facility master plan and annual capital program
- Prepare for future climate impacts – regulatory and environmental

**IMEG'S UNIQUE COMBINATION OF DELIVERABLES:**

- **Independent advice**
- **Customizable process**
- **Best-of-the-best technology**
- **Analytics-driven engineering**
- **Local knowledge**

# Section 3 | Work Plan

## LOUISVILLE PLAN PROCESS

IMEG's planning process will support the City of Louisville by developing a detailed electrification implementation plan that advances its existing decarbonization roadmap. This effort will focus on technical assessments and actionable strategies to transition municipal facilities away from fossil-fuel use. Site investigations of existing city buildings will document current heating, cooling, and electrical systems, evaluate their condition, and identify replacement opportunities that align with electrification objectives. The resulting plan will provide sequencing strategies for system upgrades, integration with renewable power sources, and targeted reductions in carbon emissions, all consistent with the city's previously adopted sustainability frameworks.

Our process consists of six structured steps emphasizing system-level performance, energy efficiency, and resiliency, delivered as a financially sustainable program. The work begins with detailed building audits and equipment inventories to establish a baseline of current energy use and system capacities. From there, electrification pathways will be developed for each facility, including equipment replacement schedules, infrastructure upgrades, and grid-interconnection considerations. Continuous monitoring protocols will also be outlined to verify ongoing performance and maintain alignment with long-term decarbonization goals.

Recurring coordination meetings will be scheduled with city staff and technical representatives to confirm roles, track progress against task target dates, and ensure that project milestones and implementation goals are met.

**1. Assess Building Portfolio**
- Review and compile data on existing buildings and systems
- Review and compile BAS, metering, and utility data
- Review master plans, planned capital improvements, and design standards
- Establish energy monitoring program per ISO 500001 if desired

**2. Confirm Performance Goals**
- Perform vision, strategy, and goal setting meeting
- Develop portfolio-wide performance targets for individual buildings
- Identify and assess potential obstacles

**3. Optimize Building Performance**
- Evaluate opportunities for retro-commissioning
- Evaluate opportunities for capital energy savings measures
- Review master and capital plans for energy savings opportunities
- Establish building level targets to achieve carbon reduction timeline




**4. Assess Electrification Options**
- Outline near, medium, and long term actions to reach the established 2030 and 2050 goals
- Include 3-4 leading options for the CUP
- Discuss goals with City of Louisville
- Outline increased physical space and mechanical and electrical infrastructure requirements for CUP and buildings
- Perform life cycle cost evaluation for the leading options
- Perform life cycle carbon evaluation for the leading options
- Create concept design for top three portfolio-wide scenarios, chosen by advantage

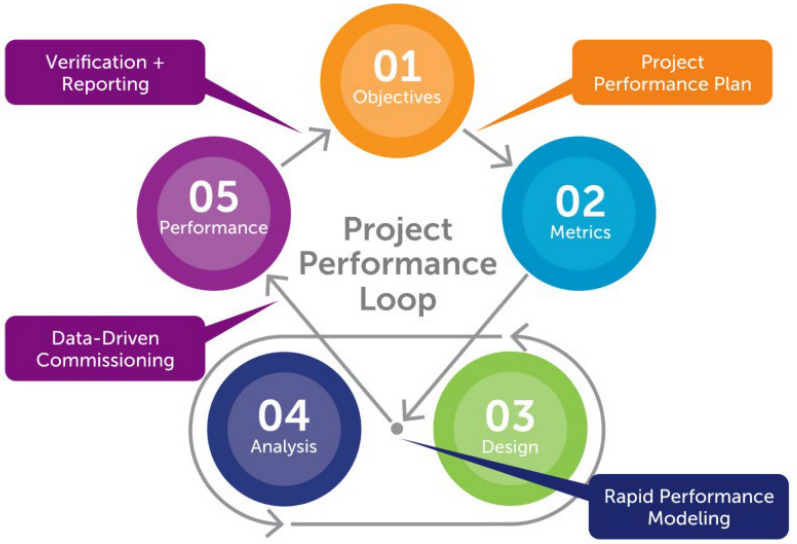
**5. Integrate Renewable Energy**
- Assess and quantify on-site and off-site renewable opportunities
- Create interactive data visualization dashboards using
- Power BI for scenario planning
- Consider future utility rate structures

**6. Assess and integrate a resilient infrastructure**
- Survey on-site generation capacity - renewable and non-renewable
- Assess potential for local microgrid
- Prioritize near term measures that improve resilience
- Evaluate impact of outages on critical infrastructure; proposes potential approaches to mitigate risk
- Develop unique analytics to help accurately monitor campus and central plant to keep up and prefect performance overtime into the future

# Section 3 | Work Plan

## A. APPROACH/STRATEGY

IMEG is excited to partner with the City of Louisville on the Electrification Implementation Plan, which directly advances the City's established decarbonization roadmap. This effort aligns closely with our firm's expertise in supporting municipalities, higher education campuses, and large organizations as they take on the challenge of deep decarbonization while maintaining operational continuity and delivering measurable environmental benefits. Our approach begins with a comprehensive review of the City's prior sustainability and decarbonization planning documents, combined with site investigations of municipal buildings to confirm system conditions and energy-use patterns. These field assessments will provide the foundation for defining project scope, technical objectives, and a phased strategy for electrification.




Louisville's roadmap already identifies priority areas, and our task will be to translate those goals into practical steps that align with facility operations, capital investment cycles, and budget planning. IMEG's role will be to integrate building data, evaluate electrification pathways, and establish a sequence of measures that reduce fossil-fuel dependence while keeping critical services and facilities fully operational. As a signatory of the MEP2040 initiative, IMEG recognizes that carbon reduction extends beyond eliminating fossil fuel use. Our analysis will incorporate system life-cycle impacts, energy-saving measures, technology selection, and evaluation of Environmental Product Declarations (EPDs) for major equipment. We will use energy analytics and electrification modeling to establish a phased implementation plan that is technically sound, financially sustainable, and consistent with

Louisville's carbon neutrality targets. Part of our deliverable will include developing a timeline that outlines the transition from the City's current building stock to a fully electrified portfolio by 2030 and beyond, with forecasting of energy use through 2050. This analysis will account for expected changes in the regional electric grid, allowing Louisville to anticipate how a cleaner grid will accelerate progress toward carbon goals. A financial analysis will be completed, including Life Cycle Cost Assessment, capital cost projections, and long-term operational savings. Building-specific utility data will be incorporated into an integrated schedule that aligns with incentive opportunities at the local, state, and federal levels.

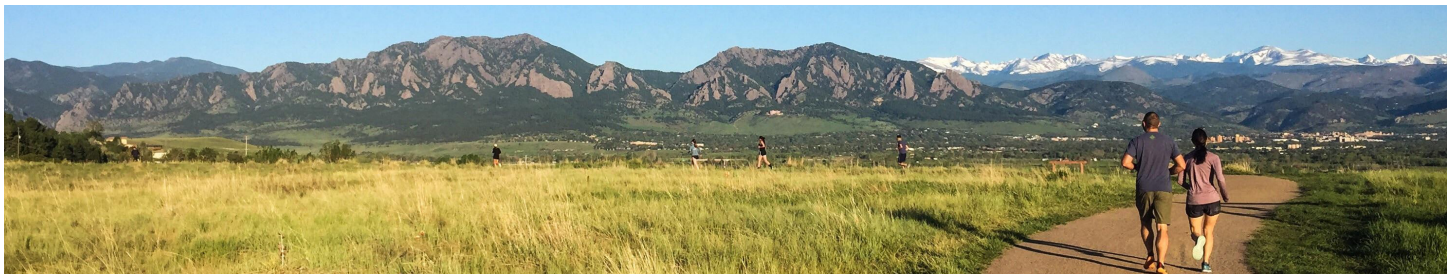
Progress will be reviewed with City staff at defined milestones, with multiple draft deliverables provided for technical feedback prior to the final plan submission.

## B. PRELIMINARY PROJECT WORK PLAN

Once awarded, IMEG will begin scheduling site visits of municipal buildings, collecting available construction documents, system submittals, utility records, and energy-use data. During this fact-finding phase, our engineers will evaluate existing HVAC, electrical, and envelope systems, identifying constraints and opportunities for electrification. We will then model and analyze strategies such as electrified heating and cooling, energy recovery, distributed renewables, and thermal or electrical storage solutions.

These strategies will be developed into technically and financially feasible options that can be phased across the City's portfolio.

IMEG brings together a multidisciplinary team including energy engineers, cost estimators, and specialists in structural, controls, and technology systems, supported as needed by external experts in architecture, civil, and landscape design. This collaborative approach ensures that all aspects of feasibility are addressed—from technical integration and cost estimating to long-term maintenance and resilience planning—so that Louisville can move forward with confidence in its electrification implementation pathway.



# Section 3 | Work Plan

## C. PHASE 2: PROJECT WORK PLAN

Following completion of the Electrification Implementation Plan, Phase 2 will advance the City of Louisville into detailed engineering design of the prioritized measures. This stage will translate the recommendations from Phase 1 into fully engineered, bid-ready documents that support procurement and execution of electrification upgrades across municipal facilities.

The Phase 2 scope will begin with Concept Design and Design Development, where baseline concepts and system selections identified in Phase 1 are refined into detailed layouts, single-line diagrams, and performance specifications for HVAC, electrical, and renewable energy systems. Building-specific conditions documented during site investigations will be integrated into the design to ensure compatibility with existing infrastructure and operational requirements. Energy modeling and load analysis will be updated to reflect final system selections, with an emphasis on grid readiness, resiliency, and alignment with Louisville's carbon-reduction targets.

Subsequently, IMEG will prepare construction documents including drawings, equipment schedules, control sequences, and technical specifications suitable for competitive bidding. Cost estimates will be refined at each design milestone (60%, 90%, 100%) to confirm alignment with City budgets and to support funding alignment with the Grants. Life Cycle Cost Analysis will continue to guide equipment choices to balance capital cost, operational efficiency, and long-term maintenance considerations.

The Phase 2 scope also includes bidding support services. IMEG will assist the City with contractor outreach, respond to Requests for Information (RFIs), issue addenda as required, and provide technical review of contractor proposals to verify compliance with the design intent and performance requirements. Evaluation matrices and recommendation summaries will be provided to support City decision-making.

Our Phase 2 proposal and fee estimates do not include construction administration services at this time. However, the deliverables will be structured to ensure a smooth handoff to the construction phase. This includes fully coordinated design documents, procurement-ready specifications, and a clear schedule of implementation priorities that align with the City's decarbonization roadmap.

Through this approach, Phase 2 will deliver a complete engineering design package that prepares the City of Louisville to competitively bid, fund, and implement its electrification measures in a technically sound, cost-effective, and strategic manner.

### PHASE 1 – BASELINE ASSESSMENT, ELECTRIFICATION PLAN DEVELOPMENT

1. Baseline Assessment – Document Existing Conditions
    a. Conduct site investigations of City-owned facilities to evaluate existing HVAC, electrical, and domestic hot water systems.



    b. Gather and review available facility documentation (drawings, utility data, controls sequences, maintenance records, and past audits).
    c. Analyze historical utility consumption and rate structures for each building.
    d. Assess potential impacts of new electric loads, including EV charging, on building demand and utility costs.
    e. Evaluate Energy Use Intensity (EUI) emissions against Louisville's established decarbonization goals.
    f. Document physical condition, nameplate data, and expected life of major equipment.
    g. Interview facilities staff to review operations, maintenance practices, and known system challenges.
    h. Assess system control strategies, including operating schedules, heating/cooling sequences, outside air use, and automation trends.
    i. Identify capital replacement needs that may align with electrification strategies.
    j. Summarize findings in a Phase 1 baseline report.
    k. Identify preliminary MEP system options for electrification readiness.

2. Project Identification & Prioritization – Define Electrification Opportunities
    a. Compile a list of Energy Conservation Measures (ECMs), electrification pathways, EV charging opportunities, and coordinate with the other IPD electrical projects.
    b. Validate opportunities with City facilities managers to determine feasibility.
    c. Develop high-level rough order-of-magnitude (ROM) cost estimates.
    d. Prepare opportunity write-ups, including recommended control strategies and phasing.
    e. Summarize renewable energy integration opportunities and utility interconnection requirements.
    f. Produce a Phase 1 Opportunities Report with prioritized project list.

# Section 3 | Work Plan

3. Implementation Plan Development
   a. Prepare facility-specific reports with audit findings, costs, recommended measures, barriers, and sequencing.
   b. Develop an overall City roadmap with short-, medium-, and long-term electrification actions. Prioritization criteria will include equipment age, planned renovations, building use, prominence, energy impact, and infrastructure feasibility.
   c. Establish a draft implementation timeline aligned with capital improvement planning and decarbonization targets.
   d. Provide preliminary report deliverables for City review.
   e. Develop cost estimating, anticipated construction schedule assumptions, and recommended sequencing.
   f. Deliver a final summary report and presentation to City leadership.

**PHASE 2 – ENGINEERING DESIGN AND BIDDING SERVICES**

1. Design Development and Construction Documents
   a. Advance prioritized measures into detailed design drawings, single-line diagrams, and specifications.
   b. Develop coordinated MEP system options for electrification, including electrical infrastructure upgrades, HVAC electrification (heat pumps, DOAS, VRF, etc.), and hot water system conversions.
   c. Prepare construction documents (plans, details, specifications, schedules) suitable for competitive bidding.
   d. Provide cost estimates at design milestones (60%, 90%, 100%) to maintain budget alignment.

2. Bidding Services
   a. Support the City in issuing bid packages to qualified contractors.
   b. Respond to Requests for Information (RFIs) and prepare addenda as required.
   c. Provide technical review of contractor bids for compliance with design intent, performance requirements, and cost reasonableness.
   d. Develop a recommendation matrix and summary to support City contractor selection.



## VALUE FOR LOUISVILLE

As one of the nation's leading engineering firms in municipal and community-scale decarbonization, IMEG has delivered electrification and carbon reduction strategies for a wide range of city-owned facilities including libraries, recreation centers, public works buildings, fire and police stations, and administrative offices. Our engineers specialize in municipal infrastructure, central energy systems, and building performance—ensuring we understand both the operational needs of essential services and the technical requirements for successful system transitions. Unique to IMEG, we incorporate full life-cycle carbon accounting of MEP systems, enabling us to prepare designs and implementation plans that balance first cost, long-term operating expense, and embodied carbon considerations.

Key personnel hourly rates and anticipated hours for this engagement are included in the Fee Proposal section.

## PROPOSED PROJECT SCHEDULE

Barring any unforeseen changes to scope or overall project objectives, IMEG's estimated project schedule for the Internal Decarbonization project is outlined below. We will ensure our staff will adhere to this schedule.

**PROPOSED PROJECT SCHEDULE**

| | 2025 | | | | 2026 | | | | | | | | | | | | 2027 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
| **PHASE I** Electrical Load Evaluation | | | | | | | | | | | | | | | | | | | |
| **PHASE II** E/EE Implementation | | | | | | | | | | | | | | | | | | | |

SECTION 4

# COMMENDATIONS & REFERENCES

IMEG
The FUTURE. Built Smarter.

# Section 4 | Commendations & References

# SUNY University at Buffalo
## South Campus

Buffalo, NY



### DECARBONIZATION & ELECTRIFIED CENTRAL PLANT DESIGN

**The project:** The University at Buffalo has recently undergone a Campus Wide Clean Energy and Electrification Master Plan to develop a pathways for decarbonizing their South Campus. Currently, the majority of buildings on the South Campus are served by the large district steam plant for heating and two interconnected district chiller plants for cooling.

**The goal:** The master plan recommended that the Campus be separated into five clusters, each being fed from a fully electrified, fossil fuel free, heat pump central plant with the end goal of interconnecting all five clusters with a common neutral district water loop that can serve as each central plant's heat source and heat sink. IMEG is the engineer of record for the design and implementation of the first two cluster heat pump plants, 'Energy HUBs', which will be located in Clark Hall and Parker Hall.

**Parker Hall:** The Parker Hall Cluster Energy HUB will provide 900 tons of cooling to Parker Hall proper, Hayes Hall, Hayes Hall Annex, Wende Hall, Townsend Hall, and Beck Hall, comprising approximately 360,000-sf of building space. The Energy HUB will be built out over time, with Phase 1 accounting for 300 tons of cooling delivered from a modular water to water heat pump solution capable of providing both chilled water and 140F water temperature for heating. The geothermal field to support this plant will be designed in multiple phases. Phase 1 will comprise of 200 vertical boreholes, each at 500 feet deep.

**Clark Hall:** The Clark Hall Cluster Energy HUB will provide 700 tons of cooling to Clark Hall proper, the Howe Research (Pharmacy) Building, and the Windspear Buildings, comprising approximately 250,000-sf of building space.

| | |
|---|---|
| **Size** | 250,000-sf – Clark Hall cluster<br>360,000-sf – Parker Hall cluster |
| **Duration** | 2023 - 2025 |
| **Services** | Mechanical, Electrical, Plumbing, Fire Protection, Energy Modeling |
| **Reference** | Bruce Buerger, PE<br>Director, Capital Planning & Deferred Maintenance<br>University at Buffalo<br>P: 716.645.2614<br>E: bbuerger@buffalo.edu |

The Energy HUB will be built out over time, with Phase 1 accounting for 350 tons of cooling delivered from a modular water to water heat pump solution capable of providing both chilled water and 140F water temperature for heating. The geothermal field to support this plant will be designed in two phases. Phase 1 will comprise of 120 vertical boreholes, each at 750 feet deep.

**Other services:** In addition to the central plant and associated geothermal field designs, IMEG is providing mechanical, electrical, plumbing, and fire protection engineering and deep energy retrofit services for both building renovations.

**The outcome:**

- Phase 1 — District Geothermal
- Central Plant Upgrades
- Electrified Building System Upgrades

# Section 4 | Commendations & References

## The State University of New York
## Clean Energy Master Plans

New York State

**The project:** Clean Energy Master Plans (CEMPs) were desired by The State University of New York (SUNY) for its Potsdam, Plattsburgh, Canton, and Polytechnic (Utica) campuses. IMEG, an NYSERDA FlexTech Consultant, developed the plans and collaborated with SUNY, the New York State Energy Research and Development Authority (NYSERDA), and the State University Construction Fund.

**Project goals:** Conduct ASHRAE Level II Audits for buildings greater than 5,000-sf and develop implementation scenarios for achieving carbon neutrality by 2025 at each campus

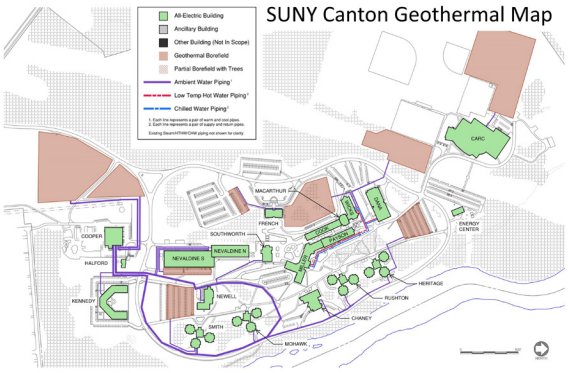
**Project approach:** Each master plan was developed through energy and concept design services following energy analysis and reduction recommendation best practices. Existing energy use data was first gathered and analyzed at each campus. This included energy used by each building and the whole campus; how the energy is used; corresponding GHG emissions; and energy performance compared to other university and building benchmarks. Energy audits were then conducted to better understand existing building energy use and identify appropriate energy efficiency measures (EEMs), which were evaluated through energy modeling. Finally, each report provided recommendations and paths for achieving the state's Climate Act goals. The financial capital investment that will be required for the building and campus infrastructure improvements also was quantified.

**Design highlights:** Technology solutions in various combinations were recommended for each building. These solutions included fourth- and fifth-generation (4G and 5G) district geothermal systems or electric boilers—each option paired with a variety of other EEMs most appropriate for each building.

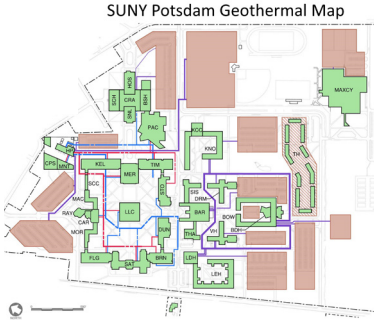
**Outcome:** Each CEMP outlines applications of technologies to achieve energy and greenhouse gas (GHG) emissions reductions and the phase-out of fossil fuel use through electrification—with phased steps to be taken at both the building and the campus levels from now through 2050.

**Project benefits:** CEMPs such as this play a vital role in the education sector, where institutions are faced with decarbonization mandates, poor-performing and aging buildings, and other energy-related challenges. These CEMPs also align with other campus planning efforts and, due to upgrades they will bring to many buildings, will solve existing operations and maintenance challenges—all while reducing energy costs. The project also further establishes SUNY as one of the largest New York State entities to take steps to reduce GHG emissions. Furthermore, as many students recognize climate change as an existential threat, such master plans also can be considered a recruitment tool.

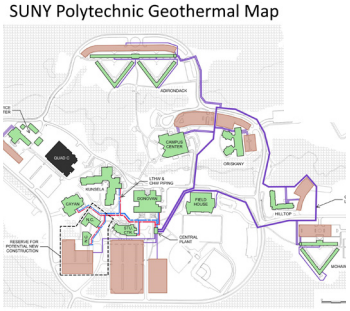
SUNY Canton Geothermal Map



SUNY Potsdam Geothermal Map



SUNY Polytechnic Geothermal Map



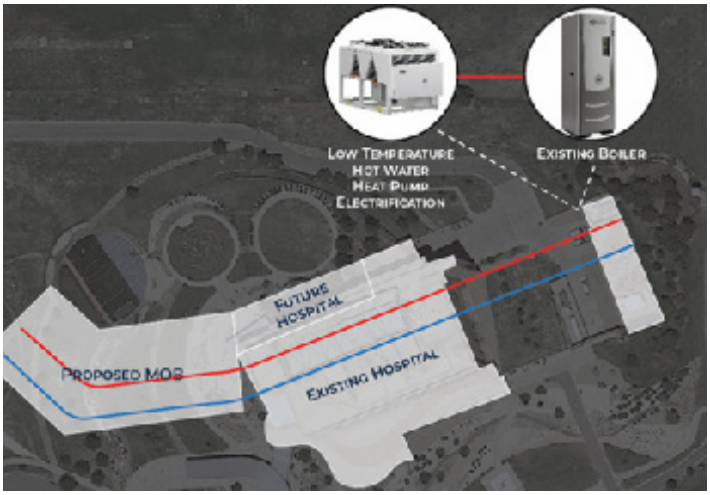
| | |
|---|---|
| **Size** | 101 buildings over four campuses |
| **Completion** | 2023 |
| **Services** | Energy Analysis, Energy Modeling, Clean Energy Master Planning |
| **Awards** | ACEC New York Platinum Award, 2024 |
| **Reference** | Nathan Carr, Associate Director of Physical Plant, SUNY Potsdam: carrng@potsdam.edu; 315.267.2508 |

# Section 4 | Commendations & References

# Children's Hospital Colorado (CHC)
## Building Performance Services

Aurora, CO




### BUILDING PERFORMANCE OPTIMIZATION AND DECARBONIATION PLAN

**The project:** Portfolio and campus decarbonization planning for four hospital campuses for Children's Hospital Colorado

**The goals:** Collaborate with Children's Colorado on the campus expansion vision, which included:

- Incorporate the portfolio-wide decarbonization goals in the planning of a new outpatient addition
- Maximize reimbursement by achieving required EnergyStar scores and align the campus with pending state and industry carbon regulation
- Determine if the energy savings from the hospital could completely cover the energy use of the new outpatient facility
- Expand the campus utility plant to serve both buildings and establish a pathway to switch it from natural gas to an all electric system in the future
- Possible offsetting from solar PV on the site to help the campus achieve its carbon-neutral goal

**Design approach**: IMEG worked with Children's Colorado to develop a decarbonization plan that met their goals for the campus expansion. IMEG provided energy performance monitoring for the Children's Colorado portfolio and identified many potential areas for energy improvement.

**The outcome:** IMEG provided benchmarking for the existing site, sizing new systems for the outpatient facility, and analyzing costs and payback for different options.

| | |
|---|---|
| **Size** | Varied - 4 campuses |
| **Cost** | N/A |
| **Completion** | 2023 |
| **Service** | Energy Modeling, Commissioning |
| **Reference** | Kathy Hurley<br>Director of Facility Operations<br>T: 720.777.2793<br>E: kathy.hurley@childrenscolorado.org |

# Section 4 | Commendations & References

# State University of New York
## Net Zero Portfolio

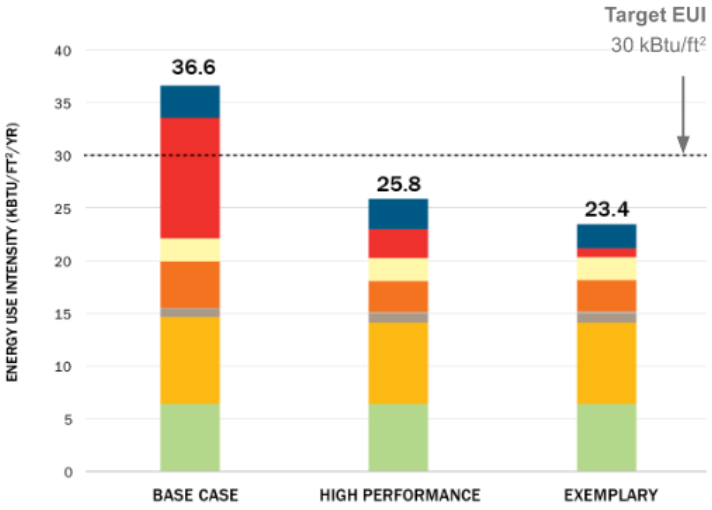
Various SUNY Campuses, NY

### ZERO CARBON ASSESSMENT GUIDELINES

**The project:** Provide consulting services to SUNY and SUCF with support from NYSERDA to establish strategies and protocols for achieving net zero design and construction for new buildings and energy and carbon emissions savings throughout the huge SUNY portfolio of existing buildings.

**Design approach:** Following a goal setting workshop, a net zero carbon assessment and gap analysis was performed, with a review of existing SUCF design directives. IMEG helped rewrite Directive 1B-2 for Net Zero Carbon New Buildings and Deep Energy Retrofits of Existing Buildings.

**Project outcome:** The main deliverable for the project was an Energy Efficiency Design Guide for Net Zero Carbon Buildings and Deep Energy Retrofits authored by Atelier Ten, New Buildings Institute and IMEG (as Pathfinder Engineers). The Guide is a resource used by project teams to achieve energy and emissions savings, demonstrated primarily through achievement of a target energy use intensity (EUI) determined by project building space types. IMEG used its extensive library of existing university energy models to provide guidance on energy efficiency measures, providing examples of measure packages for achieving exemplary energy performance for offices, classrooms, laboratories and student union projects.




| | |
|---|---|
| **Size** | 64 campuses with 2800 buildings |
| **Completion** | 2021 |
| **Services** | Sustainability Consulting and Energy Modeling |
| **Reference** | Matt Moore, Director of Engineering<br>State University of New York<br>H. Carl McCall SUNY Building<br>353 Broadway, Albany, NY 12246<br>T: 518-320-1736<br>M: 518-275-5465<br>E: Matthew.Moore@suny.edu |

# Section 4 | Commendations & References

# Washington University
## Energy Master Planning

St. Louis, MO

### ENERGY MASTER PLANNING

Since 2016, IMEG has facilitated the development and implementation of building performance optimization for 32 projects at 17 facilities at Washington University in St. Louis, MO. IMEG also supported the development and implementation of an energy management plan for the Danforth campus of Washington University in St. Louis, MO. IMEG developed a plan to identify, implement, measure, and verify energy efficiency and continuous facility optimization in accordance with ISO 500001. The University includes 114 buildings totaling over 11 million square feet. Since 2010, Washington University has reduced its carbon emissions by 28%, even as the University's gross square footage has grown by 14%.

Services have included commissioning, retro-commissioning, monitoring-based commissioning, and utility analytics on various buildings. The outcome is to optimize building performance and achieve the campuses overall energy savings and sustainability goals. Projects have included: South Campus Housing Net Zero Master Plan Assess energy performance of existing campus residential facilities and explored paths to achieve zero carbon operations. This includes assessment of VRF, geothermal, campus utilities, and additional options.

**Commissioning:**
- East End M & V: 206,000-sf
- McKelvey Hall: 81,000-sf

**Retro-Commissioning:**
- Anheuser-Busch Hall: 183,000-sf
- Danforth University Center: 112,000-sf
- Rudolph Hall: 163,000-sf
- Simon Hall: 140,000-sf
- South 40 House/Eliot B House/College Hall: 250,000-sf

**Monitoring-Based Commissioning and Utility Analytics:**
- McMillen Laboratory: 58,000-sf
- Danforth University Center: 112,000-sf
- Brauer Hall: 134,000-sf
- Green Hall: 89,000-sf
- Rudolph Hall: 163,000-sf

Non-energy benefits included operation and maintenance savings and increased occupant comfort, health, and productivity. (Each has been shown to be equal in value to annual energy savings.)



| | |
|---|---|
| **Size** | 11,000,000+ -sf |
| **Cost** | N/A |
| **Duration** | 2016 - Present |
| **Services** | Energy Planning, Implementation Support, and Monitoring and Analytics |
| **Reference** | David Baca<br>Manager of Utility Operations<br>Washington University<br>P: 314.935.5341<br>E: david.baca@wustl.edu |

# Section 4 | Commendations & References

SAUNDERS

Littleton
ANYTHING BUT LITTLE

**Public Works & Utilities Department**
2255 West Berry Avenue
Littleton, Colorado 80120
303-795-3863 • Fax 303-795-3856

26 March 2021

To whom it may concern:

It my personal honor and privilege to recommend the broad range of construction services provided by Saunders Construction Inc. (SCI). The City of Littleton has been working with SCI over the last year and half on a multi-phase renovation project of older City facilities. SCI was chosen as the Construction Management/General Contractor from an impressive field of significant bidders. SCI was awarded the contract, in part, because of positive past experience with the company. They also successfully demonstrated the resume, resources and track record that creates successful projects.

SCI has proven, and continues to prove, that the City of Littleton made a wise choice. The projects, processes, and financing that we put on their table have not been easy. SCI has responded with acute professionalism, flexibility, and quality. Their cost estimating and project management have been exemplary, keeping the projects on budget and on schedule. Their ability to marshal sub-contractors and other resources has proven to be admirable and their on-site presence is orderly and respectful.

The specific team from SCI assigned to the City of Littleton projects is a remarkable group of professionals with capabilities exceeding expectations. Brian Rankin, Laurie Dehaan, Brandon Becera, and Davis Miller integrated with all team members from the City and the design group cohesively and very effectively. We are looking forward to continuing to work with this group as project phases progress.

Sincerely,

Alan H. Brown

Alan H Brown, CFM, CPFP
City of Littleton, Public Works
Fleet and Facility Manager

SECTION 5

# FEE PROPOSAL

IMEG
The FUTURE. Built Smarter.

City of Louisville
COLORADO • SINCE 1878

**CITY OF LOUISVILLE**
**Internal Decarbonization Project – Electrification/Energy Efficiencies (E/EE)**

## Pricing & Information

1. Check the correct boxes according to the scope and fee included in your Proposal and provide the lump sum cost for each phase:

☐ Phase 1 – Electrical Load Evaluation Only:

Phase 1 Cost: $_____

☐ Phase 2 – Electrification/Energy Efficiency Implementation Only

Phase 2 Cost: $_____

☒ Phases 1 and 2:

Phase 1 Cost: $ 231,000

Phase 2 Cost: $ 350,000 - $465,000*:

**Assumes a $5.8M construction cost and that IMEG was the consultant for Phase 1.*

2. Provide the proposed Project start and completion dates or timeline, as applicable:

Phase 1 – Electrical Load Evaluation

Start Date: November 3,2025 End Date: May 1, 2026

Phase 2 – Electrification/Energy Efficiency Implementation

Start Date: June 1, 2026 End Date: March 1, 2027

3. Details that are relevant to the Proposal and completion of the Project (may be attached separately):

See rates tables included in Appendix.

Final project duration details may be adjusted to the requirements of the City of Louisville.

An hourly task breakdown has been developed for Phase 1 and can be shared as needed.

4. Additional Documents – The following documents are attached to and made a condition of this Proposal:

a) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Proposal, ***IMEG is proposing with sub-contractors, rather than with a partnership.***
b) Anti-Collusion Affidavit,
c) If Proposer is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

5. Communications concerning this proposal shall be addressed to:

The address of Proposer indicated below.

IMEG Consultants Corp. 'IMEG'

7600 E. Orchard Road, Suite 250-S

Greenwood Village, CO 80111

**SUBMITTED on** September 12 **, 2025.**

## SCHEDULE OF SUBCONTRACTORS

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

This Bid is based on subcontracting certain portions of the work to subcontractors as listed below.

Name: Davis Partnership Architects Telephone No. 303-861-8555
Address: 2901 Blake Street, Suite 100
City: Denver State: CO Zip Code: 80205
Services/equipment to be provided: Architecture/Interiors

Name: Saunders Telephone No. 303-699-9000
Address: 86 Inverness Place North
City: Centennial State: CO Zip Code: 80112
Services/equipment to be provided: Cost Estimating

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

## ANTI-COLLUSION AFFIDAVIT

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a BIDDER or potential prime BIDDER.
2A. Neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a BIDDER or potential prime BIDDER on this project, and will not be so disclosed prior to bid opening.
2B. Neither the prices nor the amount of the Bid of any other firm or person who is a BIDDER or potential prime BIDDER on this project have been disclosed to me or my firm.
3A. No attempt has been made to solicit, cause or induce any firm or person who is BIDDER or potential prime BIDDER to refrain from bidding on this project, or to submit a Bid higher than the Bid of this firm, or any intentionally high or noncompetitive Bid or other form of complementary Bid.
3B. No agreement has been promised or solicited for any other firm or person who is a BIDDER or potential prime BIDDER on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.
4. The Bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.
5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.
6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.
7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.
8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the OWNER of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

| CONTRACTOR'S FIRM OR COMPANY NAME | | SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE) | |
|---|---|---|---|
| **IMEG Consultants Corp. 'IMEG'** | | | |
| BY: | Ken A. Urbanek, PE, LEED AP, ASHRAE HBDP | BY: | |
| TITLE: | Senior Principal / Client Executive | TITLE: | |
| DATE: | September 11, 2025 | DATE: | |

SWORN BEFORE ME THIS 11th DAY OF, SEPTEMBER, 2025

NOTARY PUBLIC: Julie A Campos MY COMMISSION EXPIRES: 10-10-2027

JULIE A. CAMPOS
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20074038125
MY COMMISSION EXPIRES OCTOBER 10, 2027

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

If PROPOSER is:

**An Individual**

By _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

_____

Phone No.: _____

**A Partnership**

By _____ (SEAL)
(Individual's Name)

_____
(General Partner)

Business address: _____

_____

Phone No.: _____

**A Corporation**

By IMEG Consultants Corp. 'IMEG' - State of New York
(Corporation Name, State of Incorporation)

By Ken A. Urbanek, PE, LEED AP, ASHRAE HBDP
(Name of person authorized to sign)

Senior Principal / Client Executive
(Title)

(CORPORATE SEAL)




Attest Karen Guest
(Secretary)

Business address: 7600 E. Orchard Road, Suite 250-S

Greenwood Village, CO 80111

Phone No.: 303.796.6000

Date of Qualification to do business: 2/16/1910

**A Joint Venture**

By _____
(Name)

_____
(Address)

By _____
(Name)

_____
(Address)

Phone Number and Address for receipt of official communications:

(Each joint venture partner must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

# APPENDIX

IMEG
The FUTURE. Built Smarter.

# HOURLY RATES

IMEG
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# Appendix | Hourly Rates

| IMEG STANDARD HOURLY RATES - 2025 | |
|---|---|
| **Discipline/Service:** Structural, MEP, Technology, Medical Equipment Planning, Commissioning | |
| **Role** | **Rate** |
| Senior Client Exec/Senior Market Director/VP | $310 |
| Client Executive/Market Director | $285 |
| Project Executive | $265 |
| Senior Project Manager 2 | $240 |
| Senior Project Manager I | $220 |
| Engineer of Distinction | $250 |
| Senior (Engineer/Planner/Consultant) 3 | $235 |
| Senior (Engineer/Planner/Consultant) 2 | $205 |
| Senior (Engineer/Planner/Consultant) 1 | $190 |
| Project (Engineer/Consultant) 2 | $170 |
| Project (Engineer/Consultant) 1 | $155 |
| Graduate (Designer/Consultant/Planner/Authority/Analyst) 2 | $135 |
| Graduate (Designer/Consultant/Planner/Authority/Analyst) 1 | $120 |
| Designer of Distinction | $215 |
| Senior (Designer/Authority) 3 | $195 |
| Senior (Designer/Authority) 2 | $190 |
| Senior (Designer/Authority) 1 | $170 |
| Project (Designer/Authority) 2 | $155 |
| Project (Designer/Authority) 1 | $140 |
| Designer (Authority/Analyst) 2 | $125 |
| Designer (Authority/Analyst) 1 | $115 |
| Design Technician 2 | $100 |
| Design Technician 1/Intern | $90 |
| Senior Construction Administrator | $190 |
| Construction Administrator | $155 |
| Senior Procurement Manager | $265 |
| Senior Procurement Specialist | $240 |
| Project Coordinator | $130 |
| Industrial Architect of Distinction | $205 |
| Senior Industrial Architect 3 | $195 |
| Senior Industrial Architect 2 | $185 |
| Senior Industrial Architect 1 | $165 |
| Project Industrial Architect 2 | $150 |
| Project Industrial Architect 1 | $140 |
| Senior Virtual Design Coordinator 2 | $145 |
| Senior Virtual Design Coordinator 1 | $135 |
| Virtual Design Coordinator 2 | $130 |
| Virtual Design Coordinator 1 | $115 |
| Virtual Design Technician | $100 |
| Administrative Assistant | $90 |

**Note:**

1. These rates are for staff located in the office providing the service. Staff based in one of IMEG's other offices may have different billing rates. These rates can be provided as requested

2. Rates are adjusted annually

**Reimbursables:**

- Postage and delivery charges
- Travel Expense: Automobile mileage will be invoiced at the IRS rate in effect at the time of travel. Travel expenses include mileage, tolls, parking fees, taxi, train, airfare, rental car, fuel, and other out of pocket travel related expenses
- Meals and lodging, when required to travel overnight
- Project-specific insurance coverage riders or amendments necessary to comply with required insurance requirements above current IMEG limits and conditions
- Reproduction costs for existing facility documents, and for one record set of contract document deliverables at each project phase/milestone when not provided to IMEG by the Client
- Reproduction and distribution costs associated with issuing contract documents
- Payment of plan review fees or other imposed governmental agency fees
- State/local filing and/or permit fees
- Necessary consultants as approved by Client

# Appendix | Hourly Rates

## 2025 Billing Rates

**Davis Partnership, P.C.**

**Standard Hourly Billing Rates**

DAVIS PARTNERSHIP ARCHITECTS

DENVER OFFICE
2901 Blake Street, Suite 100
Denver, CO 80205-2303
T 303.861.8555
F 303.861.3027

www.davispartnership.com

| Staff Type | Category | Billing Rate |
|---|---|---|
| 50 | Principal | $235 |
| 51 | Associate Principal | $225 |
| 52 | Senior Associate | $210 - $230 |
| 53 | Associate | $195 - $220 |
| 55 | Senior Architect | $165 - $210 |
| 56 | Architect | $125 - $170 |
| 69 | Senior Architectural Intern | $150 - $210 |
| 57 | Architectural Intern | $ 85 - $140 |
| 61 | Senior Landscape Architect | $160 - $190 |
| 62 | Landscape Architect | $105 - $180 |
| 63 | Landscape Architectural Intern | $ 85 - $130 |
| 65 | Senior Interior Designer | $160 - $190 |
| 66 | Interior Designer | $125 - $160 |
| 67 | Interior Design Intern | $ 90 - $135 |
| | BIM / Revit / FM | $130 - $215 |
| 74 | Accounting Staff | $120 - $160 |
| 75 | Administrative Staff | $ 75 - $100 |

**The rates are subject to change and shall be adjusted in accordance with the Architect's and Architect's consultants normal review practices**.

# Appendix | Hourly Rates

**EXHIBIT 1**
**LOUISVILLE DECARBONIZATION - 2025**
**DIRECT LABOR & INDIRECT COSTS**

SAUNDERS

## STAFF LABOR RATES

| | | | | | |
|---|---|---|---|---|---|
| Construction Manager* | $ | 203.11 | Sr. Preconstruction Manager* | $ | 181.94 |
| General Superintendent* | $ | 201.05 | Preconstruction Manager* | $ | 144.08 |
| Senior Superintendent* | $ | 186.03 | Senior Estimator* | $ | 125.43 |
| Project Superintendent 1* | $ | 152.40 | Lead Estimator | $ | 95.59 |
| Project Superintendent 2* | $ | 139.55 | Estimator | $ | 86.65 |
| Project Superintendent 3* | $ | 129.91 | MEP Coordinator* | $ | 133.57 |
| Assistant Superintendent | $ | 109.79 | Surveyor** | $ | 190.06 |
| Senior Project Manager* | $ | 167.85 | QA/QC Engineer* | $ | 139.99 |
| Project Manager 1* | $ | 142.14 | Integrated Services Coordinator* | $ | 138.64 |
| Project Manager 2* | $ | 128.39 | BIM / Design Coordinator | $ | 103.37 |
| Assistant Project Manager* | $ | 112.14 | Scheduling Engineer* | $ | 122.36 |
| Senior Engineer | $ | 104.73 | IT Tech Support | $ | 101.52 |
| Project Engineer 1 | $ | 96.08 | | | |
| Project Engineer 2 | $ | 86.43 | | | |
| Project Administrator | $ | 81.41 | | | |
| Project Accountant | $ | 83.19 | | | |

## CRAFT LABOR RATES

| | Standard | | Over Time | | Double Time | |
|---|---|---|---|---|---|---|
| Trade Superintendents* | $ | 96.40 | $ | 139.06 | $ | 181.72 |
| Carpenter Foreman | $ | 81.77 | $ | 122.65 | $ | 163.54 |
| Concrete Foreman | $ | 70.15 | $ | 105.23 | $ | 140.30 |
| Laborer Foreman | $ | 60.83 | $ | 91.25 | $ | 121.67 |
| Journeyman Carpenter | $ | 72.84 | $ | 109.26 | $ | 145.69 |
| Concrete Finisher | $ | 65.38 | $ | 98.07 | $ | 130.76 |
| Laborer | $ | 52.06 | $ | 78.08 | $ | 104.11 |
| Project Engineer Intern | $ | 50.00 | $ | 75.00 | $ | 100.00 |

## INDIRECT COSTS

| INDIRECT ITEM | MULTIPLIER |
|---|---|
| Safety Program | 0.295% of contract value |
| Commercial Insurance Program (includes general, excess, professional and environmental liability insurances) | 1.15% of contract value |
| Warranty | 0.20% of contract value |
| Project Management Software | 0.15% of contract value |
| Project Photo Documentation | $130 per $1,000,000 of contract per year |
| Subcontract Default Insurance Program | 1.40% of subcontract value |

Staff rates include $8.95/hr. for information technology software & equipment

Craft rates include small tools. Reference Exhibit 3

* Includes truck, vehicle, standard maintenance, vehicle allowance.

** Includes $60/hr. surveyors' equipment

Safety program rate includes: corporate and project safety programs, safety professional inspections and training, and standard personal protective equipment (PPE).

Rates include base salary, merit bonus/deferred compensation plan, payroll taxes, workers compensation insurance, and fringe benefits, including medical, dental, vision, life, disability, retirement, and paid time off. All premiums for required insurance will be without consideration of future surcharges or rebates.

All rates subject to increase annually. The Owner hereby agrees that these stipulated rates are accepted as actual cost incurred and paid by the Construction Manager/General Contractor.

The information contained in this document, and any attachments thereto, is considered confidential commercial, financial and trade secret information. This information is protected from disclosure under Colorado law including, but not limited to, exemptions provided under the Colorado Open Records Act, C.R.S. §§ 24-72-201 et. seq.

# RESUMES

IMEG
The FUTURE. Built Smarter.

# Appendix | Resumes



## Ken Urbanek, PE, LEED AP, HBDP

Client Executive / Project Principal - Key Contact

Ken is the Client Executive that leads IMEG's Denver Office where he is responsible for ensuring project success of all projects going through the Denver Office. Ken will lead IMEG's multi-discipline team and be the main point of contact for IMEG. Ken has a broad design and construction background that has been focused on high performance sustainable building design. His specific expertise includes, but is not limited to, multi-discipline project management, central utility plants, campus distribution systems, radiant cooling systems, chilled beams, under-floor air distribution, optimized variable air systems, variable refrigerant flow systems, smoke control systems, and black/grey water systems.

### Project Highlights

- Denver Water, Denver, CO, 36-acre Campus-Wide Redevelopment Including 186,000-sf. New "One Water" Administration Building (LEED Platinum, Net-Zero Energy), 15,400-sf New 3-Stones Building (LEED Gold), 7,400-sf New Wellness Building (LEED Gold) and 155,000-sf Parking Structure Renovation
- City of Aspen, CO
  - 37,000-sf New City Hall, Pursuing LEED Gold and WELL Silver
  - 18,515-sf New City of Aspen Police Department and Affordable Housing Complex, LEED Silver and WELL Silver
  - Remodel of City of Aspen Old Powerhouse into Office Building
- City of Loveland, CO, New Municipal Service Center
- City of Greenwood Village, CO, New Maintenance Center
- Converse County Commissioners, Douglas, WY, New 40,000-sf Two-story Courthouse
- City of Fort Collins, CO, Utility Administration Building, LEED Platinum
- Colorado Department of Transportation, Denver, CO, Headquarters Building and Parking Structure, LEED Certified
- Golden Mill, Golden, CO, Historical Renovation
- City & County of Denver, CO
  - Denver Police Department Detectives Systems Upgrade
  - City Hall, Courtroom Renovations, Pro Se Relocation
  - Lindsey Flannigan Courthouse Renovations
  - Denver Department of Human Services, LEED Gold
  - Public Works Department Central Platte Campus, LEED Gold
  - Red Rocks Park and Amphitheatre, Restroom Renovations and Loading Facility
  - Rosedale Maintenance Facility
  - Blair Caldwell Library Renovation
- Town of Silverthorne, CO, Town Hall Police and Administration Renovation

**Experience**
22 Total, 21 with IMEG

**Education**
University of Wyoming, BS Architectural Engineering

**Registrations**
Professional Engineer
California (37185), Colorado (PE.0041803), Connecticut (PEN.0030192), Illinois (062.067228), Kansas (PE24278), Maine (PE13969), Minnesota (52437), North Carolina (42253), Ohio (PE.79868), Oregon (89788PE), Pennsylvania (PE081661), Tennessee (118568), Texas (PE119719), West Virginia (21521), Wyoming (PE 14585)

**Accreditations**
LEED Accredited Professional
High Performance Building Design Professional

**Affiliations**
ASHRAE
ASPE

**Awards**
Denver Water Campus Headquarters Redevelopment, Denver, CO
- 2021 BD+C's Building Team Awards - Platinum
- 2021 ACEC Engineering Excellence Grand Conceptor Award
- 2021 ACEC National Engineering Excellence Grand Award

# Appendix | Resumes



## Chris Edward, PE

Project Manager

Chris is the principal and client executive of IMEG's Sustainability and Energy Team. This is a nationwide group of engineers and consultants providing energy-focused services for IMEG's clients.

Chris leads his team in its mission to support all of IMEG in sustainability, energy, and carbon analysis and to provide a hub of expertise for large-scale and energy-focused design projects. He is an electrical engineer, actively designing renewable energy and advanced power generation systems. He has spent his entire career at IMEG.

### Project Highlights

- Kairos Hermes, Oak Ridge, TN, Phase 1 Reactor and Campus Utilities Design and Implementation of the MEP and Fire Protection Design for Main Building Structures
- Sweetwater Ranch, Gypsum, CO, 2,460-acre Master Plan and Design for the Development of Ranch Into a Private Retreat with Several Structures and Amenities
- Caterpillar, Inc., Pontiac, IL, Design for Distributed Power Generation System and Coordination of the Utility Interconnection Process for Adding Solar and CHP to Existing Manufacturing Plant
- NSF Summit Station, Avannaata, Greenland, Modernization and Recapitalization for an Off-Grid Science Research Complex and Designed to be Net-Zero
- Butler University, Indianapolis, IN, 300-acre Campus-wide Electrical Infrastructure Replacement for Full Campus Medium-Voltage Power System
- Ball Arena, Denver, CO, Ball Arena and Training Center Expansion Concept Design
- Cummins Inc., Worldwide, Global Building Performance Standards to Address Sustainability, Materials and Resources, Indoor Environmental Quality, Construction, and Operations to Best Multiple Industry Standards, LEED, ASHRAE 189.1, etc. and Drive Future Decarbonization Projects
- Children's Hospital of Colorado, Aurora, CO, Energy Master Plan for Optimization of Campus Energy Systems and Future Decarbonization Capital Projects
- Portland Foreside, Portland, ME, Central Utility Plant Design for a 800,000-sf Commercial, Residential, and Hospitality Development

**Experience**
15 Total, 15 with IMEG

**Education**
Purdue University, BS Electrical Engineering
St. Ambrose University, MBA

**Registrations**
Professional Engineer
Indiana (PE11400159)
Michigan (6201066935)

**Affiliations**
ISHE

**Presentations & Publications**
Consulting-Specifying Engineer, Contributing Author

**Awards**
2022 USGBC Indiana Green Building of the Year for New Construction, Ball State University Health Professional Building
ENR Midwest Best Projects - Building and Expansion - Columbus Regional Hospital, 2016

# Appendix | Resumes



## Nathan Miller, PE, CEM, LEED AP BD+C

Senior Energy Engineer

Nathan has been a pillar of IMEG's energy team for over 21 years, with expertise in natural ventilation and energy modeling and an inherent talent for communicating complex concepts and systems in an easily understandable, straightforward manner. Nathan was the mechanical engineer and energy analyst on the first Living Building Challenge v2.0 project to be designed, built, and certified in Washington State and the first v2.0 project to be built in an urban setting globally. He specializes in quantifying cost and energy-saving strategies and establishing energy benchmarks to measure their feasibility of achievement. Nathan is serving on the Technical Advisory Group responsible for developing the 2024 Washington State Energy Code Commercial Provisions. Previously, he has served as Chair of the Cascadia Green Building Council Seattle Branch.

### Project Highlights

- 121 Boren, Seattle, WA, 41-Story Apartment Tower Including 432-units and Decarbonization Approach for Central Plant Heat-Recovery Scheme
- 606 Bellevue, Seattle, WA, Three-Tower Mixed-Use High-Rise Development Including Electrification and Decarbonization Analysis
- AvalonBay Bothell Commons (Phase II), Bothell, WA, 7-Story, 339-unit Apartment Building Including 642 Parking Stalls, 35 Street Parking Stalls, and 200 Bike Racks, pursuing LEED Certification
- AvalonBay Bothell Commons Townhomes, Bothell, WA, Six Individual Buildings
- Bellevue Center, WA, New 24-Story Office Building With Six Levels of Below-Grade Parking
- Bertschi School, Seattle, WA, One-Story Science Wing Classroom Addition With Net Zero Water Use Solution, Energy Efficient Lighting System, Natural Daylighting, and More
- Four 106, Seattle, WA, 485,000-sf, 21-Story Office Building With Eight Levels Below-Grade, pursuing LEED Silver
- Jamestown S'Klallam Natural Resources Building, Sequim, WA, Two-Story, 5,000-sf Office and Lab Incorporating Energy Efficient Designs
- Merrill Gardens, Rancho Mission Viejo, CA, New Three-building, Four-Story Senior Living Complex Including 416-units
- King County, Newcastle, WA, New 11,000-sf, Two-story Newcastle Library
- Sound Transit, Lynnwood, WA, New Lynnwood Link Station and Garage Extension
- Sound Transit, Redmond, WA, New Two-station Downtown Redmond Link Light Rail Addition and Five-story Garage, pursuing LEED Gold
- 450 Alaskan, Seattle, WA, New 165,000-sf, Nine-story Office Building, LEED Gold

**Experience**
21 Total, 21 with IMEG

**Education**
University of Washington, BS Mechanical Engineering

**Registrations**
Professional Engineer
California (M33937)
Maine (13707)
Washington (45089)
CEM
CPHC (3279)
LEED AP BD+C

**Affiliations**
Cascadia Region Green Building Council
United States Green Building Council (USGBC)
American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
International Building Performance Simulation Association (IBPSA)
Association of Energy Engineers

# Appendix | Resumes



## William Bishop, PE, CEM, LEED AP, BEMP, BEAP

Senior Energy Engineer

Bill is a Senior Energy Engineer and leads a dedicated team of Sustainability & Energy engineers at IMEG's Rochester office. He serves as a project engineer for energy master planning, comprehensive energy audits, NYSERDA programs and studies featuring building energy simulation. He is a passionate advocate for sustainable principles and has given dozens of presentations on decarbonization, electrification, energy master planning, climate change science and mitigation. He helped complete the Energy Efficiency Design Guide for the SUNY Net Zero Portfolio project, and recently added ASHRAE Certified Decarbonization Professional (CDP) to his credentials.

### Project Highlights

- SUNY Alfred, Alfred, NY, MacKenzie Hall Energy Modeling for the Renovation of this 74,5880-sf Building, which Houses 1,100 students in Four Wings and a Central Quad
- SUNY Fredonia, Fredonia, NY, Houghton Hall NYSERDA and LEED Modeling for a Gut Renovation of a 73,900-sf Historic Building Featuring Research and Teaching Labs for Physics, Geology, and Computer/Electronics
- SUNY New Paltz, New Paltz, NY, Mohonk Hall LEED Energy Modeling and NYSERDA Technical Support for the Renovation of Mohonk Hall, Including the Addition of a New Fourth floor. The Residence Hall Project is 60,000-sf with a Site Energy Target of 50 EUI
- Cortland County, NY - Highway Department, Cortland, NY, New Ground Source Geothermal Heating and Cooling System For County Courthouse
- Department of Citywide Administrative Services DCAS - New York, New York City, NY, Energy Related Technical Services On-Call
- Division of Military and Naval Affairs (DMNA), Rochester, NY, Energy Resiliency Study
- Binghamton University, Binghamton, NY
  - Nuthatch Hollow Energy Modeling for Net Zero (Net Positive) Energy Design, Living Building Challenge, and Passive House Certifications for a New Building at the Campus' Nature Preserve
  - Smart Energy R&D NYSERDA Modeling for a New 116,000-sf Research Building with State-of-the-art Laboratory Spaces for the Chemistry and Physics Departments
- Binghamton University, Vestal, NY, Nuthatch Hollow Energy Modeling and Design Services for a Net Zero Academic Building, Designed to Achieve Passive House and Living Building Challenge Certifications

**Experience**
21 Total, 19 with IMEG

**Education**
University of Florida, BS Mechanical Engineering

**Registrations**
Professional Engineer
New York (088183)

**Affiliations**
American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
American Society of Mechanical Engineers

# Appendix | Resumes



## Stephanie Gerakos-Rooker, PE, LEED AP, CGD

Mechanical Engineer

Stephanie has extensive knowledge of mechanical systems, energy modeling, and load calculations including a unique breadth of experience in HVAC system design and construction. Stephanie's background includes new and retrofit energy efficient HVAC systems for various different project types. Stephanie has significant net zero solutions, and project and client management experience. Stephanie combines her sustainability experience with deliberate, energy-saving solutions that provide long-term value to owners, while maintaining occupant comfort. Stephanie's mechanical engineering experience for building systems includes HVAC, boiler plants, chiller plants, plumbing and fire protection systems. Stephanie is exceptionally skilled in applying required building codes, including LEED standards, and preparing project specifications and construction documents.

### Project Highlights

- Denver Water, Denver, CO, 36-acre Campus-wide Redevelopment Including 186,000-sf. New "One Water" Administration Building (LEED Platinum, Net-Zero Energy), 15,400-sf New 3-Stones Building (LEED Gold), 7,400-sf New Wellness Building (LEED Gold) and 155,000-sf Parking Structure Renovation
- Colorado Department of Transportation, Denver, CO, 175,000-sf Five-Story New Headquarters, LEED Gold
- City and County of Denver, CO
  - Garner Galleria Remodel, Including ADA Compliant Family Restroom, Ticket Booth Improvement, and Office/Usher Staging Area Renovation
  - Boettcher Concert Hall Renovation
- City of Aspen, CO
  - Aspen City Offices Schematic Evaluation, Including Daylight
  - 18,515-sf New City of Aspen Police Department and Affordable Housing Complex, LEED Silver and WELL Silver
  - Daycare Boiler Analysis
  - Data Center Cooling System Replacement
  - Open Office 1210 FPVAV Addition
- City of Cheyenne, WY, Civic Center Conceptual Design
- City of Greeley, CO, Union Colony Civic Center Master Plan
- Converse County Commissioners, Douglas, WY, New 2-Story 40,000-sf Courthouse
- Denver Center for the Performing Arts, Denver, CO
  - Bonfils Escalator Addition
  - Life Safety Upgrades - 2022-2023
  - MEP System Assessment
  - Paint Booth Renovation
  - Performing Arts Oven Hood Upgrade
- Wheeler Opera House, Aspen, CO, Opera House Electrical Service Upgrade

**Experience**
19 Total, 9 with IMEG

**Education**
University of Kentucky, BA Mechanical Engineering

**Registrations**
Professional Engineer
Florida (79142)
Kentucky (29449)

**Accreditations**
Certified Geothermal Designer
LEED Accredited Professional

**Affiliations**
ASHRAE

# Appendix | Resumes



## Carrie Burgardt, PE

Senior Electrical Engineer

As a Senior Electrical Engineer, Carrie is responsible for all design phases of a project which includes designing and presenting multiple solutions in the preliminary design phases of projects to provide effective electrical system solutions within a set budget for our clients, implementing and coordinating the design for construction documents and working with the contractors and owners during the construction phase to deliver a completed project that will meet or exceed owner expectations.

**Experience**
24 Total, 13 with IMEG

**Education**
Kansas State University, BS Architectural Engineering

**Registrations**
Professional Engineer
Colorado (PE.0043199)

### Project Highlights

- Denver Water, Denver, CO, 36-acre Campus-wide Redevelopment Including 186,000-sf. New "One Water" Administration Building (LEED Platinum, Net-Zero Energy), 15,400-sf New 3-Stones Building (LEED Gold), 7,400-sf New Wellness Building (LEED Gold) and 155,000-sf Parking Structure Renovation
- Carbondale Fire Department, Marble, CO, Radio Tower Ground System at Fire Station No.83
- City and County of Denver, CO
  - 4,800-sf New Steel Building and renovation of existing steel building
  - Garner Galleria Remodel, Including ADA Compliant Family Restroom, Ticket Booth Improvement, and Office/Usher Staging Area Renovation
- City of Aspen, CO
  - Aspen City Offices Schematic Evaluation, Including Daylight
  - Daycare Boiler Analysis
  - Data Center Cooling System Replacement
  - Open Office 1210 FPVAV Addition
- City of Golden, CO,
  - 59,000-sf New Heart of Golden Municipal Facility
  - Feasibility Study
- Denver Center for the Performing Arts, Denver, CO
  - Life Safety Upgrades (2022)
  - Theater of the Mind One-Line Diagram
  - MEP System Assessment
  - Life Safety Upgrades - 2023
  - Escalator Addition
  - Paint Booth Renovation
- Jefferson County Facilities and Construction Management Division, Arvada, CO, Boiler Replacement
- Jefferson County, CO, Lakewood, CO, Boiler Replacement
- Tabor Opera House Preservation Foundation, Leadville, CO, Electrical Service Upgrades
- Wheeler Opera House, Aspen, CO, Electrical Service Upgrades

# Appendix | Resumes



## James Ness, PE

Structural Engineer

Jim provides complete project management services including preliminary design, construction documentation, and construction administration. Projects include remodeling of existing facilities, police facilities, municipal maintenance buildings, fire stations, and modifications to existing facilities. Jim has experience working on projects that require the extra attention to structures subjected to extensive wear and tear.

### Project Highlights

- City of Aurora, CO, Combined Fire Station/Police Station/Community Center
- City of Englewood, CO, Little Dry Creek Drainageway and Culverts
- City of Garden City, KS, 0.5 MG Water Tank
- City of Golden, CO, Wastewater Treatment Plant Expansion
- City of Greenwood Village, CO, Combined Fire Station/Police Station/ Community Center
- City of Lake Creek, CO, 0.5 MG Water Tank
- City of Lincoln, NE, Wastewater Treatment Plant Expansion
- City of Littleton, CO, County Clerk and Recorder Remodel
- City of Littleton, CO, County Clerk Recorder Loading Dock Expansion
- City of Rifle, CO, Fire Station
- City of Superior, CO, Wastewater Treatment Plant
- City of Thornton, CO, Fire Station
- Comcast, Colorado Locations, Generator Enclosures in Denver, Centennial, Loveland, CO
- Arapahoe County, CO, Generator Enclosure
- Arapahoe County, CO, Sheriff Administration Gate Slab Renovation
- Arapahoe County, CO, Sheriff's Precinct #5 Substation Remodel
- Arapahoe County, CO, Detention Center Conference Center Expansion
- Arapahoe County, CO, Salt Shed Building
- Raytheon Corporation, Aurora, CO, Generator Enclosure

**Experience**
41 Total, 31 with IMEG

**Education**
University of Colorado at Denver, MS Structural Engineering

South Dakota School of Mines and Technology, BS Civil Engineering

**Registrations**
Professional Engineer

Colorado (26120)

**Affiliations**
SEAC

AISC

Tilt-Up Concrete Association

# Appendix | Resumes

SAUNDERS



## Curtis Underwood
### Construction Manager

Curtis Underwood started his career in construction over 16 years ago, and joined Saunders in 2020 as a senior project manager. He has extensive experience building projects that include central utility plants and mechanical upgrades. He understands the importance of mechanical elements, with experience building critical healthcare, manufacturing and university facilities. Underwood is involved in beginning stages of preconstruction all the way through turnover – leading the project team and making sure the client receives a building they deserve.

### CAREER TENURE
Saunders Hire Date: January 2020
Construction Career Began: June 2008

### EDUCATION
B.S., Architectural Engineering,
Milwaukee School of Engineering

### CREDENTIALS
OSHA 30-Hour Certification

First Aid & CPR Certified

Impact Denver Leadership
Development Program Spring 2021

LEED Green Associate, 2014-2016

### REFERENCES
Ms. Elly Watson
City of Aurora Public Works
303.739.7109
elwatson@auroragov.org

Ms. Lori Hanson
Edios Architects
303.861.2982
LHanson@ediosarch.com

Mr. Nathan Kashmer
Exceed Electric
412.592.9242
nkashmer@exceedec.com

### SELECT PROJECT EXPERIENCE:

#### HEALTHCARE

| | |
|---|---|
| Sanford Fargo Medical Center | $396,000,000 |
| Mercy Replacement Hospital | $347,000,000 |
| Alegent Health Omaha Network Expansion - Multiple Campuses | $275,000,000 |
| Hennepin Healthcare Ambulatory Outpatient Surgery Center | $155,000,000 |
| Bassett Healthcare Campus Annual Work Contract - Multiple Projects | $32,000,000 |
| RiverView Health Expansion | $29,000,000 |

#### HIGHER EDUCATION

| | |
|---|---|
| University of California San Francisco Seismic Retrofit | $130,000,000 |

#### SPORT & RECREATION

| | |
|---|---|
| University of Minnesota Athletes Village | $137,000,000 |
| Indian Tree Golf Course Cart Barn | $3,300,000 |
| Castle Rock Recreation Center Pool & Slide Renovation | $2,487,000 |

#### LABORATORY

| | |
|---|---|
| Bioscience 4 | $50,000,000 |
| University of Minnesota Center for Magnetic Research | $10,000,000 |
| VF Corporation Lab | $9,779,000 |
| Idaho National Laboratory Irradiated Materials Characterization Lab | $7,000,000 |
| Land O' Lakes WinField Research United Wind Tunnel | $5,000,000 |
| Allosource Phase 5 Freezer and Clean Room Expansions | $3,500,000 |

#### OFFICE

| | |
|---|---|
| Jack Link's Minneapolis Operations Headquarters and Test Lab | $24,000,000 |
| VF Corporation Headquarters | $45,125,000 |
| Federal Reserve Bank Remodel | $12,470,000 |
| JP Plaza Office Building | $3,600,000 |
| DCP - ICC Relocation | $2,002,000 |
| Walnut Exterior Egress Stair | $992,500 |

# Appendix | Resumes

SAUNDERS



## Brian Rankin, LEED GA
### Construction Manager

Brian Rankin has been in construction since 2007, starting out as a laborer and intern, and has held subsequent roles in preconstruction, operations and business development. As construction manager for Saunders Express, he focuses on continuous improvement from project inception to completion. Maintaining close client interface, Rankin operates with the same philosophy, transparency and commitment that clients have come to expect from Saunders. His relationship-focused approach gives him the unique ability to motivate and manage the teams he is part of.

### CAREER TENURE
Saunders Hire Date: June 2010
Construction Career Began:
May 2007

### EDUCATION
B.S. in Construction Management,
Minor in Business Management,
Colorado State University

MBA, Regis University

### CREDENTIALS
LEED Green Associate

OSHA 10-Hour Certification

Associated General Contractors Future Leaders Forum, Past Member

ULI of Denver, Member

DDPLP Member & Impact Denver Alumnus

### REFERENCES
Mr. Greg Hawrylyshyn
Continuum Partners
303.573.0050
gregh@continuumpartners.com

Mr. Adam Hillhouse
SA+R
303.436.9551
ahillhouse@sararch.com

### SELECT PROJECT EXPERIENCE:

#### HEALTHCARE

| | |
|---|---|
| AdventHealth Littleton Heart & Vascular Tower Expansion | $99,000,000 |
| IMH Lutheran MOB | $28,870,000 |
| Castle Rock Adventist Hospital MOB | $23,022,000 |
| Cobalt Rehabilitation Hospital | $4,500,000 |
| SCL Health Lowry Primary Care Clinic | $2,303,000 |

#### TECHNOLOGY

| | |
|---|---|
| NCAR-WY Supercomputing Center - LEED Gold | $56,300,000 |
| NCAR-WY Supercomputing Center Module A Infrastructure | $5,200,000 |
| AlloSource Expansion | $6,770,000 |
| NCAR-WY Supercomputing Center 3 Fit Up | $2,649,800 |

#### EDUCATION

| | |
|---|---|
| Colorado State University Student Recreation Center Addition - LEED Gold | $28,000,000 |
| STEAD School Phase 2 & 3 | $13,440,000 |
| DCSD Nutrition Services Freezer Expansion | $5,000,000 |
| LPS Secured Vestibules | $2,538,000 |
| Sheridan High School Life Safety Upgrades | $840,000 |
| Alice Terry Elementary School Life Safety Upgrades | $800,000 |
| Jefferson County School District Irv Brown Media Addition | $700,000 |
| Valor Christian High School Culinary Classroom | $581,000 |
| Valor Christian High School Fencing | $528,000 |
| Johnson & Wales University Bakery & Pastry Lab Renovation | $360,400 |
| Johnson & Wales University Food Sciences Lab Renovation | $274,400 |

#### MUNICIPAL

| | |
|---|---|
| Adams County Coroner and Probation Facility Remodel | $7,294,000 |
| Adams County Government 5th Floor Renovation | $2,656,000 |
| Adams County Sheriff's Office | $2,600,000 |
| Littleton City Center | $1,200,000 |

# Appendix | Resumes

**Davis Partnership Architects**

## Joe Lear AIA, LEED AP

**Principal-in-Charge**



Joe is a Principal with over 30 years of experience and is known for his creativity, pragmatism, technical knowledge, and strong communication, ultimately resulting in thoughtful solutions for his clients. As co-leader of commercial practice of the firm, he has been instrumental in many of the most notable multi-family, office, affordable housing, and non-profit projects. Joe has also become recognized as a leader regionally in the design of public safety facilities that balance design, operational goals, and the needs of each community he serves. A former carpenter, Joe marries the art of architecture with the practicality of construction. His experience informs his approach, and he thrives on developing innovative solutions to challenges, engaged throughout the entire design process, and working with user groups throughout the life of the project. Additionally, Joe is also passionate about pushing the envelope on sustainability, resulting in projects that achieve more meaningful outcomes.

### Education

Master of Science in Architecture, with honors, University of Michigan

Master of Science in Urban Planning, University of Michigan

Bachelor of Science in Architecture, University of Michigan

General Studies, The Colorado College

### Registration

Licensed Architect: Colorado, Kansas, Montana, Nevada, New Mexico, Washington, Wyoming

National Council of Architectural Registration Boards (NCARB)

### Affiliations

American Institute of Architects (AIA)

US Green Building Council (USGBC) LEED Accredited Professional

ACE Mentor Program

### Representative Work

City of Boulder On Call Services, Waste Water Facilities

City of Boulder
Fire Station No.3
Boulder, Colorado
– 29,000 sf fire station
– 5,000 sf administration

Town of Avon
Town Hall Offices
Avon, Colorado
– 15,000 sf 3-story town hall & offices, LEED Silver
– Building fit out with flex space for town hall, court, offices, and rentable areas for future tenants

DHA Headquarters
alksdnalkd

Eagle River Fire Protection District, Fire Station 12, Admin. & Training Facility
Edwards, Colorado
– 16,835 sf fire station
– 2,381 sf integrated admin function
– 7,050 sf training facility

Town of Cordillera
Community Center Planning
Cordillera, Colorado

Town of Parker,
Town Hall Building
Parker, Colorado
– Offices and Council Chamber

Lockheed Martin
Gateway Center
Littleton, Colorado
– 266 ksf facility for production, engineering, testing & offices with 100k high bay clean room, thermal vacuum & anechoic chamber

National Renewable Energy Laboratory (NREL) - Research & Innovation Laboratory (RAIL)
Golden, Colorado
– 16,000 sf flexible laboratories

Mile High United Way
Morgridge Center for Community Change
Denver, Colorado
– New 63,000 sf office building & parking garage & LEED Silver

West Side Project
Greeley, Colorado
– 350-key hotel, 18,000 sf conference center, fitness center, restaurant, and rooftop bar
– 65,000 sf indoor water park with 10,000 sf arcade, food court, climbing feature, party rooms, pub, and beer garden
– Celebration plaza with water features and an amphitheater

City of Steamboat Springs
Fire Station & City Hall
Steamboat Springs, Colorado
– 17.5 ksf station with offices, dining/ kitchen, living, an app. bay for 8+ vehicles, fitness , training & community room
– Separate storage for bunker gear, SCBA, & equipment
– 10,000 sf City Hall


City of Steamboat Springs Fire Station No.1

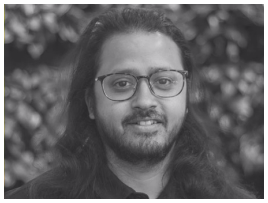

National Renewable Energy Laboratory (NREL) - Research & Innovation Laboratory (RAIL)

# Appendix | Resumes

**Davis Partnership Architects**

## Animish Kudalkar **ASSOCIATE AIA**

**Job Captain, Senior Architectural Staff**



Animish's breadth of architecture design collaborations with industry leaders includes innovative fire stations, office buildings, workplace environments, educational facilities & civic projects. His drive for design has led him to practice architecture in Mumbai, Seattle, Boston, Chicago & Denver. Animish is passionate about designing for the community with careful consideration how the built environment engages, impacts & educates its surroundings towards sustainable practices, technology, and unconventional ideas.

### Education

Master of Architecture,
University of Illinois Urbana Champaign

Bachelor of Architecture
University of Mumbai

### Registrations

Licensed Architect

### Association

American Institute of Architects - Associate (AIA)
ACE Mentor Program

### Representative Work

City of Boulder
Fire Station No.3
Boulder, Colorado
– 29,000 sf fire station
– 5,000 sf administration

City of Steamboat Springs
Fire Station & City Hall
Steamboat Springs, Colorado
– 17.5 ksf station with offices, dining/ kitchen, living, an app. bay for 8+ vehicles, fitness , training & community room
– Separate storage for bunker gear, SCBA, & equipment
– 10,000 sf City Hall

Abiomed Office Headquarters*
Danvers, MA
– $20M, 160,000 sf, manufacturing, R&D facility that is dedicated to develop some ground breaking technologies in healthcare.

California Military of Defense
Consolidated HQ Complex*
Rancho Cordova, California
– $135M, 285,000 sf, Net-zero office building that consolidated diverse military departments. LEED Gold.

Kirkland Parkplace*
Kirkland, WA
– $1B, 1.2M sf, Mixed use development with multiple office & hospitality buildings with commercial & retail on lover levels

Walgreens Old Post Office*
Chicago, IL
– $30M, 200,000 sf
Repurpose historic Post Office building floors to serve as Walgreens' technology hub and host 1,800 employees.

Paul G Allen Athletic Center*
Seattle, WA
– $14M, 22,000 sf, Renovates an outdated basketball facility on the historic Lakeside School campus.

Ascendigo Adventure Camp for people in the Autism spectrum*
Garfield County
– 24,000 sf, Educational facility designed for people on the Autism spectrum.
126+ acre rural property.

Bellarmine Preparatory
School Campus Center*
Tacoma, WA
– $12M, 17,000 sf, multi-purpose space that primarily functions as the cafeteria, but also accommodates large student functions at the heart of Bellarmine.

Colorado Mountain College HQ*
Glenwood Springs, CO
– $900k, 3,000 sf
Renovation of an existing bank space into a campus HQ welcoming center


City of Steamboat Springs City Hall


City of Boulder Fire Station No.3

* Prior to joining Davis Partnership Architects

# CERTIFICATES OF INSURANCE

IMEG
The FUTURE. Built Smarter.

# CERTIFICATE OF LIABILITY INSURANCE

2/1/2026

DATE (MM/DD/YYYY)
1/29/2025

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| | |
|---|---|
| **PRODUCER** Lockton Companies, LLC<br>444 W. 47th St., Ste. 900<br>Kansas City MO 64112-1906<br>(816) 960-9000<br>kcasu@lockton.com | **CONTACT NAME:**<br>**PHONE (A/C, No, Ext):** **FAX (A/C, No):**<br>**E-MAIL ADDRESS:** |
| **INSURED** 1460527<br>IMEG CONSULTANTS CORP.<br>623 26TH AVENUE<br>ROCK ISLAND IL 61201 | **INSURER(S) AFFORDING COVERAGE** — **NAIC #**<br>**INSURER A :** Liberty Insurance Corporation — 42404<br>**INSURER B :** Liberty Mutual Fire Insurance Company — 23035<br>**INSURER C :** Travelers Property Casualty Company of America — 25674<br>**INSURER D :** The First Liberty Insurance Corporation — 33588<br>**INSURER E :** Continental Casualty Company — 20443<br>**INSURER F :** |

**COVERAGES** **CERTIFICATE NUMBER:** 20691874 **REVISION NUMBER:** XXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X **COMMERCIAL GENERAL LIABILITY**<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>X POLICY PRO-JECT LOC<br>OTHER: | N | N | TB7-Z91-469988 | 2/1/2025 | 2/1/2026 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG<br>$ | $ 1,000,000<br>$ 1,000,000<br>$ 10,000<br>$ 1,000,000<br>$ 2,000,000<br>$ 2,000,000<br>$ |
| B | **AUTOMOBILE LIABILITY**<br>X ANY AUTO<br>OWNED AUTOS ONLY<br>HIRED AUTOS ONLY<br>SCHEDULED AUTOS<br>NON-OWNED AUTOS ONLY | N | N | AS2-Z91-469988 | 2/1/2025 | 2/1/2026 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident)<br>$ | $ 1,000,000<br>$ XXXXXXX<br>$ XXXXXXX<br>$ XXXXXXX<br>$ XXXXXXX |
| C | X **UMBRELLA LIAB** X OCCUR<br>**EXCESS LIAB** CLAIMS-MADE<br>DED RETENTION $ | N | N | CUP-0T461340 | 2/1/2025 | 2/1/2026 | EACH OCCURRENCE<br>AGGREGATE<br>$ | $ 10,000,000<br>$ 10,000,000<br>$ XXXXXXX |
| D | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY**<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **(Mandatory in NH)** Y / N: N<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | N | WC6-Z91-469988 | 2/1/2025 | 2/1/2026 | X PER STATUTE OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | $ 1,000,000<br>$ 1,000,000<br>$ 1,000,000 |
| E | PROFESSIONAL LIAB. / CONTR. POLL LIAB. | N | N | AEH591925822 | 2/1/2025 | 2/1/2026 | EACH CLAIM $10,000,000<br>AGGREGATE $10,000,000 | |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

**CERTIFICATE HOLDER**

**20691874**
EVIDENCE OF COVERAGE

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

Joseph M Agnello

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Client#: 2046948 DAVISPAR1

# ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 5/21/2025

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IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

| PRODUCER | CONTACT NAME: | |
|---|---|---|
| USI Insurance Services, LLC<br>4600 South Ulster Street<br>Denver, CO 80237<br>303 837-8500 | PHONE (A/C, No, Ext): 303 837-8500 | FAX (A/C, No): |
| | E-MAIL ADDRESS: den.certificate@usi.com | |

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : Hartford Casualty Insurance Company | 29424 |
| INSURER B : Hartford - WC Multiple Issuing Cos | 00914 |
| INSURER C : Lexington Insurance Company | 19437 |
| INSURER D : | |
| INSURER E : | |
| INSURER F : | |

INSURED
Davis Partnership P.C.
2901 Blake Street #100
Denver, CO 80205

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSR | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY | X | X | 34SBAIK2034 | 10/01/2024 | 10/01/2025 | EACH OCCURRENCE | $1,000,000 |
| | CLAIMS-MADE X OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $300,000 |
| | | | | | | | MED EXP (Any one person) | $10,000 |
| | | | | | | | PERSONAL & ADV INJURY | $1,000,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $2,000,000 |
| | POLICY X PRO-JECT LOC | | | | | | PRODUCTS - COMP/OP AGG | $2,000,000 |
| | OTHER: | | | | | | | $ |
| A | AUTOMOBILE LIABILITY | X | X | 34SBAIK2034 | 10/01/2024 | 10/01/2025 | COMBINED SINGLE LIMIT (Ea accident) | $1,000,000 |
| | ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| | OWNED AUTOS ONLY / SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | $ |
| | X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| A | X UMBRELLA LIAB X OCCUR | X | X | 34SBAIK2034 | 10/01/2024 | 10/01/2025 | EACH OCCURRENCE | $10,000,000 |
| | EXCESS LIAB CLAIMS-MADE | | | | | | AGGREGATE | $10,000,000 |
| | DED X RETENTION $10000 | | | | | | | $ |
| B | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N | | X | 34WEGBK6W3W | 10/01/2024 | 10/01/2025 | X PER STATUTE / OTH-ER | |
| | ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N | N / A | | | | | E.L. EACH ACCIDENT | $1,000,000 |
| | (Mandatory in NH) | | | | | | E.L. DISEASE - EA EMPLOYEE | $1,000,000 |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - POLICY LIMIT | $1,000,000 |
| C | Professional Liability Claims Made | | X | 015448992 | 05/22/2025 | 05/22/2026 | $5,000,000 per claim<br>$5,000,000 annl aggr. | |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

As required by written contract or written agreement, the following provisions apply subject to the policy terms, conditions, limitations and exclusions: The Certificate Holder and owner are included as Automatic Additional Insured's for ongoing and completed operations under General Liability; Designated Insured under Automobile Liability; and Additional Insureds under Umbrella / Excess Liability but only with respect to liability arising out of the Named Insured work performed on behalf of the certificate holder and owner.
(See Attached Descriptions)

**CERTIFICATE HOLDER**

For Informational Purposes Only
0

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



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# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 8/28/2025

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**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| | |
|---|---|
| **PRODUCER**<br>IMA, Inc. - Colorado<br>1705 17th Street, Suite 100<br>Denver CO 80202 | **CONTACT NAME:** IMA Certificate Team<br>**PHONE (A/C, No, Ext):** **FAX (A/C, No):**<br>**E-MAIL ADDRESS:** certificates@imacorp.com |
| **INSURED** SAUNCON-02<br>Saunders Construction, LLC<br>86 Inverness Place North<br>Englewood, CO 80112 | **INSURER(S) AFFORDING COVERAGE** — **NAIC #**<br>**INSURER A :** American Contractors Insurance Company Risk — 12300<br>**INSURER B :** The Cincinnati Insurance Company — 10677<br>**INSURER C :** The Continental Insurance Company — 35289<br>**INSURER D :** ACIG Insurance Company — 19984<br>**INSURER E :**<br>**INSURER F :** |

**COVERAGES** **CERTIFICATE NUMBER:** 1477956372 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X **COMMERCIAL GENERAL LIABILITY**<br>CLAIMS-MADE [X] OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>POLICY [X] PRO-JECT [ ] LOC<br>OTHER: | | | GL25A00055 | 6/1/2025 | 6/1/2026 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG<br> | $ 10,000,000<br>$ 100,000<br>$ 5,000<br>$ 10,000,000<br>$ 10,000,000<br>$ 10,000,000<br>$ |
| B | **AUTOMOBILE LIABILITY**<br>X ANY AUTO<br>OWNED AUTOS ONLY [ ] SCHEDULED AUTOS<br>X HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY | | | ENP 0626885 | 6/1/2025 | 6/1/2026 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident)<br> | $ 1,000,000<br>$<br>$<br>$<br>$ |
| C | [ ] **UMBRELLA LIAB** [X] OCCUR<br>X **EXCESS LIAB** [ ] CLAIMS-MADE<br>DED [X] RETENTION $ 0 | | | CUE7014992559 | 6/1/2025 | 6/1/2026 | EACH OCCURRENCE<br>AGGREGATE<br> | $ 10,000,000<br>$ 10,000,000<br>$ |
| D D | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N<br>ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [N]<br>**(Mandatory in NH)**<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | WCA000014125<br>WCA000017225 | 6/1/2025<br>6/1/2025 | 6/1/2026<br>6/1/2026 | X PER STATUTE [ ] OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$ 1,000,000<br>$ 1,000,000<br>$ 1,000,000 |
| | *All States included in Workers Compensation: MI, MT, NE, CO | | | | | | | |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

Professional Liability Coverage: Policy #PCADB-5027981-0625
Effective Dates: 06/01/2025-06/01/2026 Insurer: Berkley Assurance Company
$15,000,000 Each Claim; $15,000,000 Aggregate; $100,000 Deductible; Claims Made

Pollution Liability Coverage: Policy #PCADB-5027981-0625
Effective Dates: 06/01/2025-06/01/2026 Insurer: Berkley Assurance Company
$15,000,000 Each Occurrence; $15,000,000 Aggregate; $100,000 Deductible; Includes Mold

See Attached...

**CERTIFICATE HOLDER**

For Information Only

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

Brenda Vinson

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# CITY OF LOUISVILLE, CO

## Internal Decarbonization Project - Electrification/Energy Efficiencies

**DUE: SEPTEMBER 12, 2025**

Dewberry


**SUBMITTED BY**

Dewberry Engineers Inc.
990 South Broadway, Suite 400
Denver, CO 80209-4275
303.825.1802

**SUBMITTED TO**

City of Louisville, CO
749 Main Street
Louisville, CO 80027
Attention: Taylor McCauley



This proposal includes information that shall not be disclosed outside of the CLIENT and shall not be duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of, or in connection with, the submission of this information, CLIENT shall have the right to duplicate, use, or disclose the information to the extent provided in the resulting contract. This restriction does not limit CLIENT's right to use information contained in this information if it is obtained from another source without restriction. The information subject to this restriction is contained on all pages that follow.

Dewberry

Dewberry Engineers Inc.
990 South Broadway, Suite 400
Denver, CO 80209-4275

303.825.1802
303.825.2322 fax
www.dewberry.com

September 12, 2025

City of Louisville
Attn: Taylor McCauley
Civil Engineer III
749 Main St.
Louisville CO 80027

RE: RFP for Internal Decarbonization Project - Electrification/Energy Efficiencies

Dear Ms. McCauley,

Dewberry is pleased to submit this proposal for the City of Louisville Internal Decarbonization Project – Electrification / Energy Efficiencies project. We developed our proposal from information gained through the RFP, five addenda and attendance at the pre-proposal meeting. We understand that this project is critical for the City of Louisville to meet its decarbonization goals. This project will take place in two phases, with Phase 1 focusing on electrical load evaluations for seven city-owned facilities and Phase 2 focusing on implementing electrification and energy efficiency measures.

A detail-oriented, responsive project team with a depth of experience assessing and implementing electrification and energy efficiency strategies for diverse building types is needed to deliver a successful project. Our team brings the focus and attention to detail, as well as the technical expertise needed for electrical load assessments and the design of multifaceted electrical systems to meet the applicable codes and industry standards. We have a proven ability to successfully deliver quality projects. With the necessary skills, experience, and understanding of the key objectives needed to make this design successful, the Dewberry team offers the following benefits for this project:

## Proven Track Record

Dewberry is proud to have been providing professional engineering services for Colorado communities for 30 years. Our Denver and Louisville offices have experience working with the City of Louisville on a number of successful projects. The team that will be working on this project specializes in State and Local Government buildings, Decarbonization, and Electrification.

## Local, Cohesive Team with Superior Technical Expertise

The core of our Dewberry Project Team is 100 percent local with additional experts throughout the country available to assist as needed. Working as an integrated team, we work closely with all stakeholders to provide a high quality of service and expertise.

## Quality Assurance and Quality Control

At Dewberry, our project team follows a holistically integrated Quality Management System (QMS) throughout the enterprise. Dewberry's Quality Management System has been certified by National Quality Assurance (an ANAB accredited organization) to be in full compliance with the ISO 9001:2015 standard. We ensure quality during project execution by making sure we have the right people with the right skills and the right tools in place. We continuously examine ourselves for improvement opportunities that serve to make us stronger as a company each day and drive to exceed our client's expectations. Dewberry will be responsible for verifying the professional quality, technical accuracy, timely completion, and the coordination of specifications.

We are excited about the opportunity to provide the City of Louisville with a project of the highest quality and value. Should you have any questions regarding our proposal, please feel free to contact me at the below email address or telephone number.

Sincerely,

Ely LaBerge, PE, LEED AP BD+C
Senior Associate,
Principal Engineer and Decarbonization SME
elaberge@dewberry.com
707.486.1447 (mobile)
303.825.2322 (fax)

David J. Evers, PE, CEM, LEED AP
Vice President, Business Unit Manager
devers@dewberry.com
309.282.8181

*The information contained in this proposal is true and complete to the best of our knowledge. This proposal has been signed by a Dewberry Representative who is fully authorized to submit proposals and sign contracts on the firm's behalf.*

*In submitting this proposal, Dewberry commits to the following:*

> *The standard of care for all professional services performed or furnished by Consultant under this Agreement will be the care and skill used by members of Consultant's profession practicing under similar circumstances at the same time and in the same locality. Consultant makes no warranties, express or implied, under this Agreement or otherwise, in connection with Consultant's services.*

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# PROJECT TEAM

Dewberry's proposed team comprises local professionals and national subject matter expertise for energy analysis, building and infrastructure electrification, energy efficiency, decarbonization, and high performance building design. Through our team's expertise, we will work with the City to provide an electrical load evaluation that is detailed and comprehensive, covering both existing conditions and future modifications while meeting the funding and regulatory needs of the City. Our firm's background and project team members, along with recent project experience, are presented below.

**94** LOCAL EMPLOYEES

**2** COLORADO OFFICES

**2500+** EMPLOYEES NATIONWIDE

**30 YEARS** SERVING OUR COMMUNITY

## Firm Background

Dewberry is a family-owned, professional services firm, which has been in business for more than 65 years and has a footprint of over 60 offices and more than 2,500 professionals nationwide. In Colorado, we have maintained offices in Louisville and Denver for 30 years and have a combined staffing of 94 employees. Dewberry will manage this project from our Denver office.

## Team Experience

Table 1 (below) presents relevant projects to the City's Decarbonization Project that our key team members have completed together in the past five years.

**TABLE 1 — TEAM EXPERIENCE**

| Team Member | **City of Louisville, CO** WWTP Facility Expansion | **City of Aurora, CO** Griswold Water Purification Facility HVAC Evaluation and Implementation | **City of Bloomington** Solar Evaluation | **Knox Warren Special Education District** Building Renovation | **New Mexico General Services** New Mexico Behavioral Health Institute Forensic Facility | **Illinois Department of Corrections** Logan Correctional Center - Emergency Electrical Loop Assessment, Repair and Replacement |
|---|---|---|---|---|---|---|
| Ken Cecil | | | | | | |
| David Evers | | ● | ● | ● | ● | ● |
| Ely LaBerge | | ● | | | | |
| Mike McTavish | | ● | ● | ● | ● | ● |
| Garry Roscetti | | | | ● | ● | ● |
| Ryan Lorenz | ● | ● | | | | |
| Patrick Ryan | | | | ● | ● | |
| Tom Veerman | | ● | | | ● | |
| Nick Harden | | ● | | ● | | ● |
| Mike Breitbach | | | ● | ● | | ● |
| Jenni Betancourt | | | | | | |
| Sasha Kazakova | | | | | | |



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## Key Staff Qualifications

We assembled a dedicated, highly qualified team that is committed to the City of Louisville. We supplemented our local team with additional talented engineers from across the enterprise to enhance our qualifications, similar to Dewberry's history with the City. Each team member will be available for your project from its start through completion.

### Ken Cecil, PE



**CLIENT MANAGER**

**Years of Experience: 27**

**Years with Firm: 17**

**5%** LEVEL OF INVOLVEMENT

**15%** AVAILABILITY

**Relevant Project Experience**

- Louisville - Service Center and Floodplain Analysis
- Takoda Lift Station

### Ely LaBerge, PE, LEED AP BD+C



**PROJECT MANAGER/DECARBONIZATION SUBJECT MATTER EXPERT**

**Years of Experience: 13**

**Years with Firm: 1**

**30%** LEVEL OF INVOLVEMENT

**35%** AVAILABILITY

**Relevant Project Experience**

- Washington University in St. Louis - Athletic Complex Retrocommissioning*
- GM - Battery Cell Manufacturing Facility Decarbonization Study and Design Guideline*

### David Evers, PE, CEM, LEED AP



**PRINCIPAL-IN-CHARGE**

**Years of Experience: 33**

**Years with Firm: 15**

**5%** LEVEL OF INVOLVEMENT

**15%** AVAILABILITY

**Relevant Project Experience**

- Griswold Water Purification Facility HVAC
- Bloomington Solar Evaluation
- New Mexico Behavioral Health Institute
- Countryside Municipal Complex

### Michael McTavish, PE, LEED AP



**ELECTRICAL ENGINEER**

**Years of Experience: 21**

**Years with Firm: 21**

**15%** LEVEL OF INVOLVEMENT

**25%** AVAILABILITY

**Relevant Project Experience**

- Griswold Water Purification Facility HVAC
- Bloomington Solar Evaluation
- IDOC Logan Correctional - Electric Loop Repair
- Countryside Municipal Complex

### Garry Roscetti, PE



**ELECTRICAL ENGINEER**

**Years of Experience: 36**

**Years with Firm: 2**

**10%** LEVEL OF INVOLVEMENT

**20%** AVAILABILITY

**Relevant Project Experience**

- New Mexico Behavioral Health Institute
- Knox Warren Special Ed Renovation
- IL State Fairgrounds Vendor Electrical Distribution System Assessment*

### Ryan Lorenz, PE



**ELECTRICAL ENGINEER**

**Years of Experience: 17**

**Years with Firm: 1**

**20%** LEVEL OF INVOLVEMENT

**30%** AVAILABILITY

**Relevant Project Experience**

- Louisville WWTP Improvements
- Griswold Water Purification Facility HVAC
- Southmoor WTF & WWTF Generators & Equip. PH 2
- Gypsum WWTP Improvements

### Patrick Ryan, PE, CEM, CGD



**MECHANICAL ENGINEER**

**Years of Experience: 7**

**Years with Firm: 1**

**10%** LEVEL OF INVOLVEMENT

**20%** AVAILABILITY

**Relevant Project Experience**

- New Mexico Behavioral Health Institute
- Knox Warren Special Ed Renovation
- Oak Park Municipal Complex (Geothermal)
- Lake Land College Neal Hall Renovation (Geothermal)*

### Tom Veerman



**MECHANICAL DESIGNER**

**Years of Experience: 41**

**Years with Firm: 15**

**10%** LEVEL OF INVOLVEMENT

**20%** AVAILABILITY

**Relevant Project Experience**

- Griswold Water Purification Facility HVAC
- New Mexico Behavioral Health Institute
- Elburn Village Hall and Police Dept. Expansion
- Hanover Park Fire Station #16

* experience gained while associated with prior firm



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## Nick Harden, PE, SE, LEED BD+C



**STRUCTURAL ENGINEER**

**Years of Experience: 27**

**Years with Firm: 17**

**5%** LEVEL OF INVOLVEMENT

**20%** AVAILABILITY

**Relevant Project Experience**

- Griswold Water Purification Facility HVAC
- Countryside Municipal Complex
- Champaign-Urbana Mass Transit District - Solar Expansion Study and Implementation

## Michael Breitbach, PE



**CIVIL ENGINEER**

**Years of Experience: 33**

**Years with Firm: 8**

**5%** LEVEL OF INVOLVEMENT

**20%** AVAILABILITY

**Relevant Project Experience**

- Bloomington Solar Evaluation
- Champaign-Urbana Mass Transit District (MTD) - Solar Expansion Study and Implementation
- IDOC Logan Correctional - Electric Loop Repair

## Jenni Betancourt AIA, WELL AP, LEED AP BD+C, GGP



**SUSTAINABILITY ARCHITECT**

**Years of Experience: 24**

**Years with Firm: 18**

**10%** LEVEL OF INVOLVEMENT

**20%** AVAILABILITY

**Relevant Project Experience**

- Countryside Municipal Complex
- Santa Rita Water Treatment Facility Improvements and Admin Building
- Hanover Park Fire Station #16

## Sasha Kazakova



**COST ESTIMATOR**

**Years of Experience: 5**

**Years with Firm: 2**

**10%** LEVEL OF INVOLVEMENT

**25%** AVAILABILITY

**Relevant Project Experience**

- Fort Sill Power Generation and Smart Microgrid System
- UNC Medical Center - Central Generator Plant and Essential Power System Modernization

Having worked for over 60 years for municipalities, counties, state and federal government, Dewberry has extensive experience working with public agencies that are accountable to their stakeholders and the community at large. We've learned that a project's success is directly related to the quality of the interface between the engineering and architectural team, the municipality, the users, other stakeholders, and the community. Additionally, having worked with the public sector, we have familiarity navigating the approval process through the required agencies to help the project proceed in a timely manner.

This project is a combination of several different project types. Having strength in building type diversity is another benefit Dewberry provides to the City of Louisville.

### City Halls



### Police Stations



### Fire Stations



### Recreation Facilities



### Libraries



### Water and Wastewater Treatment Facilities





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## Current and Past Projects with Louisville or other Local Agencies

### WWTP EXPANSION
**LOUISVILLE, CO**



Dewberry performed design engineering services for the City of Louisville's Wastewater Treatment Plant (WWTP) Expansion project. The project will increase the WWTP capacity to a maximum monthly flow capacity of 4 MGD, a peak hour flow of 6.7 MGD, and a maximum monthly loading capacity of 9,000 pounds per day (ppd) five-day biological oxygen demand (BOD5). The expansion includes a new lift station and the associated emergency overflow tank storage, the addition of a train to the existing Johannesburg secondary process, a new aeration basin and the associated return activated sludge pump, waste activated sludge pumps, an alum pump and mixed liquor recycle pump, and a new secondary clarifier with the associated scum system. The project also includes all electrical, instrumentation and controls, and site civil work associated with the new additions to the WWTP.

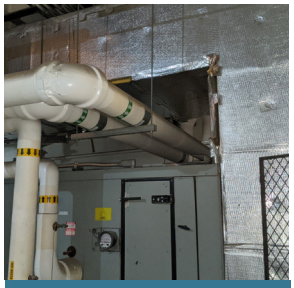
**REFERENCE**

Cory Peterson
City of Louisville
cpeterson@louisville.gov
303.335.4610

**PROJECT CONTROL METRICS**

Project is on schedule and construction is scheduled to begin in 2026

### GRISWOLD WATER PURIFICATION FACILITY HVAC EVALUATION AND IMPLEMENTATION
**AURORA, CO**



This project began as a study completed by Dewberry in 2019. Moving into implementation, the primary goals of this HVAC System Upgrade project included: Capital replacement of aging HVAC equipment assets, replacing outdated HVAC control system , improving energy efficiency and improving safety for maintenance activities.

**PROJECT RELEVANCE**

- Energy efficiency measures
- Water purification facility

**REFERENCE**

Kelsey Baetschi
City of Aurora
kbaertsc@auroragov.org
720.859.4303

**PROJECT CONTROL METRICS**

Design was completed on schedule. Construction start was delayed but project is nearing completion.

### CITY OF BLOOMINGTON SOLAR EVALUATION
**BLOOMINGTON, IL**



The City of Bloomington contracted Dewberry to prepare an evaluation of all 165 City owned facilities to determine the feasibility of the installation of solar improvements to help meet the City's sustainability goals.

**PROJECT RELEVANCE**

- Electrified infrastructure assessment
- Renewable energy analysis
- Municipal facilities

**REFERENCE**

Russel Waller
City of Bloomington
rwaller@cityblm.org
309.434.2492

**PROJECT CONTROL METRICS**

Project was completed on time and study/preliminary design was completed on budget in 2024

### KNOX WARREN SPECIAL EDUCATION DISTRICT - BUILDING RENOVATION
**GALESBURG, IL**



Knox Warren Special Education District is composed of a team of specialists dedicated to helping students with disabilities achieve a full and meaningful educational experience. Serving six school districts in Knox County and Warren County the administrators, therapists, social workers and teachers were scattered across multiple buildings with no cohesive feel for the students or the staff. Dewberry was hired to do test fits for various properties in the Galesburg area to potentially find one building that could serve the needs of the students in one location. After a year-long search, a medical office building was purchased and the renovation started in earnest. The entire exterior of the existing building was redesigned and renovated, along with a full interior renovation.

**PROJECT RELEVANCE**

- Electrification
- Energy efficiency
- Retrofit of existing building

**REFERENCE**

Zach Crowl
Knox Warren Sp Ed District
zcrowl@kwsed.org
309.351.7224

**PROJECT CONTROL METRICS**

Project was completed on-budget. Project was delayed a short time due to contractor. Completed in 2025



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## Current and Past Projects with Louisville or other Local Agencies

### NEW MEXICO BEHAVIORAL HEALTH INSTITUTE FORENSIC FACILITY
**LAS VEGAS, NM**



Project included mechanical, electrical, plumbing, fire protection and security/ technology design for new 123,000 SF Forensic Building for the State of New Mexico. The HVAC system is a 4-pipe heat pump system providing chilled water and hot water to roof-mounted VAV air handling units. The all-electric HVAC system includes thermal storage to provide grid flexibility and resilience, and leverages an estimated $3 million in federal tax credits for energy storage under the Inflation Reduction Act.

The electrical system provides 100% emergency power backup and provides solar-ready infrastructure for future on-site photovoltaic array and grid interconnect.

**REFERENCE**

Tim Shields
NM Behavioral Health Institute
timothy.shields@doh.nm.gov
505.454.2100

**PROJECT CONTROL METRICS**

Design was completed on schedule and project is currently under construction

**PROJECT RELEVANCE**

- Electrification
- Solar evaluation
- Energy Efficiency
- Tax credit funding

### LOGAN CORRECTIONAL CENTER - EMERGENCY ELECTRICAL LOOP ASSESSMENT, REPAIR AND REPLACEMENT
**LINCOLN, IL**



The scope included the assessment of damage to the 2.4kV Medium Voltage Site Electrical Distribution Loop and related equipment, which occurred during severe weather events, and producing the Bid documents for the replacement of damaged electrical cable, (2) Sectionalizing Switches, and (1) Transformer for restoration of power to affected areas.

Dewberry also performed master planning and provided opinions of probable cost for the complete replacement of all Medium-Voltage Cables and Equipment at the project site.

The project included implementing the master plan and replacing all remaining medium-voltage Site Electrical Distribution systems.

**REFERENCE**

Heather Oxley
Illinois CDB
Heather.Oxley@illinois.gov
217.524.0028

**PROJECT CONTROL METRICS**

Design was completed on schedule. Construction delayed due to equipment lead times. Construction Completion Jan 2026.

**PROJECT RELEVANCE**

- Electrical infrastructure assessment
- Electrical upgrades





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# WORK PLAN

## Phase 1 Scope of Work

### INTRODUCTION

This scope of work has been developed based on the posted Request for Proposal, the Pre-Proposal Meeting and site walks held on August 25, and the RFI responses received on September 5, 2025. The services provided include cross-discipline coordination efforts, existing condition assessment and documentation, calculations of existing equipment (to be replaced) energy consumption, and projections of future energy consumption by the proposed mechanical equipment from the Electrification Scope column of Table 4 in the RFP. Throughout the process, we will document and distribute notes for all meetings held and site visits completed. We will track questions and answers through a comment response matrix, which will be continually updated throughout Phase 1 of the project. All findings will be summarized in a Final Report, which will be used to guide and inform Phase 2 of the project.

### SECTION 1 - PHASE 1 PROJECT MANAGEMENT

#### TASK 1.1 - PROJECT MANAGEMENT

Plan and coordinate all activities required for the assessment of the defined buildings, including site visits and meetings. Monitor schedule and budget. Maintain project files, including calculations, correspondence, technical data, meeting minutes, and other applicable documents. Meeting minutes and site notes will be sent to the appropriate parties following each associated activity.

#### TASK 1.2 – PROJECT COORDINATION

Hold regular meetings with City of Louisville staff and the engineering staff performing the project work. Determine what other parties should be involved in specific meetings. Coordinate meetings with facilities staff for each site.

#### TASK 1.3 – QUALITY CONTROL AND ASSURANCE

Review all documents and files before submission to the client to ensure information is correct and complete. Follow Dewberry's formal QA/QC policy

### SECTION 2 - ELECTRICAL ENGINEERING TASKS

#### TASK 2.1 – SITE INVESTIGATION AND DOCUMENTATION

Dewberry will provide on-site evaluation of the (7) facilities noted in RFP Table 3. Each facility evaluation will begin with an interview of building maintenance staff for an overview of system conditions, known issues, desired upgrades to mechanical, electrical, and plumbing/fire protection, and other building systems that require electrical power.

After the initial interviews, on-site evaluations of each facility will be performed and will include the performance and working conditions of the existing emergency backup systems, and electrical distribution equipment. Dewberry will document the electrical system service location, meter location, locations of all electrical switchboards, switchgear, distribution panelboards, branch circuit panelboards, motor control centers, transformers, adjustable speed drives, motor starters, and disconnects rated 30A or higher. The condition of electrical system equipment will be documented and any major deficiencies will be noted.

Dewberry electrical will work with the mechanical engineer to determine future power demands based on the new proposed equipment identified. Dewberry will work with facility staff to determine each facility's emergency life safety and optional power needs as well as sizing recommendations for facility normal and emergency future power demands.

#### TASK 2.2 – DOCUMENTATION

Dewberry will record meeting minutes from each meeting and site visit. A report will be provided to document all information gathered as noted previously to memorialize the existing electrical system condition. The report will also document the necessary facility upgrades where immediate repair is needed. It will also note recommended upgrades for future building electrification.




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## SECTION 3 - MECHANICAL ENGINEERING TASKS

### TASK 3.1 – SITE INVESTIGATION AND DOCUMENTATION

It is our understanding from Addendum 2 that all existing mechanical and electrical equipment and all piping, ductwork, and conduit distribution throughout the buildings is to be memorialized in drawing form. To do this properly is a very large undertaking, including extensive site walks in which each mechanical and electrical component is located in 3D space and is documented in drawing form. This will be a much larger undertaking that the rest of the Phase 1 scope combined. Therefore, we have broken this out as an alternate and will provide the documentation of only equipment that is tagged to be replaced in our base scope included in Task 3.1. This task is described as follows:

All existing mechanical equipment that has been identified for replacement in Addendum 5: Strategic Roadmap Building Reports shall be located in space on site. This shall be recorded with applicable field notes and measurements. The existing capacity, duct size, and piping sizes shall be assessed to determine if any additional modifications are required, for example, if the replacement equipment has a different design capacity than the existing equipment. Any required modifications will be documented and memorialized along with the current existing conditions.

### TASK 3.2 – DOCUMENTATION

We will produce backgrounds for all rooftops / mechanical rooms where existing equipment is to be replaced. Will mark these up in PDF form with the location of all equipment to be replaced along with duct, piping, and conduit connections to that equipment. See Alternate 1 for potential modifications to this scope.

### TASK 3.3 – ENERGY CALCULATIONS

We will perform hourly energy calculations using bin weather data for each piece of equipment to be replaced and their corresponding replacement equipment listed in Table 4 of the RFP for all buildings listed in Table 3. This includes the following replacement equipment:

- 2 Ton Residential ASHP: QTY 1
- 50-Ton Heat Pump RTU: QTY 2
- 3-Ton Heat Wheel RTU (what is heat recovery source, flow rates, etc.): QTY 1
- Electric DHW: QTY 1

Hourly calculations will be used to determine the peak electrical demand of each piece of equipment. New equipment demand will be compared to the existing equipment demand to determine the impact on the electrical load of each building.

### TASK 3.4 – COMMENT RESPONSE MATRIX

Dewberry will create and maintain a Comment Response Matrix throughout the project where all questions asked and all responses are documented for record.

### TASK 3.5 – COST ESTIMATION

Probable cost estimates for required electrical upgrades will be developed based on the findings of all engineering tasks outlined above.

## SECTION 4 – DELIVERABLES

### TASK 4.1 – DELIVERABLES

At project close-out, Dewberry will package all notes from meetings held and all site visits completed and will provide this to the City of Louisville for record along with the Comment Response Matrix, drawings / markups, and final report. The final report will summarize all findings and recommendations and will serve as a guide for Phase 2.




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# COMMENDATIONS

**#4**
Local Government Buildings EA Firm - Building Design + Construction 2024

**#35**
MEP Giants
Consulting-Specifying Engineer 2025

**#37**
Top 100 in Design Firms
2025 ENR Sourcebook Ratings

"I would whole heartedly endorse Dewberry for any municipal building project, with emphasis on state-of-the-art police facilities. Thanks to the Dewberry staff for a very functional building that has made us proud!"

Terry Mee
Retired Chief of Police, East Dundee Police Department

"I hope you know and remember that I genuinely appreciate all of you, and what you have given to the Village."

Robert Acton
Deputy Chief of Police Administration, Glen Ellyn Police Department


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## Countryside Municipal Complex

**COUNTRYSIDE, IL**

# FIRST MUNICIPALITY IN ILLINOIS TO HAVE COMPLETED A NET ZERO ENERGY CITY HALL AND POLICE STATION

With this building project, the City of Countryside aimed to stimulate economic growth in the area and be a leading example of sustainability in civic architecture by achieving both Net-Zero Energy performance and LEED Gold certification.

- **COST** $20 million
- **SIZE** 34,900 SF

Net Zero energy design was achieved via integrated design and close collaboration among the architects, engineers, and consultants. A precise building envelope design, along with exceptionally efficient MEP systems, forms the basis for the team's low-energy strategy in this harsh Climate Zone 5. Photovoltaic arrays at the building's roof and over the police vehicle carport areas provide on-site renewable energy to balance power usage and bring the design to Net Zero energy. This is the first municipal building of its kind in Illinois.

The Heating, Ventilating and Air Conditioning System (HVAC) is a geothermal system that provides heating and cooling for the building. The bore field consists of 42 vertical bores at 450 feet deep. There are two (2) roof-mounted heat pump air handling units (AHU) providing air to a variable air volume (VAV) system. Each AHU has an energy recovery wheel to pre-condition the ventilation air. A water-to-water heat pump heat between the geothermal bore field and the VAV air distribution system as required to heat and cool the building.. The HVAC system is controlled by an automated direct digital control (DDC) system. The Server room is cooled using the heat pump system, and a mini-split DX system provides backup. The Sally Port has infrared heaters and an exhaust system controlled via a carbon monoxide sensor.

The LEED Gold project featured light fixtures selected and designed to achieve the Light Pollution Reduction credit in an LZ2 lighting zone through the Option 1 – BUG rating Method. Exterior lighting consisted of entrances, drives, parking areas, pavilions, and building accent lighting. Being a 24-hour facility, lighting for active police traffic features motion sensors to maintain an adequate security lighting level while decreasing during inactive periods from dusk to dawn. The pavilion, building accent, and other non-essential lighting systems are controlled from dusk-on to time of day-off operation. Building accent lighting utilizes Ketra color-changing light fixtures programmed via cloud-based software. Exterior lighting is controlled via low voltage relay panels for flexible photocell, or time of day operation.

Solar Photovoltaic Power:  Dewberry designed the layout and electrical system for a turnkey installation using Sunpower as the Basis of Design. The system consisted of a total of 638 PV panels calculated to generate 275.2 mwh annually. Dewberry coordinated the interconnection with the utility and designed the system, including the array layout, wiring, DC to AC inverters, AC wiring to the building electrical system, and all code-required disconnects and overcurrent protection. Dewberry's structural engineers provided the performance criteria and shop drawing review for the canopy structures. Project size:  30kW Roof Mounted Array

> "We are thrilled with our new Municipal Complex and have seen the benefits of the design for our staff and our community. It not only works well functionally, but is a beautiful addition to the city."
>
> Sean R. McDermott
> Mayor City of Countryside (2020)



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## WR Meadows Renovation

### HAMPSHIRE, IL

A 30,000 GSF renovation to an existing single story SOG industrial building. Includes renovation of the building into research and development labs, a training & demonstration center, and warehouse space. Full structural, FP, plumbing, HVAC, electrical and technology design services. Coordination with third party laboratory design consultant. Design includes individual HVAC units for office, training and warehouse spaces, and specialty make-up air units, exhaust equipment, and pressurization controls for the lab spaces.

Electrical design included removal of all existing electrical equipment. A new main electrical distribution switchgear was provided with provisions for full-facility generator back up. Power design to all new HVAC units, plumbing equipment, laboratory loads, audio-visual equipment, and other general purpose loads. Lighting design was provided for the entire facility with lighting controls in compliance with the latest edition of the International Energy Conservation Code. Fire alarm design was provided for compliance with the NFPA 72 standard and the International Fire Code.

- **COST** $11.4 million
- **SIZE** 30.000 SF

> “Working with the Dewberry team was a fantastic experience for us. From our initial talks to the final grand opening of the W. R. Meadows Innovation Center, it was an absolute pleasure working with Jenni and her team. Communication was easy and efficient and all our numerous questions were answered swiftly and effectively. The Innovation Center was a large investment for us and the Dewberry staff was willing to hear our concerns and questions and work through them, giving great detail and explanation for every part of the project, no matter how big or small. We were fully impressed with Dewberry and we cannot recommend them enough. We look forward to more opportunities to work closely with the talented professionals at Dewberry.”

Matthew Price
President , W.R. Meadows, Inc. (2022)



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"I've worked with Dewberry on a massive Arts Center renovation project implemented in two separate phases. I've found everyone on the Dewberry team, and in particular, Senior Project Manager, Jennifer Betancourt, to be knowledgeable, patient, collaborative and very creative problem-solvers. I am very excited to see this last phase completed!"

Mary Hatch, EdD
Former Dean of Liberal, Visual & Performing Arts
Elgin Community College (2022)

"Dewberry was a pleasure to work with. They were very creative and professional and kept our project on time and on budget. Our relationship with Dewberry was excellent and I could not be more pleased with their performance."

John Noak
Mayor of Romeoville



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# FEE PROPOSAL

## ASSUMPTIONS

The following assumptions were used to develop the scope outlined in Sections 1 through 4 (pages 10 and 11):

- 20 virtual meetings
- 10 site visits
- One-Line diagrams (CAD) created for each facility showing power distribution
- Panel schedules (CAD/Excel) created for each facility

| WORK | COST |
|---|---|
| **PHASE 1:** Base Fee (The scope included in Sections 1 - 4 on pages 10 & 11) | $83,936.00 |

## ALTERNATES

The following assumptions were used to develop the scope outlined in Sections 1 through 4 (pages 10 and 11):

### ALTERNATE 1: LASER SCAN OF EXISTING BUILDINGS

#### OVERVIEW

To fully document all existing mechanical and electrical equipment in each building, including all ductwork, piping, and conduit, the most efficient option is to use laser scanning services.

- Louisville Public Library: 33,000 sf
- Austin-Neihoff House: 1,400 sf
- Sid Copeland Water Treatment Plant - Admin Building: 8,000 sf
- Sid Copeland Water Treatment Plant - Pretreatment Building: 2000 sf
- Art Center: 2,806 sf
- City Services Building: 46,107 sf
- Wastewater Treatment Plant - Admin Building: 2,400 sf
- Wastewater Treatment Plant - Operations Building: 1,000 sf
- City Hall: 17,756 sf

#### SCOPE

BIM4Sites will provide:

- 3D laser scanning/360 imagery capture for 114,469 sf in 9 city owned buildings.
- Data processing and rotation of the captured data.
- Data in an undefined, scan coordinate system.
- A Revit 2024 model in Dewberry Fairfax's template, unless otherwise advised.

Dewberry will provide:

- Timely access to all areas required in the scope during our site visit.
- Contact information for local client representatives.
- A liaison to accompany BIM4Sites field staff, with name and contact information.
- Timely notification to all occupants whose space BIM4Sites will be scanning.
- Confirmation of final scope by signing and returning this agreement.

Deliverables:

- LOD Revit model

| WORK | COST |
|---|---|
| **ALTERNATE 1:** Laser Scan of Existing Buildings (including expenses) | $49,500 .00 |


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## ALTERNATE 2: ENVELOPE LOAD REDUCTION CALCULATIONS

### OVERVIEW

Hourly weather data can be used to estimate the cooling load reduction due to resealing the building envelope.

| WORK | COST |
|---|---|
| **ALTERNATE 2:** Envelope Load Reduction Calculations | $1,680.00 |

## ALTERNATE 3: LIGHTING LOAD REDUCTION CALCULATIONS

### OVERVIEW

Calculate the cooling load reduction due to lighting upgrades. This will require field work to document existing lighting and the review the lighting power density planned for the new lighting in each building, as specified in Table 4 of the RFP. Calculations will be completed to quantify both existing and new lighting loads, which will enable us to determine the load reduction.

| WORK | COST |
|---|---|
| **ALTERNATE 3:** Lighting Load Reduction Calculations | $5,460.00 |

PDF form with the location of all equipment to be replaced along with duct, piping, and conduit connections to that equipment. See Alternate 1 for potential modifications to this scope.


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# STANDARD HOURLY BILLING RATE SCHEDULE

| DEWBERRY | HOURLY RATES |
|---|---|
| **Professional** | |
| Principal | $375.00 |
| Architect I,II,III | $115.00, $135.00, $155.00 |
| Architect IV,V,VI | $175.00, $195.00, $220.00 |
| Architect VII,VIII,IX | $245.00, $270.00, $295.00 |
| Interior Designer I,II,III,IV | $105.00, $130.00, $145.00, $175.00 |
| Interior Designer V, VI, VII | $195.00, $215.00, $255.00 |
| Engineer I,II,III | $125.00, $140.00, $160.00 |
| Engineer IV,V,VI | $185.00, $210.00, $240.00 |
| Engineer VII,VIII,IX | $270.00, $300.00, $335.00 |
| Geographer/GIS I,II,III | $100.00, $110.00, $130.00 |
| Geographer/GIS IV,V,VI | $150.00, $175.00, $205.00 |
| Geographer/GIS VII,VIII,IX | $235.00, $265.00, $300.00 |
| Professional I,II,III | $110.00, $135.00, $160.00 |
| Professional IV,V,VI | $175.00, $195.00, $220.00 |
| Professional VII,VIII,IX | $255.00, $275.00, $310.00 |
| **Technical** | |
| Designer I,II,III | $110.00, $140.00, $170.00 |
| Designer IV,V,VI | $190.00, $210.00, $245.00 |
| CADD Technician I,II,III,IV,V | $90.00, $110.00, $130.00, $145.00, $190.00 |
| Surveyor I,II,III | $70.00, $85.00, $110.00 |
| Surveyor IV,V,VI | $130.00, $145.00, $160.00 |
| Surveyor VII,VIII,IX | $180.00, $210.00, $255.00 |
| Technical I,II,III | $90.00, $115.00, $135.00 |
| Technical IV,V,VI | $150.00, $165.00, $185.00 |
| **Emergency Management** | |
| Emergency Management I, II, III | $90.00, $120.00, $155.00 |
| Emergency Management IV, V, VI | $185.00, $225.00, $280.00 |
| **Construction** | |
| Construction Professional I,II,III | $125.00, $160.00, $190.00 |
| Construction Professional IV,V,VI,VII | $225.00, $255.00, $305.00, $340.00 |
| Inspector I,II,III | $90.00, $110.00, $150.00 |
| Inspector IV,V,VI,VII | $180.00, $205.00, $230.00, $265.00 |
| **Survey Field Crews** | |
| Fully Equipped 1, 2, 3 Person Crews | $160.00, $200.00, $270.00 |
| With Laser Scanner 1, 2 Person | $210.00, $250.00 |
| **Administration** | |
| Admin Professional I,II,III,IV | $72.00, $105.00, $125.00, $155.00 |
| Non-Labor Direct Costs | Cost + 15% |

REVISED 6.1.2025 | SUBJECT TO REVISION


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# REFERENCES



## Project Manager/Decarbonization Subject Matter Expert

**Ely LaBerge** PE, LEED AP BD+C

Located in Denver, Ely is a Principal Engineer and Dewberry's Decarbonization Subject Matter Expert who leads Dewberry's Decarbonization Group, a team of technical experts who perform detailed building analyses, controls optimization, and high-performance design. He specializes in optimizing building energy performance by leading energy studies, energy audits, retrocommissioning, energy modeling, energy benchmarking, energy master planning, and the development of design guidelines. His specialty in reducing building energy consumption at scale can lead to a reduction in electrical infrastructure requirements and lower utility costs, while improving building performance and reliability. He has experience pursuing financial incentives and rebates that can help clients fund their projects. He has led teams of mechanical, electrical, structural, and civil engineers in addition to architects to achieve site-wide improvements to energy performance, sustainability, resiliency, and reduced carbon emissions. He has applied this expertise to a wide range of building types, including municipal buildings, museums, professional orchestral music halls, theaters, natatoriums, critical environment manufacturing facilities, higher education, K-12 schools, document archives, science centers, and airports. Ely earned his MS and BS in Mechanical Engineering from Washington University.

### SAMPLE OF PROJECT MANAGEMENT EXPERIENCE

**Saint Louis Art Museum - Cass Gilbert East Wing Retrocommissioning***
Ely led a project to analyze the East Wing of the Saint Louis Art Museum to better understand the load requirements and variations, to improve system control sequences, and to right-size airflows. This required careful review of the Building Automation System (BAS/BMS) to set up and reveiw trends based on available meter data, an airflow study to test airflow direction between spaces and throw from diffusers, site walks and inspections, and conversations with the facilities staff. A detailed energy model was created to simulate the building operation and calculate energy savings. Ely applied for utility rebates that resulted in a client savings of $130,000. This project reduced energy consumption in East Wing by 47%.

**Powell Hall (Home of the St. Louis Symphony Orchestra)***
Ely performed an energy study in which he set up and reviewed trend data using the Building Automation System. He identified system deficiencies and poor control sequences. He performed field work to assess existing systems and put together a list of recommendations to improve building performance while reducing energy consumption. Given the task of selecting the most effective improvements that would pay back in a year or less due to the owner's budget, he found many control improvements with an ROI of approximately 3 months.

**Nike In House Manufacturing Facility Study and Implementation***
Performed a study to determine heat loss from custom equipment using thermal emissivity calculations and data loggers. Performed a utility rate study to find the most cost effective utility rate for our client based on their electric demand and energy consumption. Created a detailed energy model to assess system options and calculate energy savings of the final design. Completed Life Cycle Cost Analysis to determine energy-saving opportunities with the best return on investment. Applied for utility incentives and rebates, which totaled over $1 million dollars, the largest check ever written by the local utility company to date.

**Washington University in St. Louis - Athletic Complex Retrocommissioning***
Completed an airflow study, an energy model, and Building Automation System (BAS/BMS) trend analysis for all mechanical equipment within the Athletic complex at Washington University in St. Louis. This allowed him to fully understand the current building performance and look for opportunities to improve energy efficiency. He created a list of energy conservation measures and provide calculations for the return on investment of each line item. He then worked with the building owners and facilities team to prioritize projects that would reduce energy consumption, carbon emissions, and utility costs for the University.

**GM - Battery Cell Manufacturing Facility Decarbonization Study and Design Guideline***
Explore and recommend a variety of technologies and design strategies to reduce energy consumption and carbon emissions of all future GM Battery Cell Manufacturing Plants, which have exceptionally high energy consumption due to the strict humidity requirements in the spaces. This project included an analysis of energy recovery opportunities, alternative energy sources, low-impact refrigerants, design criteria to improve performance, and optimal space configuration. The results of this study were ultimately compiled into a design guide with which all future GM Battery Cell Manufacturing Plants must comply.

* experience gained while associated with prior firm



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## CITY OF BLOOMINGTON - SOLAR LOCATION STUDY - EVALUATION AND PRELIMINARY DESIGN

### BLOOMINGTON, IL

The City of Bloomington contracted Dewberry to prepare an evaluation of all 165 City owned facilities to determine the feasibility of the installation of solar improvements to help meet the City's sustainability goals. The evaluation of the City's facilities included preliminary discussion with the City's stakeholders to identify the preferred 60 locations based on information provided by the owner such as facility size, age, roof condition, and annual power use. The 60 selected facilities were then evaluated virtually by Dewberry to identify the 15 locations Dewberry believed were the most suitable for solar installation. Dewberry performed on-site evaluations to identify the top four facilities. Dewberry provided a preliminary design, anticipated power production calculations, and opinion of probable construction cost for each and presented this information in a report to the City.

### PROJECT DETAILS

**Project Manager/Principal Engineer**
Michael McTavish

**Year Completed**
2024

**Cost**
N/A - Study and preliminary design only

**Project Controls**
Project was completed on schedule and on budget

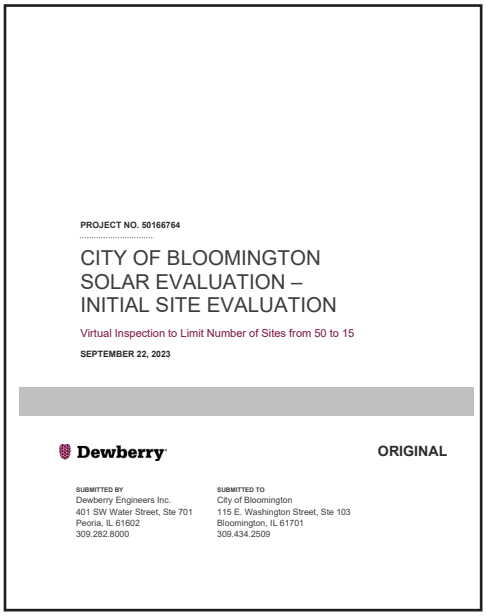
**Owner Reference**

Russel Waller | Facility Manager
City of Bloomington
rwaller@cityblm.org
309.434.2492








PROJECT NO. 50166764

CITY OF BLOOMINGTON
SOLAR EVALUATION –
INITIAL SITE EVALUATION

Virtual Inspection to Limit Number of Sites from 50 to 15

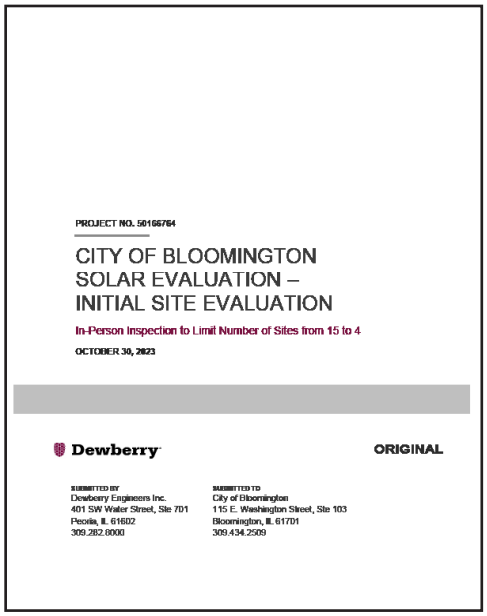
SEPTEMBER 22, 2023

Dewberry

ORIGINAL

SUBMITTED BY
Dewberry Engineers Inc.
401 SW Water Street, Ste 701
Peoria, IL 61602
309.282.8000

SUBMITTED TO
City of Bloomington
115 E. Washington Street, Ste 103
Bloomington, IL 61701
309.434.2509


PROJECT NO. 50166764

CITY OF BLOOMINGTON
SOLAR EVALUATION –
INITIAL SITE EVALUATION

In-Person Inspection to Limit Number of Sites from 15 to 4

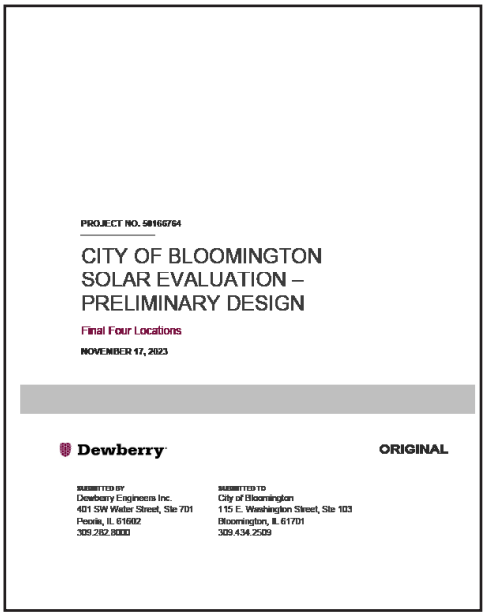
OCTOBER 30, 2023

Dewberry

ORIGINAL

SUBMITTED BY
Dewberry Engineers Inc.
401 SW Water Street, Ste 701
Peoria, IL 61602
309.282.8000

SUBMITTED TO
City of Bloomington
115 E. Washington Street, Ste 103
Bloomington, IL 61701
309.434.2509


PROJECT NO. 50166764

CITY OF BLOOMINGTON
SOLAR EVALUATION –
PRELIMINARY DESIGN

Final Four Locations

NOVEMBER 17, 2023

Dewberry

ORIGINAL

SUBMITTED BY
Dewberry Engineers Inc.
401 SW Water Street, Ste 701
Peoria, IL 61602
309.282.8000

SUBMITTED TO
City of Bloomington
115 E. Washington Street, Ste 103
Bloomington, IL 61701
309.434.2509



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## CITY OF AURORA - GRISWOLD WATER PURIFICATION FACILITY HVAC EVALUATION AND IMPLEMENTATION

### AURORA, CO

This project began as a study completed by Dewberry in 2019. Moving into implementation, the primary goals of this HVAC System Upgrade project included:

- Capital replacement of aging HVAC equipment assets
- Replacing outdated HVAC control system
- Improving energy efficiency
- Improving safety for maintenance activities

Development and implementation of Asset Management database and computerized maintenance management system which will improve O&M, lower O&M costs, and maximize equipment lifespan

This complex project included many modifications to the system. Those modifications included:

- Evaluation of Variable Refrigerant System
- Equipment to be replaced: chiller, chilled water pumps, boilers, fan coils, hot water pumps (primary and secondary), makeup air handlers and interlocked exhaust fans
- Equipment to be added: Minisplit for Chemical Building Electrical room zone Improvements to the filter gallery and maintenance shop

**PROJECT DETAILS**

**Project Manager**
Melinda Brown

**Principal Engineer**
David Evers

**Year Completed**
2025 (est.)

**Cost**
$3.1 million

**Project Controls**
Design was completed on schedule. Construction start was delayed but project is nearing completion.

**Owner Reference**

Kelsey Baetschi | Project Manager
City of Aurora
kbaertsc@auroragov.org
720.859.4303







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## NEW MEXICO BEHAVIORAL HEALTH INSTITUTE FORENSIC BUILDING

### LAS VEGAS, NM

In collaboration with Studio Southwest Architects, Dewberry is providing space programming, design, and construction documents, and construction administration for a secure 90-bed Forensic Building at the New Mexico Behavioral Health Institute (NMBHI).

The 123,000 SF building will be accredited by The Joint Commission (TJC) to provide treatment (competency restoration in order to proceed with adjudication) for adult patients who have been court-ordered due to felony offenses by District Courts across the State.

The Forensic building is made up of five inpatient psychiatric care units that are staffed 24 hours per day. Four residential units with 20-beds each are regular forensic housing units serving male and female patients and one 10-bed high acuity unit (formerly referred to as a Maximum Security Unit of MSU).

Additional programmed spaces include patient dining, staff kitchen, a medical clinic, physical therapy, end-of-life care, persons-of-size design requirements, an incentivized enrichment mall, a mock courtroom, visitation, secure exterior patient courtyards, staff offices and support spaces. This facility can accommodate patients with memory loss and those needing competency restoration, while providing long-term care and end-of-life care.

**PROJECT DETAILS**

**Engineering Project Manager**
Garry Roscetti

**Principal Engineer**
David Evers

**Year Completed**
Design - 2024
Construction - 2027 (est.)

**Cost**
$105 million (est.)

**Project Controls**
Design was completed on schedule and project is currently under construction.

**Owner Reference**
Tim Shields | Executive Director
New Mexico Behavioral Health Institute
timothy.shields@doh.nm.gov
505.454.2100

Project included mechanical, electrical, plumbing, fire protection and security/technology design for new 123,000 SF Forensic Building for the State of New Mexico. The HVAC system is a 4-pipe heat pump system providing chilled water and hot water to roof-mounted VAV air handling units. The all-electric HVAC system includes thermal storage to provide grid flexibility and resilience, and leverages an estimated $3 million in federal tax credits for energy storage under the Inflation Reduction Act. Working with Baker Tilly, the state is in the process of validating the cost basis for qualifying energy property as well as eligibility for bonus credits for domestic content and energy communities.

The electrical system provides 100% emergency power backup and provides solar-ready infrastructure for future on-site photovoltaic array and grid interconnect.




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## LOGAN CORRECTIONAL CENTER - EMERGENCY ELECTRICAL LOOP ASSESSMENT, REPAIR AND REPLACEMENT

**LINCOLN, IL**

### EMERGENCY ASSESSMENT AND REPAIR OF THE ELECTRICAL LOOP:

The scope included the assessment of damage to the 2.4kV Medium Voltage Site Electrical Distribution Loop and related equipment, which occurred during severe weather events, and producing the Bid documents for the replacement of damaged electrical cable, (2) Sectionalizing Switches, and (1) Transformer for restoration of power to affected areas. These areas include the Gymnasium, Vocational School and Housing Units 3, 4, and 14. Each of these buildings was temporarily connected to portable rented generators to supply power until the permanent utility power was restored. Bid documents also included the testing of the existing cables, Main Switchgear, and Site backup generator.

Dewberry also performed master planning and provided opinions of probable cost for the complete replacement of all Medium-Voltage Cables and Equipment at the project site. All design and planning were to prepare the facility for the conversion of the Site distribution system from a 2.4kV, 3-phase delta system to the Utility-Supplied service of 12.5kV, 3-phase wye system. All replacement cables and switches in the bid package will be used with the 12.5kV distribution system.

### ELECTRICAL LOOP REPLACEMENT:

The project included implementing the master plan and replacing all remaining medium-voltage Site Electrical Distribution systems. Replacement included the electrical cable and distribution equipment, which included a new sectionalizing switches, transformers, switchgear with automatic throw-over transfer, and a new packaged 12.5kV emergency generator. The project upgraded the entire facility from the existing 2.4kV, 3-phase distribution system to the utility-supplied voltage of 12.5kV, 3-phase

### PROJECT DETAILS

**Engineering Project Manager**
Craig Clary

**Principal Engineer**
Garry Roscetti

**Year Completed**
Design - 2022
Construction - Jan 2026 (est.) due to equipment lead times

**Cost**
$7 million

**Project Controls**
Design was completed on schedule. Construction delayed due to equipment lead times. Construction Completion Jan 2026.

**Owner Reference**
Heather Oxley | Project Manager
Illinois Capital Development Board
Heather.Oxley@illinois.gov
217.524.0028





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# REQUIRED FORMS

See the following pages for:

- Pricing and Information Form
- Evidence of Insurance



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City of Louisville
COLORADO • SINCE 1878

**CITY OF LOUISVILLE**
**Internal Decarbonization Project – Electrification/Energy Efficiencies (E/EE)**

## Pricing & Information

1. Check the correct boxes according to the scope and fee included in your Proposal and provide the lump sum cost for each phase:

☑ Phase 1 – Electrical Load Evaluation Only:

Phase 1 Cost: $ $83,936.00

☑ Phase 2 – Electrification/Energy Efficiency Implementation Only

Phase 2 Cost: $ Pending Phase 1 results

☐ Phases 1 and 2:

Phase 1 Cost: $_____

Phase 2 Cost: $_____

2. Provide the proposed Project start and completion dates or timeline, as applicable:

Phase 1 – Electrical Load Evaluation

Start Date: November 2025 End Date: TBD - Estimating Mid-2026

Phase 2 – Electrification/Energy Efficiency Implementation

Start Date: _____ End Date: _____

3. Details that are relevant to the Proposal and completion of the Project (may be attached separately):

See Dewberry's proposal dated 9.12.25

4. Additional Documents – The following documents are attached to and made a condition of this Proposal:

a) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Proposal,
b) Anti-Collusion Affidavit,
c) If Proposer is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

5. Communications concerning this proposal shall be addressed to:

The address of Proposer indicated below.

Dewberry Engineers Inc.

Ely LaBerge, PE, LEED AP BD+C

720.647.9012 (direct), 707.486.1447 (mobile)
elaberge@dewberry.com

**SUBMITTED on** September 12 **, 2025.**

## SCHEDULE OF SUBCONTRACTORS

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

This Bid is based on subcontracting certain portions of the work to subcontractors as listed below.

Name: BIM4Sites Telephone No. 281-961-0459
Address: 900 South Broadway, Suite 400
City: Denver State: CO Zip Code: 80209
Services/equipment to be provided:
Laser Scan of Existing Buildings - Alternate 1

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

## ANTI-COLLUSION AFFIDAVIT

**PROJECT:** Internal Decarbonization Project
**OWNER: CITY OF LOUISVILLE, COLORADO**

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a BIDDER or potential prime BIDDER.

2A. Neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a BIDDER or potential prime BIDDER on this project, and will not be so disclosed prior to bid opening.

2B. Neither the prices nor the amount of the Bid of any other firm or person who is a BIDDER or potential prime BIDDER on this project have been disclosed to me or my firm.

3A. No attempt has been made to solicit, cause or induce any firm or person who is BIDDER or potential prime BIDDER to refrain from bidding on this project, or to submit a Bid higher than the Bid of this firm, or any intentionally high or noncompetitive Bid or other form of complementary Bid.

3B. No agreement has been promised or solicited for any other firm or person who is a BIDDER or potential prime BIDDER on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.

4. The Bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.

8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the OWNER of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

| CONTRACTOR'S FIRM OR COMPANY NAME | | SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE) | |
|---|---|---|---|
| Dewberry Engineers Inc. | | | |
| BY: | David A. Enns | BY: | |
| TITLE: | Vice President | TITLE: | |
| DATE: | September 12, 2025 | DATE: | |

SWORN BEFORE ME THIS 12th DAY OF September, 2025

NOTARY PUBLIC Michelle Luther MY COMMISSION EXPIRES March 6, 2028

OFFICIAL SEAL
MICHELLE L LUTHER
Notary Public, State of Illinois
Commission No. 987910
My Commission Expires
March 06, 2028

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

If PROPOSER is:

**An Individual**

By _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

_____

Phone No.: _____

**A Partnership**

By _____ (SEAL)
(Individual's Name)

_____
(General Partner)

Business address: _____

_____

Phone No.: _____

**A Corporation**

By Dewberry Engineers Inc., State of New York
(Corporation Name, State of Incorporation)

By David J. Evers
(Name of person authorized to sign)

Vice President
(Title)

(CORPORATE SEAL)




Attest _____
(Secretary)

Business address: Dewberry Engineers Inc. 8401 Arlington Blvd., Fairfax, VA 22031 (corporate headquarters)

Dewberry Engineers Inc. 990 South Broadway, Suite 400, Denver, CO 80209 (office submitting proposal)

Phone No.: 703.849.0100 (corporate) 303.825.1802 (Denver office)

Date of Qualification to do business: 01/06/1927

**A Joint Venture**

By _____
(Name)

_____
(Address)

By _____
(Name)

_____
(Address)

Phone Number and Address for receipt of official communications:

_____

_____

(Each joint venture partner must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 06/25/2025

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

**PRODUCER**
MARSH USA, LLC.
1050 CONNECTICUT AVENUE, SUITE 700
WASHINGTON, DC 20036-5386

CN102736896-7/1-1.1a-25-26

**CONTACT NAME:** Ashley Oliver
**PHONE (A/C, No, Ext):** 410 347 3631 **FAX (A/C, No):**
**E-MAIL ADDRESS:** Ashley.Oliver@marsh.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| **INSURER A :** The Charter Oak Fire Insurance Company | 25615 |
| **INSURER B :** The Travelers Indemnity Company Of America | 25658 |
| **INSURER C :** Travelers Property Casualty Co. Of America | 25674 |
| **INSURER D :** Beazley Insurance Company, Inc. | 37540 |
| **INSURER E :** N/A | N/A |
| **INSURER F :** | |

**INSURED**
DEWBERRY ENGINEERS INC.
8401 ARLINGTON BOULEVARD
FAIRFAX, VA 22031-4619

**COVERAGES** **CERTIFICATE NUMBER:** CLE-005441385-37 **REVISION NUMBER:** 21

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | | |
|---|---|---|---|---|---|---|---|---|---|
| A | X **COMMERCIAL GENERAL LIABILITY**<br>[ ] CLAIMS-MADE [X] OCCUR<br>X CONTRACTUAL INS. COV.<br>[ ] (INSURED CONTRACTS)<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>X POLICY [ ] PRO-JECT [ ] LOC<br>[ ] OTHER: | | | P-630-7792B312-COF-25 | 07/01/2025 | 07/01/2026 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG<br> | $<br>$<br>$<br>$<br>$<br>$<br>$ | 5,000,000<br>1,000,000<br>10,000<br>1,000,000<br>5,000,000<br>5,000,000<br> |
| B | **AUTOMOBILE LIABILITY**<br>X ANY AUTO<br>[ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS<br>[ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY | | | 810-1N788974-25-43-G | 07/01/2025 | 07/01/2026 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident)<br>COMP / COLL DED: | $<br>$<br>$<br>$<br>$ | 2,000,000<br><br><br><br>1,000 |
| C | X **UMBRELLA LIAB** X OCCUR<br>**EXCESS LIAB** [ ] CLAIMS-MADE<br>[ ] DED [ ] RETENTION $ | | | CUP-4J583077-25-43 | 07/01/2025 | 07/01/2026 | EACH OCCURRENCE<br>AGGREGATE<br> | $<br>$<br>$ | 5,000,000<br>5,000,000<br> |
| C | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY**<br>ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N<br>**(Mandatory in NH)**<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | UB-6P972264-25-43-G | 07/01/2025 | 07/01/2026 | X PER STATUTE [ ] OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$<br>$<br>$ | <br>1,000,000<br>1,000,000<br>1,000,000 |
| D | PROFESSIONAL LIABILITY | | | V11B5E251601<br>RETRO. DATE: FULL PRIOR ACTS | 07/01/2025 | 07/01/2026 | PER CLAIM/AGGREGATE | | 5,000,000 |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**
EVIDENCE OF INSURANCE

**CERTIFICATE HOLDER**

DEWBERRY ENGINEERS INC
8401 ARLINGTON BLVD
FAIRFAX, VA 22031

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE of Marsh USA LLC**

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Dewberry
www.dewberry.com

SEPTEMBER 12, 2025

SUBMITTED TO
**CITY OF LOUISVILLE**

City of Louisville
COLORADO • SINCE 1878

REQUEST FOR PROPOSAL

# INTERNAL DECARBONIZATION PROJECT

## ELECTRIFICATION/ENERGY EFFICIENCIES

SUBMITTED BY
**MICHAEL BAKER INTERNATIONAL**
320 South Teller Street • Lakewood, Colorado 80226

Michael Baker INTERNATIONAL 85 YEARS 1940 2025 HFF

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PRICING & INFORMATION

MINIMUM INSURANCE REQUIREMENTS

# 1. COVER LETTER

Taylor McCauley
City of Louisville
749 Main Street
Louisville, CO 80027

**RE: Internal Decarbonization Project – Electrification/Energy Efficiencies**

Dear Ms. McCauley & Selection Committee,

Michael Baker International, Inc. (Michael Baker) is pleased to submit our proposal for Technical Services in support of the City of Louisville's Internal Decarbonization Project. We applaud the City's bold climate leadership – setting ambitious goals to achieve 100% carbon-free electricity, reduce emissions by 60% by 2030, and reach carbon neutrality by 2050. Our team is excited to help bring this vision to life through practical, scalable, and community-centered solutions. Our approach is built on three core strengths that directly align with the RFP's objectives.

## MICHAEL BAKER & OUR TEAM OFFER THE FOLLOWING:

**Electrical Infrastructure Planning:** Michael Baker specializes in evaluating existing electrical systems and designing upgrades that support full building electrification and solar integration. Our approach ensures that facilities are equipped to meet current operational needs while remaining adaptable to future energy demands. We prioritize resilience, capacity, and compatibility across all systems to support Louisville's long-term decarbonization strategy.

**Precision Engineering & Integrated Design:** Our multidisciplinary team – spanning architecture, electrical, mechanical, and structural engineering – delivers cohesive, high-performance solutions tailored to Louisville's decarbonization goals. We approach each facility holistically, ensuring that envelope upgrades, spatial planning, and system transitions are fully coordinated from concept through construction. Our designs are not only technically sound but also strategically aligned with funding requirements, maximizing eligibility under DOLA, HEEHA, and PBEG programs. This integrated delivery model accelerates implementation while minimizing disruption and long-term cost.

**Collaborative Partnership:** We view ourselves not merely as consultants, but as strategic partners committed to advancing Louisville's decarbonization goals. Our role is to guide the project through both Phase 1 and Phase 2 – ensuring continuity from initial design through final implementation. We work in full alignment with the City's values, priorities, and operational context, bringing a responsive, communicative approach that keeps stakeholders informed and engaged. Every solution we co-create is grounded in technical excellence, transparency, and a shared commitment to delivering lasting impact.

## THE MICHAEL BAKER ADVANTAGE

Michael Baker stands apart in our ability to lead municipal decarbonization from vision to execution. We do not just design systems, we build pathways. Our team combines deep technical expertise in electrification, solar integration, and energy efficiency with the architectural and engineering fluency needed to retrofit complex facilities. We understand how to navigate permitting, coordinate with local utilities, and deliver ready construction documents that meet the demands of both performance and compliance.

**What sets us apart is our capacity to carry this project through both Phase 1 and Phase 2 with continuity, precision, and accountability.** We bring a delivery model that integrates design, funding strategy, and construction coordination, ensuring that Louisville's goals are not only met, but exceeded. Our experience with similar municipal initiatives means we know how to scale solutions, manage risk, and maintain momentum across departments and stakeholders.

*This is not just a technical challenge – it is a chance to lead, and we are ready to support Louisville in rising to the occasion.*

*To the best of our knowledge, the information and data submitted in this proposal are true and complete. Edward Hanbicki is authorized to act on behalf of Michael Baker. Michael Baker acknowledges the receipt of addendas 1-5.*

Sincerely,

Michael Baker International, Inc.

Kevin DeBoer, PE | Project Manager
720.962.3242 | kevin.deboer@mbakerintl.com
fax # 720.514.1120

Edward Hanbicki, AIA, LEED AP BD+C | Project Principal
206.288.6029 | edward.hanbicki@mbakerintl.com
fax # 720.514.1120

Michael Baker INTERNATIONAL | *We Make a Difference*

## Michael Baker

### Qualifications

Founded in 1940, Michael Baker International is a nationally recognized engineering and consulting firm with over 85 years of experience delivering innovative, sustainable solutions across planning, architectural design, environmental analysis, construction, and program management. Consistently ranked among the top U.S. design firms by Engineering News-Record (ENR), the firm maintains a strong presence in Colorado with 115+ professionals, including experts in architecture and electrical, mechanical, structural, and environmental engineering. Michael Baker's multidisciplinary teams are well-equipped to support complex municipal initiatives such as Louisville's Internal Decarbonization Plan (IDP), ensuring compliance with local codes, grant requirements, and sustainability goals. Their collaborative approach, technical excellence, and deep experience with grant-funded programs – including various grant programs - enable them to guide clients through permitting, stakeholder coordination, and reporting. Their commitment to quality and innovation aligns with the City's vision to reduce emissions, electrify infrastructure, and achieve carbon neutrality by 2050.




**2025 ENR RANKINGS**

THE TOP 500 DESIGN FIRMS

| | |
|---|---|
| 27 | Top 500 Design Firms |
| 18 | Top 100 Pure Designers |
| 7 | Bridges |
| 7 | Dams & Reservoirs |
| 9 | Construction Management |
| 13 | Transportation |
| 15 | Water Supply |
| 17 | Airports |
| 17 | Highways |
| 22 | Mass Transit & Rail |

### Experience

Michael Baker has extensive experience supporting municipal decarbonization and electrification efforts, including electrical load evaluations, solar integration, and energy efficiency upgrades. Our teams have led similar multi-site projects involving HVAC electrification and infrastructure retrofits for public buildings, managing phased implementation plans and coordinating with utility providers to integrate renewable energy systems with existing infrastructure. We have supported multiple Department of Defense facilities in developing strategic energy roadmaps, conducting feasibility studies, and implementing high-efficiency systems in public facilities. With a deep understanding of stakeholder coordination, grant compliance, and cost-effective delivery, Michael Baker is well-positioned to support the City through all phases of the Internal Decarbonization Plan – from design and permitting to construction and commissioning.

## Encore Electric

ENCOREelectric®

### Metering

Encore Electric, a Colorado-based electrical contractor, is recognized as a premier provider of electrical construction, technology solutions, and maintenance services throughout the Rocky Mountain region. With a legacy of excellence, Encore delivers high-quality, innovative, and customer-focused solutions across a wide range of projects, specializing in design/build and design/assist services that include extensive preconstruction analysis, fabrication, and constructability reviews. Their skilled workforce and proven project management practices ensure safety and reliability, while their dedicated service team provides comprehensive post-construction support. Encore also brings strong experience in installing and integrating metering systems across commercial and industrial projects, offering accurate and reliable solutions for energy monitoring, load management, and utility compliance through advanced tools and proven construction practices that ensure seamless performance.

## Acuity International

ACUITY INTERNATIONAL

### Cost Estimating

Acuity International brings over 48 years of experience in cost engineering, offering comprehensive and data-driven cost estimation services for federal, commercial, and international clients. Their expertise spans the full project lifecycle, from concept design to execution, ensuring accurate forecasting, budget compliance, and risk mitigation. Acuity employs certified professionals – including PMP, Six Sigma, and PE-accredited experts – and leverages advanced tools and proven methodologies to deliver precise cost analysis, scheduling, and value engineering. Their systematic and customized approach helps clients optimize construction budgets, identify cost-saving alternatives, and maintain project integrity without compromising quality.

# 2. PROJECT TEAM

## Staffing

We will align our expectations with the City's goals to ensure the outcome of this project achieves those desires. We do not take a one-size-fits-all approach to our infrastructure projects, as each client is unique and has different goals, expectations, public perception, and leadership that feed into the overall decision-making process.

Our team is dedicated to fostering innovation and collaboration in the development of sustainable infrastructure solutions. With a diverse blend of national experts and local knowledge, we are committed to engaging stakeholders, analyzing environmental impacts, and enhancing community resiliency.

### SIMILAR EXPERIENCE AS A TEAM:

Our team members bring relevant and recent experience with the architecture and engineering services required to successfully deliver this project.

The staff experience matrix below shows each individual's experience and demonstrates the collective strength of the Michael Baker team. Additional qualifications are in the brief resumes on the following pages.

City of Louisville
COLORADO • SINCE 1878

**Project Manager**
Kevin DeBoer, PE 🔑

**Project Principal**
Edward Hanbicki, AIA, LEED AP BD+C 🔑

**Project Team**

**Architecture**
Michael Starr, AIA, LEED AP 🔑
Chad Pentecost, RA

**Electrical Engineering**
Peter Johnson, PE 🔑
Rama Sawaged

**Grants/Permit**
Anne Kuechenmeister, AICP 🔑

**Project Cost Estimating**
Joseph Skelton, CCP, LEED AP [2]

**Structural Engineering**
Scott Haskell, PE 🔑

**Fire Protection**
Kathryn Brinton, PE 🔑

**Mechanical Engineering**
Cristin Johnson, PE 🔑
Angelina Kalianda, PE, CEM

**Energy Efficiency**
Matthew Harris, PE, CEM
Encore Personnel [1]

**Legend**

*Encore Electric [1]* | *Acuity International [2]* | *Key Personnel* 🔑

## Staff Experience Matrix

| | Projects | | | | |
|---|---|---|---|---|---|
| **Staff \| Role** | Government | Local Government | Single Projects > 5 Buildings | Community Stakeholders | Licensed in CO |
| Kevin DeBoer \| Project Manager | ✓ | ✓ | ✓ | ✓ | PE |
| Edward Hanbicki \| Project Principal | ✓ | ✓ | ✓ | ✓ | RA |
| Michael Starr \| Architect | ✓ | ✓ | ✓ | ✓ | *Pending* |
| Peter Johnson \| Electrical Engineer | ✓ | ✓ | ✓ | ✓ | PE |
| Anne Kuechenmeister \| Grants/Permits | ✓ | ✓ | ✓ | ✓ | AICP |
| Scott Haskell \| Structural Engineer | ✓ | ✓ | ✓ | ✓ | PE |
| Kathryn Brinton \| Fire Protection | ✓ | ✓ | ✓ | | PE |
| Cristin Johnson \| Mechanical Engineer | ✓ | | ✓ | ✓ | PE |



# 2. PROJECT TEAM



**Kevin DeBoer,** PE
PROJECT MANAGER

*BS, Architectural Engineering*
*Years Experience: 12 | Years at Michael Baker: 1*
*Unique Knowledge:* Kevin brings 12 years of experience in mechanical and MEP/FP systems design and project management, with a strong track record leading complex public-sector projects. He has served as MEP PM and lead mechanical engineer on major stadium renovations – including facilities for the Carolina Panthers, Florida State University, and Texas Tech – where he coordinated HVAC, hydrotherapy, and energy systems under tight timelines and within active environments. His work with Colorado school districts involved close collaboration with community stakeholders and local governments, reinforcing his ability to manage sustainable upgrades in public-facing spaces. Kevin's familiarity with LEED-aligned design and operational continuity makes him well-suited to support Louisville's electrification and energy efficiency goals. His experience working in occupied facilities has honed his ability to protect sensitive occupants and minimize disruption during construction. These qualities make him a valuable asset in delivering resilient systems that align with Louisville's decarbonization roadmap.

*Level of Availability:* 70%
*Existing Workload:* 20%
*Level of Involvement:* 65%
*Upcoming Workload:* +15%



**Edward Hanbicki,** AIA, LEED AP BD+C
PROJECT PRINCIPAL

*BS, Architecture*
*Years Experience: 24 | Years at Michael Baker: 1*
*Unique Knowledge:* Edward brings a strategic and multidisciplinary perspective to the City, drawing on his extensive leadership experience in architecture, program management, and sustainable design. His background includes directing large-scale programs such as the Port of Seattle's terminal renovations and confidential manufacturing facilities, where he ensured operational continuity while managing complex stakeholder needs. Edward's ability to align project delivery with client goals and industry standards is rooted in his history of overseeing integrated teams across aviation, government, and corporate sectors. His collaborative approach to business development and deep understanding of LEED principles make him uniquely positioned to guide Louisville's electrification and energy efficiency initiatives, ensuring that sustainability, innovation, and strategic growth are embedded throughout the project lifecycle.

*Level of Availability:* 40%
*Existing Workload:* 25%
*Level of Involvement:* 35%
*Upcoming Workload:* +15%



**Michael Starr,** AIA, LEED AP
ARCHITECT

*BS, Architecture*
*Years Experience: 31 | Years at Michael Baker: 1*
*Unique Knowledge:* Michael is a seasoned architectural leader with 31 years of experience, having delivered more than 1,500 projects totaling over $2 billion in construction value. His portfolio includes numerous large-scale Federal, state, and local government facilities, with a strong emphasis on civic infrastructure, sustainability, and public-sector innovation. Renowned for his award-winning design leadership, Michael brings extensive expertise in technical oversight, sustainable building practices, and high-performance envelope systems – skills that directly support the City's ambitious decarbonization and electrification goals. His deep understanding of integrating solar PV systems, envelope retrofits, and HVAC electrification into existing municipal buildings ensures that upgrades are both technically sound and operationally seamless. Michael's experience navigating complex permitting, stakeholder coordination, and grant-funded design efforts positions him as a strategic asset in delivering resilient, future-ready public infrastructure.

*Level of Availability:* 50%
*Existing Workload:* 40%
*Level of Involvement:* 45%
*Upcoming Workload:* +15%



**Peter Johnson,** PE
ELECTRICAL ENGINEER

*BS, Construction Engineering*
*Years Experience: 12 | Years at Michael Baker: 4*
*Unique Knowledge:* Peter brings a specialized depth of electrical engineering expertise to the City, shaped by over a decade of experience designing and coordinating electrical systems for high-profile stadiums, commercial developments, and government facilities. His work at Wrigley Field and with the Atlanta Braves involved complex electrical infrastructure upgrades, stakeholder coordination, and compliance with MLB standards – all within active, high-security environments. Peter's familiarity with the National Electrical Code, International Energy Conservation Code, and advanced design tools like REVIT, SKM Power Tools, and COMcheck ensures precision in load analysis, system integration, and energy efficiency. His extensive background in Department of Defense projects, including USACE and USAF facilities, further demonstrates his command of sustainable design and cybersecurity standards for facility-related control systems. This makes him uniquely equipped to support Louisville's electrification goals with resilient, code-compliant, and future-ready electrical solutions.

*Level of Availability:* 50%
*Existing Workload:* 40%
*Level of Involvement:* 45%
*Upcoming Workload:* +15%

# 2. PROJECT TEAM



**Anne Kuechenmeister,** AICP
GRANTS/PERMITS SPECIALIST

*MURP, Regional & Urban Planning*
*Years Experience: 9 | Years at Michael Baker: 12*
*Unique Knowledge:* Anne brings a unique blend of urban planning, public engagement, and grant strategy expertise to the City, making her an invaluable asset in navigating the complex landscape of funding and permitting. Her experience working with diverse communities and special districts equips her to facilitate inclusive stakeholder engagement and build consensus around electrification and energy efficiency initiatives. Anne's deep understanding of land use, multimodal infrastructure, and climate resilience allows her to align project goals with broader community and environmental priorities. With a proven track record of securing grants from agencies such as the EPA, HUD, and the Colorado Health Foundation, she excels at crafting compelling narratives and layered funding strategies that meet the rigorous requirements of programs like DOLA, HEEHA, and PBEG. Her ability to translate technical data into accessible messaging and her familiarity with permitting processes across local, regional, and federal levels position her to ensure compliance, maximize funding opportunities, and support the seamless delivery of Louisville's decarbonization roadmap.

*Level of Availability:* 50%
*Existing Workload:* 40%
*Level of Involvement:* 45%
*Upcoming Workload:* +15%



**Scott Haskell,** PE
STRUCTURAL ENGINEER

*BS, Civil Engineering*
*Years Experience: 12 | Years at Michael Baker: 1*
*Unique Knowledge:* Scott's structural engineering expertise brings critical value to the City, particularly in the integration of solar arrays, HVAC retrofits, and building envelope upgrades across diverse municipal facilities. His precision-driven approach and deep understanding of load-bearing systems ensure that electrification and energy efficiency measures – such as rooftop solar installations and mechanical system replacements – are structurally sound, code-compliant, and optimized for long-term performance. Scott's commitment to innovation and sustainability allows him to anticipate and resolve challenges related to aging infrastructure, seismic considerations, and adaptive reuse, all of which are essential in a project that spans multiple facility types and construction phases. His ability to collaborate across disciplines and incorporate cutting-edge methodologies ensures that Louisville's decarbonization goals are met with structural integrity and resilience.

*Level of Availability:* 60%
*Existing Workload:* 30%
*Level of Involvement:* 55%
*Upcoming Workload:* +15%



**Kathryn Brinton,** PE
FIRE PROTECTION SPECIALIST

*BS, Mechanical Engineering*
*Years Experience: 17 | Years at Michael Baker: 3*
*Unique Knowledge:* Kathryn brings specialized fire protection engineering expertise to the City, ensuring that electrification and energy efficiency upgrades across municipal facilities meet rigorous life safety and code compliance standards. As a licensed fire protection and mechanical engineer, she has led fire hazard analyses, egress evaluations, and fire suppression and alarm system designs for complex federal, petrochemical, and power generation projects. Her deep familiarity with ICC codes, NFPA standards, and Department of Energy orders positions her to navigate the permitting and regulatory landscape with precision, particularly as the project integrates new mechanical systems, solar arrays, and electrical infrastructure. Kathryn's collaborative approach with Authorities Having Jurisdiction and client fire protection teams ensures that all upgrades – whether rooftop HVAC replacements or building envelope modifications – are executed with a strong emphasis on occupant safety, resilience, and compliance. Her leadership and technical acumen make her a critical contributor to the safe and successful delivery of Louisville's decarbonization goals.

*Level of Availability:* 40%
*Existing Workload:* 50%
*Level of Involvement:* 35%
*Upcoming Workload:* +15%



**Cristin Johnson,** PE
MECHANICAL ENGINEER

*MS, Architectural Engineering*
*Years Experience: 13 | Years at Michael Baker: 3*
*Unique Knowledge:* Cristin is an experienced mechanical engineer who has successfully designed and managed many projects and who has extensive experience with sports and entertainment, transportation, education, multi-family, and other commercial projects. Her mechanical experience includes heating, ventilation, and air conditioning design with a wide variety of system types, including indoor and outdoor air handling units, water-source heat pumps, dehumidification, humidification, air- and water-cooled chillers, cooling towers, evaporative coolers, boilers, heat exchangers, computer room and in-row cooling units, and refrigerant systems. She has been the client point-of-contact and managed large mechanical designs on new construction projects to completion, including UBS Arena in Elmont, New York, and lived on-site during the construction of T-Mobile Arena in Las Vegas, Nevada. She has also managed large renovation projects, including Vivint Smart Home Arena in Salt Lake City, Utah. Cristin has worked on numerous LEED projects and other sustainable design programs.

*Level of Availability:* 60%
*Existing Workload:* 30%
*Level of Involvement:* 55%
*Upcoming Workload:* +15%

# 2. PROJECT TEAM

| PROJECTS COMPLETED WITHIN THE PAST 5 YEARS | | | |
|---|---|---|---|
| **Project** | **Client** | **Reference** | **Role** |
| Hidden Treasure Mountain Trailhead Design & Construction | *City of Black Hawk* | Tom Isbester<br>303.582.1324<br>tisbester@cityofblackhawk.org | ▪ Lead Structural Engineer<br>▪ Advanced Conceptual Design<br>▪ Construction Oversight & Inspection |
| Quebec Avenue over Airlawn Road Bridge Replacement Design | *City and County of Denver* | James Colbert<br>720.865.3186<br>james.colbert@denvergov.org | ▪ Project Management & Coordination<br>▪ Structural Engineering<br>▪ Stakeholder Engagement |
| Building Resilient Infrastructure & Communities Project Prioritization | *City and County of Denver* | Thomas Blackman<br>720.346.3246<br>thomas.blackman@denvergov.org | ▪ Technical Assistance Delivery<br>▪ Community Engagement & Planning<br>▪ Program Management & QA/QC |
| Colorado Boulevard Bicycle & Pedestrian Safety Improvements | *City of Commerce City* | Mark Winnen<br>303.227.7195<br>mwinnen@c3gov.com | ▪ Design Leadership<br>▪ Pedestrian & Cyclist Connectivity<br>▪ Traffic Calming & Safety |
| Havana Street Multimodal Corridor Study | *City of Aurora* | Huiliang Liu<br>303.739.7265<br>hliu@auroragov.org | ▪ DRCOG Grant Funding<br>▪ Agency Coordination<br>▪ Corridor Study |

Michael Baker has consistently delivered high-quality work across all listed projects, while effectively managing costs and adhering to project schedules.




## Cost Control

Cost control is a critical component of every project, and Michael Baker is committed to delivering high-quality services in the most cost-effective and efficient manner possible. Our approach begins with a thorough understanding of the scope-of-work and technical requirements, followed by a detailed review to develop a comprehensive budget and schedule. This includes clearly defined deliverables, assumptions, and execution strategies. Once approved, our team coordinates internally to ensure all staff are aligned on scope, schedule, and budget expectations. We implement frequent oversight, milestone tracking, and budget monitoring using our Work Breakdown Structure, evaluating costs at each submittal to maintain financial alignment. Any potential scope, schedule, or budget changes are communicated to the City immediately. Our Project Manager provides monthly status reports outlining progress, estimated completion timelines, and any relevant updates. By addressing challenges early and maintaining transparency, we serve as a proactive partner in upholding quality, schedule, and budget throughout the project lifecycle.

## Meet Schedule

Michael Baker utilizes Microsoft Project to track the status of the preparation of environmental documents and related technical studies as well as key milestones of the project. Completion of all work products assumes a three-week internal review and processing period in order to ensure timely submittal to the client. Michael Baker's project management approach, quality control process, budget control techniques, and methods of communication with our clients are key to keeping projects on schedule. Our familiarity with CDOT staff and procedures is another crucial aspect of schedule management that allows us to accurately determine the project schedule at the beginning of the process.




## QA/QC

Michael Baker is committed to providing work products that can withstand strict public and legal scrutiny. Our Project Management and Quality Assurance/Quality Control (QA/QC) approach establishes accountability for delivering exemplary products on time and within budget. The QA/QC process is implemented to make sure potential deficiencies are addressed prior to submitting to the City and prevent unnecessary cost escalations and schedule delays. Michael Baker is committed to maintaining budget and schedule based on our defined scope-of-work for a task order. We take pride in not requiring cost escalations or schedule extensions from work product deficiencies. The first level of review of all work products would come from the Project Manger. The Project Manager would work with staff technical specialists to address any potential deficiencies. The QA/QC manager would be the next level of review and would address any outstanding concerns with the Project Manager and Technical Specialists prior to submittal to the City. If during data reviews or preparation of any documents, data gaps or additional out-of-scope requirements are identified, Michael Baker would immediately coordinate with the City on a path forward.

# 3. WORK PLAN

Michael Baker will approach the City's Internal Decarbonization Project with shared purpose: we believe that decarbonizing municipal facilities is a critical step toward achieving the City's climate goals and demonstrating leadership in sustainable infrastructure. This project offers a meaningful opportunity to reduce emissions, modernize building systems, and improve long-term operational resilience across the City's public portfolio.

This Work Plan addresses both phases of the project as defined in the 2025 RFP:

## Phase 1

### Electrical Load Evaluation of City Facilities

Our team will conduct facility-level assessments to quantify existing electric service capacity, model projected electric loads under full electrification scenarios, and identify required electric service upgrades. As part of this effort, we will provide floor plans of each facility, documenting existing conditions and electrical system layouts to support load modeling, utility coordination, and Phase 2 readiness.

## Phase 2

### Electrification & Energy Efficiency (E/EE) Implementation

Phase 2 transitions into the design and execution of electrification and energy efficiency upgrades. This includes developing construction-ready documentation for envelope improvements, replacement of fossil-fuel-based systems (e.g., HVAC and water heating), and electric service modifications identified in Phase 1. Our team will support implementation by providing technical input during permitting and construction phases, coordinating with City staff and contractors to ensure that design intent is maintained and that upgrades are installed in accordance with project specifications and applicable codes.

Together, these phases form a comprehensive roadmap for decarbonizing the City's municipal building portfolio. Our team brings technical expertise, public-sector experience, and delivery discipline necessary to execute each phase with precision and purpose.

# PHASE 1: PLANNING & DESIGN APPROACH

## Facility Assessments

Michael Baker will conduct site assessments for each of the seven municipal buildings identified in the Phase 1 scope. As required by the RFP, we will produce floor plans for each facility that clearly show the locations of electrical and mechanical equipment. These plans will be developed through field verification and documentation review and will serve as foundational inputs for load modeling and future design efforts. We will also assess existing electric service capacity and infrastructure to support accurate forecasting of future demand.

## Electrification Strategy

Using data collected during facility assessments, we will model projected electrical loads for each building under full electrification scenarios. This includes estimating demand associated with converting building systems – such as heating, water heating, and other major loads – from fossil fuel sources to electric alternatives. We will identify the required electric service upgrades and develop a building-by-building strategy to support future implementation.

## Envelope & System Coordination

While Phase 1 does not include full mechanical or envelope design, we will document relevant building characteristics that influence electric load projections. This includes identifying systems likely to be electrified in Phase 2 and noting envelope conditions that may affect heating and cooling demand. These inputs will be used to refine load modeling and ensure that electric service upgrade recommendations are appropriately scaled.

## Stakeholder Engagement

We will coordinate closely with City staff throughout Phase 1 to facilitate site access, validate operational constraints, and align planning assumptions. Engagement will be structured to ensure that assessments reflect real-world conditions and that proposed strategies are feasible within the City's capital planning framework.

## Grant Alignment

All Phase 1 deliverables will be prepared to support future funding applications and implementation planning. Documentation will be structured to meet typical standards for public-sector capital improvement funding, including clear scope definition, cost estimating, and readiness for execution.

# PHASE 2: PLANNING & DESIGN APPROACH

## Implementation Strategy

Michael Baker will lead the implementation of electrification, energy efficiency, and solar upgrades across nine municipal facilities identified in the Phase 2 scope. This phase builds directly on the assessments and modeling completed in Phase 1 and transitions the project into full design and construction coordination. Our team will manage all aspects of implementation, including design documentation, stakeholder coordination, and integration of mechanical, electrical, and renewable energy systems. The list below notes the upgrades expected as part of Phase 2 for each of the buildings:

### 1. Art Center

The Art Center will undergo energy efficiency measures that include envelope air sealing, added wall insulation and new windows. A large architectural impact is expected here as there was discussion that exterior walls will need to be furred out to accommodate added wall insulation.

### 2. Austin Hewitt House

This facility will receive electrification upgrades through the installation of a new heat pump and associated ductwork and piping upgrades. The infrastructure will be upgraded with a new 300A service and window sealing will be provided as an effort to reduce energy requirements.

### 3. City Services Facility

Energy efficiency upgrades at the City Services Facility will include the repair of leaks within the air compressor system, as well as envelop air ceiling. The scope also includes controls optimization and retro-commissioning to improve building automation and reduce energy waste.

### 4. Howard Berry Water Treatment Plant (WTP)

Energy efficiency measures at Howard Berry will include LED light fixture replacement and the addition of lighting controls and vacancy sensors.

### 5. Public Library

A 128kW photovoltaic (PV) array will be installed at this facility, necessitating electrical upgrades for interconnection, monitoring, and inverter integration. Electrification scope includes heat pump RTUs, an electric domestic water heater and associated controls, conduit, piping and electrical modifications. Energy efficiency measures will include envelope and duct air sealing, new VFDs on motor loads, new lighting controls and vacancy sensors. Controls, optimization, snow-melt recommissioning and building retro-commissioning will be incorporated to maximize building performance.

### 6. Recreation & Senior Center

This facility will host a 380kW PV array, requiring comprehensive electrical infrastructure upgrades including conduit routing, inverter integration, and utility interconnection. Electrification upgrades will include heat pump RTUs, ERVs, a new pool dehumidification unit and associated electrical work. Energy efficiency measures will focus on envelope air sealing, lighting controls, sauna scheduling, window sealing and upgrades and HVAC controls, with controls optimization and retro-commissioning to ensure efficient operation.

### 7. Sid Copeland WTP

Electrification upgrades at Sid Copeland WTP will include a heat pump RTU and associated electrical modifications. Energy efficiency measures will include new LED lighting, envelope air-sealing, and new lighting controls and vacancy sensors.

### 8. Wastewater Treatment Plant (WWTP)

Energy efficiency measures at the WWTP will include envelope air-sealing and lighting controls with vacancy sensors to enhance operational efficiency and reduce energy consumption.

### 9. Police & Municipal Building

The Police Department will receive a new 257kW PV array, requiring electrical infrastructure upgrades including service capacity analysis, interconnection planning, inverter integration, and monitoring systems. undergo electrification upgrades and envelope improvements. Electrification upgrades will include new heat pump RTUs, an electric unit heater, and all associated controls, conduit, piping and electrical upgrades. Energy efficiency measures will include envelope ceiling, duct sealing and insulation, controls optimization, and retrocommissioning. Electrical service modifications will be designed to support new electric loads introduced through these upgrades, ensuring long-term system resilience and performance.

**Construction Coordination:** We will oversee construction activities across all nine sites, ensuring that upgrades are delivered efficiently and with minimal disruption to facility operations. Our team will maintain close communication with City staff to ensure safety, schedule adherence, and quality control throughout the implementation process.

**Permitting & Utility Interface:** All required permitting will be managed in accordance with local codes and jurisdictional requirements. The team will coordinate with the appropriate utility provider(s) to facilitate interconnection approvals, service upgrades, and any necessary utility-side modifications. This includes preparation of technical documentation and alignment with utility standards and timelines.

## Integrated Delivery Model

Michael Baker will apply an integrated delivery model that aligns architecture, engineering, and strategic planning to support the City's decarbonization goals. Our multidisciplinary team will collaborate across design disciplines to ensure that building systems, envelope improvements, and renewable energy installations are coordinated from concept through implementation. This approach enables efficient decision-making, reduces design conflicts, and ensures that all elements of the project are aligned with long-term operational and funding objectives.

## Architecture, Engineering, and Funding Strategy Alignment

Design decisions will be informed by both technical feasibility and funding strategy. Architectural and engineering solutions will be developed with an eye toward grant readiness, cost-effectiveness, and scalability. By integrating funding strategy into the design process, we ensure that proposed upgrades are not only technically sound but also positioned for successful implementation through public-sector capital programs. This alignment supports the City's ability to pursue external funding while maintaining control over scope and priorities.

## Risk Mitigation & Adaptability

Our team will proactively identify and manage risks related to permitting, utility coordination, construction logistics, and system integration. Design documentation will include contingency planning and flexibility to accommodate evolving conditions, such as changes in utility requirements or funding availability. By embedding adaptability into the delivery model, we ensure that the City can respond to challenges without compromising project goals or timelines.

## Collaboration & Communication

**Coordination with City Staff:** Michael Baker will maintain close coordination with City staff throughout Phase 2 to ensure alignment on design intent, operational constraints, and implementation logistics. Regular check-ins will be scheduled to review progress, address emerging issues, and confirm that project decisions reflect the City's priorities and facility needs. Our team will remain flexible and responsive to staff availability and input, ensuring that collaboration is efficient and productive.

**Transparency & Responsiveness:** We are committed to a transparent and responsive working relationship. All design decisions, scope adjustments, and implementation strategies will be communicated clearly and documented consistently. Questions and requests from City staff will be addressed promptly, and any changes to schedule, scope, or budget will be surfaced early to support informed decision-making.

**Tools & Platforms:** Project communication will be supported through a combination of email, virtual meetings, and shared documentation platforms. We will use collaborative tools such as Microsoft Teams, SharePoint, and Bluebeam to facilitate real-time coordination, drawing reviews, and document sharing. These platforms will ensure that all stakeholders have access to current information and can participate actively in the design and implementation process.

## Innovation & Scalability

**Unique Approaches:** Michael Baker will apply innovative methods developed during Phase 1 to guide Phase 2 implementation. This includes building-specific electrification modeling that forecasts future electric loads based on system conversion scenarios, and solar-readiness assessments that identify viable PV installation strategies across diverse facility types. These approaches allow the City to make informed design decisions that balance technical feasibility, cost-effectiveness, and long-term decarbonization goals.

**Precedent for Other Municipalities:** The City's internal decarbonization strategy represents a replicable model for other municipalities seeking to transition away from fossil fuel infrastructure. By combining detailed facility assessments, strategic electrification planning, and scalable renewable energy integration, this project demonstrates how local governments can lead by example. The documentation, design standards, and implementation framework developed through this effort will serve as a reference point for future municipal decarbonization initiatives across Colorado and beyond.

## Performance & Accountability

**Metrics, Reporting, and Verification:** Michael Baker International will establish clear performance metrics to evaluate the effectiveness of Phase 2 upgrades. These metrics will include energy use intensity (EUI), projected emissions reductions, and system-level performance benchmarks. Reporting will be structured to support transparency and future funding alignment, with documentation that verifies design intent, implementation outcomes, and readiness for long-term operation.

**Long-Term Resilience & Adaptability:** Designs will be developed with long-term resilience in mind, ensuring that building systems can adapt to evolving operational needs, climate conditions, and technological advancements. Infrastructure will be scalable to accommodate future electrification and renewable energy expansion, and recommendations will prioritize durability, maintainability, and lifecycle performance.

# CONCLUSION & COMMITMENT

Michael Baker is fully prepared to support the City of Louisville in advancing its Internal Decarbonization Project. Our team brings a shared commitment to climate leadership and a proven ability to deliver complex municipal upgrades with precision, collaboration, and purpose.

We recognize that successful decarbonization requires more than technical expertise, demands continuity, coordination, and a deep understanding of public-sector priorities. From Phase 1 assessments to Phase 2 implementation, our approach ensures seamless progression, with each deliverable designed to inform and accelerate the next. The same team that models electric loads and documents existing conditions will lead design development, permitting, and construction coordination, preserving institutional knowledge and maintaining alignment with the City's goals.

We invite the City to move forward with confidence, knowing that this project is not only feasible but transformative. Together, we can set a precedent for municipal decarbonization – one that is scalable, fundable, and resilient. Michael Baker is ready to begin, and we look forward to partnering with the City of Louisville to deliver lasting impact across its public building portfolio.

## PHASE 1 DELIVERABLES:

- Meeting minutes from each meeting and site visit
- Draft report finding from backup system and power needs assessments
- Architectural drawings of each building with major MEP equipment and electrical panel locations identified
- Final report incorporating comments from the City
- Comment Response Matrix

## PHASE 2 DELIVERABLES:

- Conceptual Plans, Specifications List, Preliminary Cost Estimate
- 60% Construction Drawings, Specification List, and Cost Estimate, with Comment Response Matrix
- 90% Construction Drawings, Specifications, and Cost Estimate, with Comment Response Matrix
- 100% Construction Drawings, Specifications, and Cost Estimate, with Comment Response Matrix
- DOLA, HEEHA and PBEG Grant reporting materials including monthly status updates
- Construction Bid Package
- Construction Bid Addenda
- Log of Construction Bidder Inquiries
- Log of RFIs and submittal progress and reviews
- Field Design Recommendations

### 1 KNOWN SCOPE

Reference Phase 2: Planning & Design Approach

### 2 ANTICIPATED SCOPE TO MEET RFP

No battery storage for PV

No re-circuiting requirements

Structural analysis of each building receiving new rooftop equipment will be required

There is no requirement for development of mechanical sequences for the controls/ retrocommissioning effort

Public Library VFDs are replacements of existing VFDs or starters on mechanical equipment

Engineer will confirm heat pump sizing based on heating and cooling calculations

### 3 ANTICIPATED SCOPE TO DEVELOP FEE

Service entrance gear would need to be replaced at Austin Neihoff House, the Public Library, the Police and Municipal Building and the Recreation and Senior Center

The replacement of equipment at the Recreation and Senior Center will have structural implications due to the replacement of AHUs

Electrical Rooms are sufficiently sized for any upgrades that would be required



## Decarbonization Assessment Report for CSUN Northridge

1

*Northridge, CA*

AWARD WINNING

Michael Baker was tasked with providing a Decarbonization Assessment Report for CSUN Northridge, specifically to evaluate and identify existing Natural Gas systems located in buildings connected to electrical Substation B and provide electrified replacement options. Due to the proposed electrified replacements, included in the report are the electrical impacts on Substation B and the 12 individual buildings connected downstream. Field surveys were performed by Baker Electric, and the evaluation of these existing systems was completed by Michael Baker.

Michael Baker identified the existing Natural Gas systems, proposed electrified replacement equipment, and assessed their electrical impacts at each building, along with the overall implications at Substation B. Based on the electrical impacts, assessments were made on the existing condition of the electrical gear, new electrical load estimates, and any implications to consider regarding building electrical service capacity to accommodate the new loads.

## NAS Lamore Electrical Assessment Contractor Project - Performance Assessment Report (CPAR)

2

*San Diego, CA*

AWARD WINNING

**Quality:** The contractor produced high-quality draft, pre-final, and final Baseline Electrical Assessment and Capital Improvement Projects Reports at NAS Lemoore, NWS Seal Beach, Detachment Norco, Detachment Fallbrook, and NAS Fallon; including M2 cost estimates, SKM Model, GIS, Pin Map, and all other supporting project documentation. The contractor appropriately addressed all government review comments for all deliverables despite delayed comment submittals from the government and a substantial workload of comments to address. The contractor also produced high-quality presentation materials for the in-brief and out-brief for the site investigation. The project faced multiple challenges from inception and the contractor worked with the government to create a high-quality product which created a template for future projects to come. Despite this, the installation POCs and FEC Subject Matter Experts expressed frustration numerous times due to the KTR failing to address comments from previous submittals. Lack of engagement due to those frustrations hindered future input from the POCs and has resulted in data gaps within the reports which will be corrected by Navy personnel.

**Schedule:** The contractor was extremely accommodating and adjusted the project POA&M several times to align with schedule constraints on the government side. In addition, the government received comments from local county stakeholders after the scheduled due date which also resulted in changes to the project POA&M. The contractor ensured all project deliverables responses to government comments were submitted on or before the scheduled delivery dates. The contractor accommodated follow up site work within the period of performance to ensure the project requirements were met. The scheduling efforts, however, cannot be classified as Exceptional due to the numerous re-submittals which were required to facilitate a high-quality end product – each installation, with the exception of Dets Norco and Fallbrook, required two pre-final submittals, and two - three final submittals due to failure to address government comments. The contractor worked diligently to make corrections and improve the project quality with each iteration of deliverables, but the need to repeat corrections led to schedule slips throughout the project.

**Cost Control:** No contractor driven modifications for cost were requested or identified despite the contractor indicating that deliverable corrections, hiring of new staff to improve the project, follow-up site visits, and other adjustments resulted in the project exceeding the planned cost of the project.

**Management:** The contractor was responsive to NAVFAC and PWD comments in a professional and courteous manner. The contractor responded to NAVFAC SW concerns regarding the quality of the project's management and hired Quality Assurance staff, additional GIS Supervisory staff, and new Project Management staff. As a result, the quality of the project and communication with the contractor improved significantly. The contractor was exceptional in their efforts to maintain open communication and invoicing after switching management and diligently worked to adjust to installation comments or concerns immediately. The contractor was extremely flexible and responsive while preparing to deliver the final hard copy and digital deliverables to the installation. The PM allowed the installations to reassess their deliverable packages once they received them in the mail and generously agreed to print and send additional segments of the request. Each Navy POC will have their desired product due to the hard work of the contractor management team.

**Regulatory Compliance:** The Contractor complied with all required standards and provisions in the contract.

**Period of Performance Being Assessed:** 9.15.2023 - 11.8.2023

| Evaluation Areas | Rating |
|---|---|
| Quality | *Very Good* |
| Schedule | *Very Good* |
| Cost Control | *Exceptional* |
| Management | *Exceptional* |
| Regulatory Compliance | *Exceptional* |

# 5. FEE PROPOSAL

## Phase 1

| Task | Sub Task | Principal | Project Manager | Admin Assistant | Intermediate CAD | ARCHITECTURE Sr. | ARCHITECTURE Jr. | COST ESTIMATING Sr. | COST ESTIMATING Jr. | MECHANICAL Sr. | MECHANICAL Jr. | ELECTRICAL Sr. | ELECTRICAL Jr. | FIRE PROTECTION Sr. | FIRE PROTECTION Jr. | STRUCTURAL Sr. | STRUCTURAL Jr. | Cost per Task |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $288.09 | $231.80 | $232.75 | $109.13 | $200.29 | $152.99 | $184.24 | $159.95 | $232.38 | $181.31 | $220.56 | $177.28 | $218.97 | $150.24 | $186.31 | $128.46 | |
| **Existing Back-up System Assessment** | | 26 | 0 | 0 | 0 | 152 | 2,048 | 0 | 0 | 11 | 75 | 51 | 153 | 0 | 0 | 0 | 0 | |
| | Assessment of Back-up Systems | | | | | | | | | | | 10 | 20 | | | | | 5,751 |
| | Meet with Building Staff | | | | | | | | | | | 15 | 8 | | | | | 4,727 |
| | Review Existing One-line Equipment | | | | | | | | | | | 10 | 30 | | | | | 7,524 |
| | Memoralize Existing One-Line | | | | | | | | | | | 10 | 40 | | | | | 9,297 |
| | Document the Existing MEP Locations | 24 | | | | 146 | 2,048 | | | 5 | 75 | | 55 | | | | | 373,991 |
| | Document any Major Deficiencies | 2 | | | | 6 | | | | 6 | | 6 | | | | | | 4,496 |
| **Power Needs Assessment** | | 8 | 0 | 0 | 0 | 8 | 0 | 34 | 68 | 0 | 40 | 84 | 205 | 0 | 0 | 0 | 0 | |
| | Review and Document Inventory of Existing Electrically Powered Equipment | | | | | | | | | | | 30 | 60 | | | | | 17,254 |
| | Interview City Staff to Determine Power Needs at Each Building | | | | | | | | | | | 16 | 16 | | | | | 6,365 |
| | Determine future power demands of Phase 2 work | | | | | | | | | | 40 | 10 | 40 | | | | | 16,549 |
| | Establish each Facilitiy's Power Needs based on back-up power System to Power Full Facility Program | | | | | | | | | | | 14 | 65 | | | | | 14,611 |
| | Develop Probable Cost at Each Facility | | | | | | | 26 | 60 | | | | | | | | | 14,387 |
| | Meeting to Discuss Probable Cost of Each Facility with PM and other City Personnel | 8 | | | | 8 | | 8 | 8 | | | 8 | 8 | | | | | 9,843 |
| | Sizing Recommendations based on Existing and Future Power Demands | | | | | | | | | | | 6 | 16 | | | | | 4,160 |
| | **TOTAL LABOR HOURS:** | 34 | 0 | 0 | 0 | 160 | 2,048 | 34 | 68 | 11 | 115 | 135 | 358 | 0 | 0 | 0 | 0 | |

**488,954** Total Cost

## Phase 2

| Task | Sub Task | Principal | Project Manager | Admin Assistant (Grants) | Intermediate CAD | ARCHITECTURE Sr. | ARCHITECTURE Mid | COST ESTIMATING Sr. | COST ESTIMATING Jr. | MECHANICAL Sr. | MECHANICAL Mid | ELECTRICAL Sr. | ELECTRICAL Mid | FIRE PROTECTION Sr. | FIRE PROTECTION Mid | STRUCTURAL Sr. | STRUCTURAL Mid | Cost per Task |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $288.09 | $231.80 | $232.75 | $109.13 | $200.29 | $152.99 | $184.24 | $159.95 | $232.38 | $181.31 | $220.56 | $177.28 | $218.97 | $150.24 | $186.31 | $128.46 | |
| **Solar Power Design** | | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 138 | 0 | 0 | 116 | 249 | 0 | 0 | 0 | 0 | |
| | Develop Design Drawings for Installation of Solar Array | | | | | | | | | | | 100 | 225 | | | | | 61,944 |
| | Develop Specifications for Solar Arrays | | | | | | | | | | | 8 | 8 | | | | | 3,183 |
| | Fine Tune Cost Estimates | | | | | | | 30 | 138 | | | 8 | 16 | | | | | 32,201 |
| **E/EE Design** | | 16 | 0 | 0 | 0 | 108 | 120 | 34 | 226 | 107 | 129 | 191 | 390 | 11 | 48 | 44 | 142 | |
| | Develop Design Drawings for Electrification and Energy Efficiency Upgrades | 12 | | | | 60 | 120 | | | 14 | 84 | 175 | 350 | 4 | 40 | 16 | 142 | 181,070 |
| | Develop Specifications for E/EE Design Requirements | 4 | | | | 48 | | | | 90 | 45 | 8 | 16 | 4 | 8 | 28 | | 51,735 |
| | Prepare Cost Estimate for E/EE Scope of Work | | | | | | | 34 | 226 | 3 | | 8 | 24 | 3 | | | | 49,786 |
| **Construction** | | 15 | 0 | 0 | 0 | 50 | 84 | 0 | 0 | 53 | 36 | 44 | 84 | 0 | 26 | 8 | 0 | |
| | Prepare Construction Bid Package | | | | | 4 | 12 | | | | | | | | | | | 2,637 |
| | Attend Pre-bid Meeting | 2 | | | | 4 | | | | 4 | | 4 | | | 4 | 4 | | 4,535 |
| | Advise City on Responses to Bidder Questions | 2 | | | | 12 | 24 | | | 4 | 16 | 4 | 16 | | 4 | 4 | | 15,547 |
| | Log Bidder Questions and Responses | | | | | | | | | | | | 12 | | | | | 2,127 |
| | Evaluate Need for Addendum to Capture Responses (& Prepare Addendum) | 1 | | | | 2 | | | | 6 | | 4 | | | 2 | | | 3,266 |
| | Attend Pre-Con Meeting, Job Walk, and Site Visits throughout Construction | 6 | | | | 12 | 16 | | | 35 | | 16 | 24 | | 6 | | | 23,398 |
| | Respond to RFIs and Submittals throughout Construction | 4 | | | | 16 | 32 | | | 4 | 20 | 16 | 32 | | 10 | | | 24,513 |
| **External Party Management** | | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 0 | |
| | Communicate and Coordinate with Xcel | | | | | | | | | | | 8 | 8 | | | | | 3,183 |
| | Grant Management with Monthly Status Reporting | | | 114 | | | | | | | | | | | | | | 26,534 |
| | **TOTAL LABOR HOURS:** | 31 | 0 | 114 | 0 | 158 | 204 | 64 | 364 | 160 | 165 | 359 | 731 | 11 | 74 | 52 | 142 | |

**485,659** Total Cost

# 5. FEE PROPOSAL

## Permitting

| Task | Sub Task | Principal | Project Manager | Admin Assistant (Grants) | Intermediate CAD | ARCHITECTURE Sr. | ARCHITECTURE Jr. | COST ESTIMATING Sr. | COST ESTIMATING Jr. | MECHANICAL Sr. | MECHANICAL Jr. | ELECTRICAL Sr. | ELECTRICAL Jr. | FIRE PROTECTION Sr. | FIRE PROTECTION Jr. | STRUCTURAL Sr. | STRUCTURAL Jr. | Cost per Task |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $288.09 | $231.80 | $94.23 | $109.13 | $200.29 | $152.99 | $184.24 | $159.95 | $232.38 | $181.31 | $220.56 | $177.28 | $218.97 | $150.24 | $186.31 | $128.46 | |
| Permitting | | 0 | 28 | 0 | 0 | 0 | 0 | 12 | 38 | 0 | 0 | 26 | 33 | 0 | 0 | 0 | 0 | |
| | Maintain Contact Log of Agencies and Third Parties Contacted | | 12 | | | | | | | | | 10 | 33 | | | | | 10,837 |
| | Submit 90% Plans for Plan Check | | 4 | | | | | | | | | 16 | | | | | | 4,456 |
| | Keep a log attributing any probable costs associated with legally required equipment or procedures for each facility | | 12 | | | | | 12 | 38 | | | | | | | | | 11,071 |
| | TOTAL LABOR HOURS: | 0 | 28 | 0 | 0 | 0 | 0 | 12 | 38 | 0 | 0 | 26 | 33 | 0 | 0 | 0 | 0 | |

26,364 Total Cost

## Project Management

| Task | Sub Task | Principal | Project Manager | Admin Assistant (Grants) | Intermediate CAD | ARCHITECTURE Sr. | ARCHITECTURE Jr. | COST ESTIMATING Sr. | COST ESTIMATING Jr. | MECHANICAL Sr. | MECHANICAL Jr. | ELECTRICAL Sr. | ELECTRICAL Jr. | FIRE PROTECTION Sr. | FIRE PROTECTION Jr. | STRUCTURAL Sr. | STRUCTURAL Jr. | Cost per Task |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $288.09 | $231.80 | $94.23 | $109.13 | $200.29 | $152.99 | $184.24 | $159.95 | $232.38 | $181.31 | $220.56 | $177.28 | $218.97 | $150.24 | $186.31 | $128.46 | |
| Project Management | | 0 | 318 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Maintain Continuous Communication and Attendance of Meetings with Stakeholders (Assume Monthly In-Person Meeting for 1 year Duration) | | 60 | | | | | | | | | | | | | | | 13,908 |
| | Set Up and Manage Meetings to Discuss Assessment of Back-up Power Systems and Power Needs of Each Facility | | 14 | | | | | | | | | | | | | | | 3,245 |
| | Communicate Conceptual Layouts | | 4 | | | | | | | | | | | | | | | 927 |
| | Communicate and Substantiate MEP System Required Changes | | 12 | | | | | | | | | | | | | | | |
| | Communicate and Coordinate the Design Drawings and Specifications | | 4 | | | | | | | | | | | | | | | |
| | Coordinate Development of Cost Estimates | | 18 | | | | | | | | | | | | | | | |
| | Provide a Monthly Project Status Report | | 36 | | | | | | | | | | | | | | | |
| | Provide an Agenda and Meeting Minutes Before and After Each Meeting | | 26 | | | | | | | | | | | | | | | |
| | Ensure Design Progresses on Schedule and on Budget | | 48 | | | | | | | | | | | | | | | |
| | Manage Project Schedules and Project Reporting | | 96 | | | | | | | | | | | | | | | 22,253 |
| | TOTAL LABOR HOURS: | 0 | 318 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

40,333 Total Cost

## Incidentals

The number of trips to support this project is assumed as noted and is open to negotiation.

| Task | Sub Task | Miles | PROJECT MANAGEMENT Trips | PROJECT MANAGEMENT Meals | ARCHITECTURE Trips | ARCHITECTURE Meals | MECHANICAL Trips | MECHANICAL Meals | ELECTRICAL Trips | ELECTRICAL Meals | STRUCTURAL Trips | STRUCTURAL Meals | Cost per Task |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 54.6 | $0.70 | $17.00 | $0.70 | $17.00 | $0.70 | $17.00 | $0.70 | $17.00 | $0.70 | $17.00 | |
| Project Management | | | | | | | | | | | | | |
| | Site Visits @ $0.70/mile | | 22 | 4 | 14 | 7 | 8 | 2 | 34 | 14 | 4 | 2 | 3,627 |
| | Printing Requirements | | | | | | | | | | | | 2,200 |
| | Permit Fees | | | | | | | | | | | | 84,000 |

89,827 Total Cost

| Fee Summary | |
|---|---|
| Phase 1 | $488,954 |
| Phase 2 | $485,659 |
| Permitting | $26,364 |
| Project Management | $40,333 |
| Incidentals | $89,827 |
| Total | 1,131,138 |

## Naval Air Station - Lemoore Electrical Safety Assessment

*Lemoore, CA*

Michael Baker conducted a comprehensive electrical infrastructure assessment across Naval Air Station Lemoore (NASL) and its satellite installations – including Naval Air Station Fallon, Naval Weapons Station Seal Beach, and detachments in Norco and Fallbrook – under contract with NAVFAC Southwest. The project aimed to ensure continued system reliability in support of critical Department of the Navy operations. Each site featured aging electrical systems with undocumented modifications, prompting detailed field investigations to identify deficiencies, configuration issues, and safety concerns. The team evaluated substations, transformers, medium-voltage distribution systems, switchgear, SCADA components, and utility poles, verifying as-built drawings against field conditions and documenting each asset's location and status. Safety was a top priority, with assessments conducted in compliance with the National Electrical Safety Code and Navy design standards, supported by high-voltage electrical contractors for secure access to sensitive equipment.

Michael Baker also provided GIS services and created one-line diagrams to support NAVFAC's asset management systems. These were reconciled with MAXIMO and iNFADS records and coordinated with NAVFAC's GIS department for database updates. Using SKM Power Tools, the team developed electronic models to simulate fault scenarios, optimize protective device settings, and identify system vulnerabilities. These models informed a prioritized list of recommended upgrades, each supported by rough order-of-magnitude cost estimates and DD1391 forms for congressional funding. The project required extensive coordination across installations and stakeholders, with travel between multiple sites. The resulting deliverables – including system diagrams, GIS updates, and project recommendations – will guide future sustainment, modernization, and safety improvements across the Navy's electrical infrastructure.

| Client: | Contact: | Completion Date: |
|---|---|---|
| Naval Facilities Engineering Systems Command (NAVFAC) Southwest | Alexandra Heath<br>Project Manager<br>858.241.1044 | 12.2023 |

**PROJECT RELEVANCE**

- *Electrical Load Evaluation Expertise*
- *System Modeling & Capacity Analysis*
- *Use of SKM Software for Electrical Calculations*
- *GIS Integration*
- *Deliverables & Reporting*

## EWR-0039 ICPC Lighting Upgrade

*Idaho Falls, ID*

The scope of this project required a comprehensive retrofit of lighting systems across Fluor, Idaho, facilities in Idaho Falls. Led by Michael Baker International, the project aimed to enhance energy efficiency, reduce operational costs, and improve lighting quality and safety. The scope included replacing outdated fluorescent and metal halide fixtures with high-efficiency LED and pulse-start MHL systems, installing occupancy sensors to reduce energy usage in low-traffic areas, and optimizing lighting density to maintain required illumination levels while minimizing fixture count. Special considerations were made for facilities like warehouses and the Fast Storage Facility, where LED sensitivity to radiation necessitated retaining MHL lighting. The project also ensured continuous lighting in low-occupancy zones for safety. An ASHRAE Level 1 energy and water evaluation was conducted, and the project was structured to qualify for Idaho Power's Custom Incentive Program, which involved estimating energy savings and potential incentives. Engineering services provided included electrical and structural design, agency coordination, construction support, and cost estimating.

| Client: | Contact: | Completion Date: |
|---|---|---|
| International Electrotechnical Commission (IEC) | David Evans<br>Project Manager<br>208.406.6382 | 2.2022 |

**PROJECT RELEVANCE**

- *Energy Efficiency Retrofits*
- *Occupancy Sensors & Controls*
- *Lighting Optimization & Safety*
- *ASHRAE - Level Evaluation*
- *Utility Incentive Alignment*
- *Engineering & Construction Support*

## San Luis Land Port of Entry Expansion & Modernization

*San Luis, AZ*

The San Luis Land Port of Entry Expansion and Modernization project is a landmark federal initiative aimed at transforming the existing border crossing facility into the nation's first net-zero energy land port. With a total investment of $359 million through the Inflation Reduction Act, the project enhances operational efficiency for U.S. Customs and Border Protection while maintaining full functionality throughout construction. The modernization includes doubling northbound vehicle inspection lanes, constructing a new pedestrian inspection facility, and adding a vehicle maintenance building. As the electrical engineering lead, Michael Baker International played a pivotal role in designing and documenting the electrical systems for the 100,000 SF campus. Central to the sustainability strategy is the integration of a 1685kW photovoltaic (PV) system and a 1250kVA / 5000kWh battery energy storage system (BESS), engineered to support all-electric, net-zero operations. These systems not only maximize solar energy generation but also enable load shifting and energy resilience, aligning with federal sustainability goals. The team's deep experience in photovoltaic design–demonstrated through successful implementation on this project–reinforces its leadership in delivering innovative, energy-efficient solutions for complex federal infrastructure.

| Client: | Contact: | Completion Date: |
|---|---|---|
| Naval Facilities Engineering Systems Command (NAVFAC) | Michael Krzysik<br>Project Manager<br>mkrzysik@bergelectric.com | 9.2029 |

**PROJECT RELEVANCE**

- *Multi-Disciplinary Engineering Approach*
- *Federal & State Funding Support*
- *Community & Environmental Co-Benefits*

City of Louisville
COLORADO • SINCE 1878

**CITY OF LOUISVILLE**
**Internal Decarbonization Project – Electrification/Energy Efficiencies (E/EE)**

**Pricing & Information**

1. Check the correct boxes according to the scope and fee included in your Proposal and provide the lump sum cost for each phase:

☐ Phase 1 – Electrical Load Evaluation Only:

Phase 1 Cost: $_____

☐ Phase 2 – Electrification/Energy Efficiency Implementation Only

Phase 2 Cost: $_____

☑ Phases 1 and 2:

Phase 1 Cost: $ 534,287.00

Phase 2 Cost: $ 596,851.00

2. Provide the proposed Project start and completion dates or timeline, as applicable:

Phase 1 – Electrical Load Evaluation

Start Date: November 3, 2025 End Date: March 19, 2026

Phase 2 – Electrification/Energy Efficiency Implementation

Start Date: June 1, 2026 End Date: June 3, 2027

3. Details that are relevant to the Proposal and completion of the Project (may be attached separately):

Michael Baker is proud to support the City of Louisville's Internal Decarbonization Project, aligning with your climate goals through a practical, community – centered approach. Our team brings deep expertise in electrical infrastructure planning, integrated design, and collaborative project delivery – ensuring continuity and precision from initial concept through final implementation. With a proven track record in municipal decarbonization, we offer scalable solutions that meet technical, funding, and operational requirements, positioning Louisville to lead boldly toward a carbon-neutral future.

4. Additional Documents – The following documents are attached to and made a condition of this Proposal:

a) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Proposal,
b) Anti-Collusion Affidavit,
c) If Proposer is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

5. Communications concerning this proposal shall be addressed to:

The address of Proposer indicated below.

Michael Baker International, Inc.

320 South Teller Street

Lakewood, CO 80226

**SUBMITTED on** September 12**, 2025.**

## SCHEDULE OF SUBCONTRACTORS

**PROJECT: INTERNAL DECARBONIZATION PROJECT - ELECTRIFICATION/ENERGY EFFICIENCIES**
**OWNER: CITY OF LOUISVILLE, COLORADO**

This Bid is based on subcontracting certain portions of the work to subcontractors as listed below.

Name: Encore Electric Telephone No. 303.934.1234
Address: 7125 W Jefferson Ave #400
City: Lakewood State: CO Zip Code: 80235
Services/equipment to be provided: Metering

Name: Acuity International Telephone No. 678.699.2603
Address: 1165 Northchase Parkway Suite 222
City: Marietta State: GA Zip Code: 30067
Services/equipment to be provided: Cost Estimating

## ANTI-COLLUSION AFFIDAVIT

**PROJECT: INTERNAL DECARBONIZATION PROJECT - ELECTRIFICATION/ENERGY EFFICIENCIES**
**OWNER: CITY OF LOUISVILLE, COLORADO**

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a BIDDER or potential prime BIDDER.
2A. Neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a BIDDER or potential prime BIDDER on this project, and will not be so disclosed prior to bid opening.
2B. Neither the prices nor the amount of the Bid of any other firm or person who is a BIDDER or potential prime BIDDER on this project have been disclosed to me or my firm.
3A. No attempt has been made to solicit, cause or induce any firm or person who is BIDDER or potential prime BIDDER to refrain from bidding on this project, or to submit a Bid higher than the Bid of this firm, or any intentionally high or noncompetitive Bid or other form of complementary Bid.
3B. No agreement has been promised or solicited for any other firm or person who is a BIDDER or potential prime BIDDER on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.
4. The Bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.
5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.
6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.
7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.
8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the OWNER of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

| CONTRACTOR'S FIRM OR COMPANY NAME | SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE) |
|---|---|
| Michael Baker International, Inc. | n/a |
| BY: Edward Hanbicki, AIA | BY: n/a |
| TITLE: Vice President, Market Director | TITLE: n/a |
| DATE: 9.10.2025 | DATE: n/a |

SWORN BEFORE ME THIS 10th DAY OF, September, 2025

NOTARY PUBLIC: Tai Lu MY COMMISSION EXPIRES: 07-09-26

TAI LU NOTARY PUBLIC 130343 COMMISSION EXPIRES 7-09-26 STATE OF WASHINGTON

**PROPOSER TEAM ROLES**

**PROJECT: INTERNAL DECARBONIZATION PROJECT - ELECTRIFICATION/ENERGY EFFICIENCIES**
**OWNER: CITY OF LOUISVILLE, COLORADO**

If PROPOSER is:

**An Individual**

By n/a _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

_____

Phone No.: _____

**A Partnership**

By n/a _____ (SEAL)
(Individual's Name)

_____
(General Partner)

Business address: _____

_____

Phone No.: _____

**A Corporation**

By Michael Baker International, Inc., Pennsylvania
(Corporation Name, State of Incorporation)

By Edward Hanbicki
(Name of person authorized to sign)

Vice President, Market Director
(Title)

(CORPORATE SEAL)




Attest Tai Lu
(Secretary)

Business address: Michael Baker International, Inc.
320 South Teller Street
Lakewood, CO 80226

Phone No.: 206.288.6029

Date of Qualification to do business: September 12, 2025

**A Joint Venture**

By n/a
(Name)

(Address)

By
(Name)

(Address)

Phone Number and Address for receipt of official communications:

(Each joint venture partner must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

# MINIMUM INSURANCE REQUIREMENTS

## Certificate of Liability Insurance

Michael Baker's Certificate of Liability insurance provides proof of insurance in accordance with the minimum requirements specified in Attachment E: Professional Services Agreement.

ACORD®

### CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 08/25/2025

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| PRODUCER | CONTACT NAME: | |
|---|---|---|
| Aon Risk Services Central, Inc.<br>Pittsburgh PA Office<br>EQT Plaza ~ Suite 2700<br>625 Liberty Avenue<br>Pittsburgh PA 15222-3110 USA | PHONE (A/C. No. Ext): (866) 283-7122 | FAX (A/C. No.): (800) 363-0105 |
| | E-MAIL ADDRESS: | |

| INSURED | INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|---|
| Michael Baker International, Inc<br>5 Hutton Centre Drive<br>Suite 500<br>Santa Ana CA 92707 USA | INSURER A: American Guarantee & Liability Ins Co | 26247 |
| | INSURER B: Zurich American Ins Co | 16535 |
| | INSURER C: Allied World Surplus Lines Insurance Co | 24319 |
| | INSURER D: | |
| | INSURER E: | |
| | INSURER F: | |

**COVERAGES** **CERTIFICATE NUMBER:** 570115079628 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| B | X COMMERCIAL GENERAL LIABILITY<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>POLICY X PRO-JECT X LOC<br>OTHER: | | | GL0419728104 | 08/30/2025 | 08/30/2026 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG<br>Deductible | $2,000,000<br>$1,000,000<br>$10,000<br>$2,000,000<br>$4,000,000<br>$4,000,000<br>$250,000 |
| B | AUTOMOBILE LIABILITY<br>X ANY AUTO<br>OWNED AUTOS ONLY<br>X HIRED AUTOS ONLY<br>SCHEDULED AUTOS<br>X NON-OWNED AUTOS ONLY | | | BAP 4197284-04 | 08/30/2025 | 08/30/2026 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY ( Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident)<br>Deductible | $2,000,000<br><br><br><br>$100,000 |
| A | X UMBRELLA LIAB X OCCUR<br>EXCESS LIAB CLAIMS-MADE<br>DED X RETENTION $10,000 | | | AUC053258207 | 08/30/2025 | 08/30/2026 | EACH OCCURRENCE<br>AGGREGATE | $10,000,000<br>$10,000,000 |
| B<br>B | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N N<br>(Mandatory in NH)<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | WC419728204<br>AOS<br>WC419728504<br>WI | 08/30/2025<br><br>08/30/2025 | 08/30/2026<br><br>08/30/2026 | X PER STATUTE OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE-EA EMPLOYEE<br>E.L. DISEASE-POLICY LIMIT | <br>$1,000,000<br>$1,000,000<br>$1,000,000 |
| C | E&O - Professional Liability - Primary | | | 03124806<br>Claims Made<br>SIR applies per policy terms & conditions | 08/30/2025 | 08/30/2026 | Per Claim<br>Aggregate<br>SIR | $5,000,000<br>$5,000,000<br>$200,000 |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

Evidence of Insurance.

**CERTIFICATE HOLDER**

Michael Baker International, Inc.
5 Hutton Centre Drive, Suite 500
Santa Ana CA 92707 USA

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

*Aon Risk Services Central, Inc.*

Holder Identifier :

Certificate No : 570115079628

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ACORD 25 (2016/03)

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Michael Baker
INTERNATIONAL

*We Make a Difference*

**MICHAEL BAKER INTERNATIONAL**
320 South Teller Street
Lakewood, CO 80226

# CITY OF LOUISVILLE

## INTERNAL DECARBONIZATION PROJECT

SEPTEMBER 2025



September 12, 2025

City of Louisville
749 Main Street
Louisville, CO 80027

**Request for Proposal | Internal Decarbonization Project**
**Electrification/Energy Efficiencies**

Dear Selection Committee:

On behalf of Professional Engineering Consultants, PA (PEC), I am excited to present our qualifications for Phase 1 and Phase 2 of the City of Louisville's Internal Decarbonization Project. This is not just a project for us; this is our passion. This is an opportunity to help Louisville set a new standard for municipal sustainability, resilience, and innovation.

## Why PEC? Because your vision deserves a proven and passionate partner.

Louisville's commitment to 100% carbon-free municipal electricity, a 60% emissions reduction by 2030, and carbon neutrality by 2050 is bold and inspiring. Achieving these goals requires a partner who not only understands the technical complexities of decarbonization, but who is equally invested in your community's future. PEC is that partner.

## Our Promise: Results that matter.

We understand this project is about more than just infrastructure, it's about leadership and providing the City of Lousville's citizens a healthier and more resilient place to call home for generations to come. PEC's integrated team is ready to deliver innovative, practical solutions that maximize grant funding, minimize risk, and accelerate your path to net zero.

Thank you for the opportunity to partner with the City of Louisville on this transformative journey, we are eager to help you turn vision into reality.

Respectfully submitted,
Professional Engineering Consultants, PA



Corey Rhodes, PE, LEED AP, CDP
Sustainability Services Leader
Email: corey.rhodes@pec1.com
Phone: 970.232.9558

*I certify that all information and data submitted in this proposal are true and complete to the best of my knowledge. As Sustainability Services Leader, I am fully authorized to submit this proposal and to sign contracts on behalf of PEC.*

## THE PEC DIFFERENCE

**Local Expertise and Unrivaled Insight**
**Our Fort Collins team of 25+ engineers has delivered transformative results for Colorado communities, including Larimer County, Longmont, Keenesburg, and local school districts. We know the local landscape, codes, and stakeholders.**

**A Legacy of Excellence**
**For over 60 years, PEC has delivered projects on time and within budget, earning a reputation for reliability, creativity, and technical rigor.**

**A True Partnership**
**Our approach is rooted in open communication, collaboration, and a relentless focus on your goals. When you choose PEC, you gain a responsive, reliable, and deeply committed ally.**




We are PEC, a family of professionals that exists to **energize** communities, **shape** the future, and **guide** the way.

# PROJECT TEAM

## COMPANY INFORMATION

PEC

Professional Engineering Consultants (PEC) is a full-service firm providing holistic and sustainable solutions to both public and private sectors across the United States and beyond. With more than 400 employees in eight offices, we are a regionally-based firm with a national reach.

For more than a half century, our company has been built on the relationships we have developed with both our clients and owners. Additionally, we have been at the forefront of developing innovative solutions with a level of engineering excellence that fosters prosperity and brings opportunity to communities.

We are a team of proactive problem solvers and take pride in the diversity of expertise within our company. Our deep understanding of the markets, technology, and regulations that govern the work we do allows us to create forward-thinking solutions that are effective and economical. We continually strive to create value for the communities in which we live and work.

We understand the crucial role the community plays in shaping and influencing businesses. Our expertise works quietly in the background and positions you as the champion for your community. From the roads and bridges connecting them, the energy powering them, the hospitals healing them, and the schools teaching them, PEC strives to better the communities you lead. We know when you succeed, your community succeeds. To us, that is what matters most.

### Services

**Architectural Engineering**

- Commissioning
- Electrical
- Mechanical
- Structural
- Sustainability Services
- Technology Design

**Civil Engineering**

- Bridge
- Community Planning & Development
- Highway
- Municipal & Water/Wastewater
- Municipal Transportation
- Site Civil
- Water Resources

**Energy Engineering**

- Power
- Process Piping

**Field Engineering**

- Geotechnical
- Inspection
- Materials Testing
- Owner Representation
- Survey
- Survey Processing

### Established

1965

### Employees

400+

### Markets

Commercial
Education
Energy
Federal
Healthcare
Industrial & Manufacturing
Mission Critical
Municipal
State
Transportation

### Offices

**Kansas**
Lawrence
Pittsburg
Topeka
Wichita (Headquarters)

**Oklahoma**
Oklahoma City
Tulsa

**Colorado**
Fort Collins

**Missouri**
Kansas City

## KEY PERSONNEL

The chart below identifies the general organizational structure of our team and the staff assignments for the project. Corey Rhodes, PE, LEED, AP, CDP, will serve as the Principal-in-Charge and will be supported by the individuals below, as well as individuals from our subconsultants. Corey brings his 27 years of experience to the table, and leads PEC's efforts to implement sustainable principles in our projects. Corey channels his experience as a mechanical engineer to lead teams to perform energy assessments, identify energy conservation measures, and explore cutting-edge technologies and cost-effective implementation strategies. In July 2024, he utilized his considerable knowledge of energy auditing, energy modeling, and high-performance building design to become one of the first Certified Decarbonization Professionals (CDP) by passing the first exam offered.

City of Louisville
COLORADO • SINCE 1878

PEC



**Corey Rhodes**
**PE, LEED AP, CDP**
Principal-In-Charge
Mechanical QC/EOR

**Subconsultants**

- RBB ARCHITECTS
- SAUNDERS
- Mayfield Renewables
- Merit Electric
- TaxTaker



**Dan Pennington**
Project Manager



**Kelby Ewert, PE**
Electrical QC/EOR



**Steve Pinks, PE**
Mechanical Engineer



**Karl Lyons, PE**
Mechanical Engineer



**Kent Bruxvoort, PE**
Civil Engineer



**David Crawford, PE**
Civil Engineer



**Braden Hansard, PE**
Structural Engineer



**Spencer Cody, BCxP**
Commissioning Agent

I LOVE MY WORK · LEADERS MADE HERE · ADD VALUE EVERY DAY · DO THE RIGHT THING · ENERGIZING · FAMILY



**Corey Rhodes, PE, LEED AP, CDP** Principal-in-Charge, Mechanical QC/EOR
Professional Engineer: CO, WV, WY

27 years experience

Colorado State University, Bachelor of Mechanical Engineering, 1998

Corey Rhodes is the Sustainability Services Leader and is a member of the PEC Leadership Team. He leads our efforts to explore and implement sustainable principals in our projects, aiding customers in embracing eco-friendly practices, and researching government grants, subsidies, and tax credits to provide valuable insight to our customers. Corey utilized his extensive experience in energy auditing, energy modeling, and high-performance building design to become one of the first Certified Decarbonization Professionals by passing the first exam offered in July 2024. He has been serving PEC and our communities since 2017.

- Confidential Client | Midwest and Southeast United States
  - National Medical Clinic Decarbonization, Energy Modeling, and Conceptual Consulting
- City of Longmont Safety and Justice Center Renovation | Longmont, CO
- Larimer County Probations Office Remodel | Fort Collins, CO
- Larimer County Sheriff's Office Emergency Services Facility | Laporte, CO
- Poudre School District | Fort Collins, CO
  - Beattie Elementary School HVAC System Replacement
  - O'Dea Elementary School Boiler Replacement



**Dan Pennington** Project Manager
Licensed Electrician: CO, WY, TX

40 years experience

Henderson County Community College, Associates in Computer Science, 1984

Dan is an electrical project manager in PEC's Fort Collins office. His responsibilities include electric utility coordination, design, and field inspection. Throughout his career, he's had extensive experience working with utility companies, owners, contractors, and vendors to ensure project completion is under budget and within schedule. Dan has been serving PEC communities since 2023.

- Confidential Client | Midwest and Southeast United States
  - National medical clinic decarbonization, energy modeling, and conceptual consulting
- City of Denver Walnut Street EV Chargers | Denver, CO
- Colorado State University | Fort Collins, CO
  - Cooling Unit Additions
  - Newsom Hall Roof Replacements
  - Vet Teaching Hospital Vacuum Pump Replacement
- Larimer County Sheriff's Office Emergency Services Facility | Laporte, CO
- Mountain View Fire and Rescue Administration Building Renovation | Fort Collins, CO
- Poudre School District | Fort Collins, CO
  - Beattie Elementary School HVAC System Replacement
  - O'Dea Elementary School Boiler Replacement
- Town of Windsor Police Facility | Windsor, CO



**Kelby Ewert, PE** Electrical QC/EOR
Professional Engineer: CO, KS, MO, OK, PA

11 years experience

Kansas State University, Bachelor of Architectural Engineering, 2014

Kelby is an experienced electrical engineer with a strong background in leading the design of complex electrical systems for public and private sector facilities, including healthcare, education, and municipal buildings. Skilled in power distribution, lighting design, and low-voltage systems. Adept at navigating funding constraints while maintenance high standards of safety and code compliance.

- Advanced Learning Library | Wichita, KS
- City of Park City, City Hall & Police Station | Park City, KS
- City of Newton Law Enforcement Center | Newton, KS
- Wichita State University | Wichita, KS
  - Youngmeyer Ranch Field Station | Elk County, KS*
  - Ablah Library Special Collections HVAC Upgrade
  - Grace Wilkie Hall HVAC Replacement
  - Student Success Center
  - Wallace Hall Remodel
  - WSU Technical College Snap-On Renovation

**2023 Small Project Award Winner - American Institute of Architects*



**Steve Pinks, PE** Mechanical Engineer
Professional Engineer: CA

5 years experience

University of Pretoria, Bachelor of Mechanical Engineering, 2013

Steve is responsible for mechanical-based designs, with his experience ranging from early project planning to final project deliverables. Steve serves as PEC's primary energy modeler and holds significant pride and value in developing energy saving strategies and advancing low carbon solutions.

- Confidential Client | Midwest and Southeast United States
  - National medical clinic decarbonization, energy modeling, and conceptual consulting
- City of Salida Fire Station No. 11 Mechanical | Salida, CO
- Berry Rock Office Building | Oklahoma City, OK
- Larimer County Sheriff's Office Emergency Services Facility | Laporte, CO
- Niobrara Community Hospital CT Installation | Lusk, WY
- Prost Brewing Co. Expansion | Northglenn, CO
- Town of Windsor Police Facility | Windsor, CO
- Viega Manufacturing Energy Audit and Water Savings Study | McPherson, KS



**Karl Lyons, PE** Mechanical Engineer
Professional Engineer: CO | International Facility Management Association (IFMA) Member

12 years experience

University of Wyoming, Bachelor of Architectural Mechanical Systems Engineering, 2013

University of Wyoming, Bachelor of Business Administration, 2013

Karl is responsible for the design HVAC systems, plumbing systems, and temperature control systems. He is committed to providing buildings that are innovative in terms of energy consumption, occupant comfort, and overall owner value. Karl has recently completed geothermal and electrification designs for Larimer County and Poudre School District.

- City of Longmont, CO
  - On-Call Engineer
  - Safety and Justice Center Renovation (Under Construction)
  - Ute Creek Golf Course Maintenance Facility
- City of Salida Fire Station No. 11 | Salida, CO
- Larimer County, CO
  - Alternative Sentencing Department Addition | Fort Collins
  - Emergency Operations Center Office | Johnstown
  - Larimer County Sheriff's Office Emergency Services Facility | Laporte
- Mountain View Fire Authority Administrative Building | Boulder, CO
- Platte River Power Authority | Fort Collins, CO
  - New Headquarters and Campus Building
  - Energy Engagement Center
  - Fleet Maintenance Building
- Poudre School District Beattie Elementary School HVAC Replacement | Fort Collins, CO



**Kent Bruxvoort, PE** Civil Engineer
Professional Engineer: CO, NM, WY | City of Fort Collins, CO Planning and Zoning Commission

41 years experience

Colorado State University, Master of Administration, Finance, 1997

Colorado State University, Master of Civil Engineering, Hydraulics, 1986

Kent is the team lead for the PEC Fort Collins civil engineering team. He is an expert in utilities design, stormwater analysis and design, and site planning and permitting. Kent is responsible for municipal, public works, and general civil engineering services including project permitting, cost estimating, construction management, stormwater drainage studies and design, street design, design of water and sanitary sewer systems, and grading plans. He has been the Town Engineer for Keenesburg, Colorado, since 2015, managing public works maintenance projects, designing new streets and utilities, and guiding the engineering elements of land development projects, which has seen the town nearly double in size since 2020.

- City of Commerce City Police Substation | Commerce City, CO
- City of Johnstown Police Department Renovation | Johnstown, CO
- City of Lone Tree Public Works Facility | Lone Tree, CO
- City of Loveland Fleet Expansion and Salt Sand Master Plan | Loveland, CO
- City of Salida Fire Station No. 11 | Salida, CO
- Larimer County Fleet Campus | Loveland, CO
- Town of Keenesburg On Call Services | Keenesburg, CO



**David Crawford, PE** Civil Engineer
Professional Engineer: CO

7 years experience

Colorado State University, Bachelor of Civil Engineering, 2018

David recently joined PEC as a Senior Project Engineer in the Land Development sector. With a strong passion for public service, he brings a diverse background in municipal and private development. He has built a strong foundation in planning, engineering, and development review efforts. His experience spans municipal operations and consulting, with a focus on land development projects including residential communities, commercial and industrial sites, solar energy installations, and infrastructures.

- Big Horn Solar Array | Pueblo, CO*
- City of Thornton | Thornton, CO*
  - Fire Station No. 8
  - Parks Facility
- Colorado State University LSC North Entrance Renovation | Fort Collins, CO*
- Lake Bluff Filings No. 3 and No.4 | Greeley, CO*
- Rock Ridge Apartments | Greeley, CO*
- Sun Mountain Array | Pueblo, CO*
- Town of Keenesburg On Call Services | Keenesburg, CO

**project completed prior to PEC*



**Braden Hansard, PE** Structural Engineer
Professional Engineer: CO

5 years experience

Kansas State University, Bachelor of Civil Engineering, 2020

Braden is responsible for analysis and design of steel, concrete, masonry, and timber structures. His responsibilities include schematic design, design development, final design calculations and drawings, and coordinating with other engineering disciplines for each project, as needed for project delivery. Braden has experience with the analysis of structures using computer modeling and traditional methods for both gravity and lateral loads. He has a robust experience with educational and municipal projects, with a heavy scope on mechanical

- Confidential Client | Midwest and Southeast United States
  - National medical clinic decarbonization, energy modeling, and conceptual consulting
- City of Longmont, CO
  - Longmont Historic Building Assessment
  - Ute Creek Golf Course Maintenance Facility
  - Vance Brand Airport Structural Building Evaluation
- Larimer County Fleet Campus | Loveland, CO
- Larimer County Sheriff's Office Emergency Services Facility | Laporte, CO
- Colorado State University | Fort Collins, CO
  - On-Call Engineering Services
  - NRRL HVAC Feasibility Study
  - Towers Thermal MAU Replacement
- University of Colorado Multi-WV HHW Conversion Phase I and II | Boulder, CO
- Weldon Valley School District Renovation and Addition | Weldona, CO



**Spencer Cody, BCxP** Commissioning Agent

20 years experience

Friends University, Master of Business Administration, 2016

Spencer's primary responsibility is assuring integrated performance for building systems including HVAC, lighting, building automation systems (BAS), fire/life safety systems, compressed air systems, electrical power generators, security and telecommunications. His tasks include preparing documentation (including detailed and documented inspections, testing, and issue resolution) that a facility is fulfilling the operational and functional performance requirements of the building owner, occupants, and staff, assuring building delivery complies with the Owner's Project Requirements (OPR).

- City of Wichita Waste Water Treatment Plant 2 | Wichita, KS
  - Biological Nutrient Removal Improvements
- USD 259 | Wichita, KS
  - ESSER Building Assessments
  - ESSER Facilities Assessments
- Wichita State University National Institute for Research and Digital Transformation | Wichita, KS

## SUBCONSULTANT TEAM

PEC understands the importance this proposed project carries, both in terms of assisting the City in achieving its long-term goal of achieving carbon neutrality by 2050, but also with meeting the City's electrical needs with 100% carbon-free sources and reducing emissions 60% by 2030. In recognizing this, PEC has been proactive in partnering with RB+B Architects, Merit Electric, Saunders, Mayfield Renewables, and TaxTaker in order to ensure we meet every single one of the City's needs on this important opportunity.

RBB ARCHITECTS

**MATT ARABASZ**
AIA, ALEP, LEED AP$^{BD+C}$
Principal in Charge
(RB+B Architects)
*Years with RB+B: 27*

**BRIANNE SMITH**
AIA, LEED AP$^{BD+C}$, CCS
Project Management and
Quality Control
*Years with RB+B: 18*

RB+B Architects is a team of 28 passionate detailers, problem solvers, artists and planners who analyze and develop creative solutions for architectural challenges within the built environment. With a single office in Fort Collins, RB+B's team of design specialists has helped numerous clients throughout the region design beautifully functional and sustainable facilities that enhance occupant comfort and efficiency.

In the early 2000's, RB+B worked with the Poudre School District to bring excellence in daylighting strategies to school design with their PSD Prototype Elementary Schools (four iterations), and helped the District develop their sustainability design guidelines through an integrated approach. RB+B proceeded to design the first LEED school in Colorado for PSD, Fossil Ridge High School (opened in 2004) and Kinard Junior High School (opened in 2006), which continue to operate some of the most energy efficient schools in the State.

SAUNDERS

**JARED SEEMAN**
LEED AP, BD+C, CDT
Senior Estimator
*Years of Experience: 24*

**BRIAN RANKIN**
LEED GA
Construction Manager
*Years of Experience: 18*

**TONY REUTER**
Construction Manager
*Years of Experience: 18*

**CURTIS UNDERWOOD**
Construction Manager
*Years of Experience: 17*

Saunders is one of the Rocky Mountain region's most notable and respected construction and development companies. Founded in 1972, Saunders provides collaborative project delivery focused on guiding customers through the process of turning an idea into a landmark. An employee-owned organization, Saunders has a diverse portfolio of work across 19 market types. Saunders crafts a genuine connection among clients, industry partners and the community. Driven by their vision, they're focused on building for both the present and the future, while constantly evolving to meet their clients' dynamic needs.

Saunders offers vast expertise at any stage in a project, but understands successful projects are a result of early collaboration, integrated technology, a safe work environment and forward-thinking solutions.

Mayfield Renewables

**RYAN MAYFIELD**
Founder
PV Codes and
Standards Expert
*Years of Experience: 25+*

**ADAM STONE**
PE
Senior Engineer
*Years of Experience: 5+*

**RYAN MATEO**
Senior Engineer
*Years of Experience: 12+*

Mayfield Renewables provides project engineering, microgrid feasibility, and education services to solar and energy storage developers and project stakeholders. Founded in 2007, Mayfield has a proven track record with complex commercial and community scale projects nationwide.

Mayfield's expert team takes a consultative approach to our projects, helping clients grow and learn in a fast-paced industry. Led by founder Ryan Mayfield, an industry thought leader in training for solar and storage electrical codes and standards, their mission is to make technical expertise more accessible.

Their team of designers and engineering consultants brings an average 8-10 years of experience per person. Mayfield's collective expertise is rooted in the complex energy systems in the commercial and industrial market, including microgrid planning, consulting, and design.

Merit Electric has performed load metering for industrial, manufacturing, casino-gaming and other industries 6-10 times per year for the last 15 years. Project scopes range from adding new electric panels, ups systems to gaseous generator backup systems. They are currently active on 6 decarbonization/electrification projects all over Colorado, ranging from LED lighting upgrades to EV charging ports.

**WARREN HOFFMAN**
Energy Services Manager
Master Electrician
17 years experience

**JJ DEFRANCO**
Energy Services
Project Manager
Master Electrician
14 years experience

**DOUG VANDYKE**
Denver Service Manager
Journeyman Electrician
29 years experience

**MATT DEPAOLA**
Service Electrician
Journeyman Electrician
8 years experience

**CHARLIE SCHWALL**
Service Electrician
Journeyman Electrician
10 years experience

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**ABBY MASSEY**
PE, LEED AP
VP, Energy Incentives
*Years of Experience: 18*

**JULIANNA LOPEZ**
EIT
Energy Project Manager
*Years of Experience: 4*

At TaxTaker, they specialize in helping forward-thinking building owners, architects, and designers unlock the full value of federal, state, and local tax incentives to improve project economics and accelerate sustainability goals. Their approach combines cutting-edge software to manage these incentives efficiently and securely with the expertise of seasoned professionals.

Leading our energy incentives pillar is Abby Massey, who has extensive experience overseeing thousands of energy incentive studies and has personally certified over 1500 projects. Her expertise has been pivotal in delivering more than $100 million in incentives to their clients, underscoring our commitment to not just securing financial benefits but also ensuring that our clients benefit from a full spectrum of consulting support and strategic guidance throughout their projects. This comprehensive service model helps maximize the potential financial returns from tax incentives and enhances the strategic value they offer to their clients.

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## PROJECT EXPERIENCE AS A TEAM

PEC

- RBB ARCHITECTS
- SAUNDERS
- Mayfield Renewables
- Merit Electric
- TaxTaker

**PEC has partnered with RB+B on projects with Eaton School District, Adams12, and Front Range Community College. Most of these projects have involved electrical and mechanical equipment replacement/upgrades.**

**PEC and Saunders have worked together on projects of various scale and sector. The most applicable would be a multi-phase HVAC replacement project at Rocky Mountain High School in Fort Collins.**

**PEC and Mayfield are both active consultants for mechanical, electrical and solar design for an NDA client pursuing decarbonization via HVAC and lighting efficiency and PV array installation.**

**PEC and Merit Electric have a long history of working on design-build projects together, many of them for school districts in Colorado.**

**TaxTaker has served as PEC's energy tax consultant for over a year. Helping PEC and clients understand the complex nature of energy tax credits and how to best take advantage of them in our projects.**

# PROJECT EXAMPLES

## LARIMER COUNTY, COLORADO

### Larimer County Sheriff's Office Emergency Services Building | Laporte, CO

This project is currently under construction, with PEC providing ground source heat pump plumbing systems. PEC also assisted the County with early life cost analysis and emissions avoidance evaluation to confirm direction in line with public sentiment. Additionally, we helped the County receive a Public Building Electrification Grant from the State of Colorado.






### Larimer County Jail RTU Replacement | Fort Collins, CO

This project is the replacement of existing evaporative cooling with DX RTUs. A structural analysis was conducted to optimize placement and minimize required reinforcements. A modification of existing electrical distribution was required to power new RTUs.

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## POUDRE SCHOOL DISTRICT, COLORADO

### O'Dea Elementary School | Fort Collins, CO

PEC and DA modeling partnered throughout the design and CA phase to deliver replacement of four existing RTUs and replace with four new RTUs that added air conditioning and utilized heat pumps as the first stage of heating, with backup hot water heat from gas boilers. Replacement of ceilings, lighting and fire alarm devices etc., as required to support new HVAC scope. Electrical service upgrade was provided to allow for future renovations, to implement electrified systems throughout the school. Structural analysis and reinforcement design was also included.






### Beattie Elementary School | Fort Collins, CO

Mechanically focused renovation to add air conditioning, reduce energy costs, and implement an electric/gas hybrid heating system. Replaced existing RTUs with water source heat pump RTUs. Utilized existing cooling tower for loop cooling and gas boiler system for loop heating, which reduced initial cost while allowing the district to take its first step in electrifying their heating systems and prepping them to implement a ground source bore field to serve the new RTUs in the future. An electrical capacity evaluation and service upgrade was performed to accommodate renovation and future loads. A structural analysis and reinforcement design were also included.

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## VIEGA, LLC

### Viega Energy and Water Savings Audit | McPherson,KS

This project is an energy audit and water savings study of multiple buildings, totaling 900,000 SF. Carefully identified low-cost/no-cost measures, analyzed long term payback savings projects, developed recommendations to reclaim process heat and cooling energy, and calculated water saving opportunities.



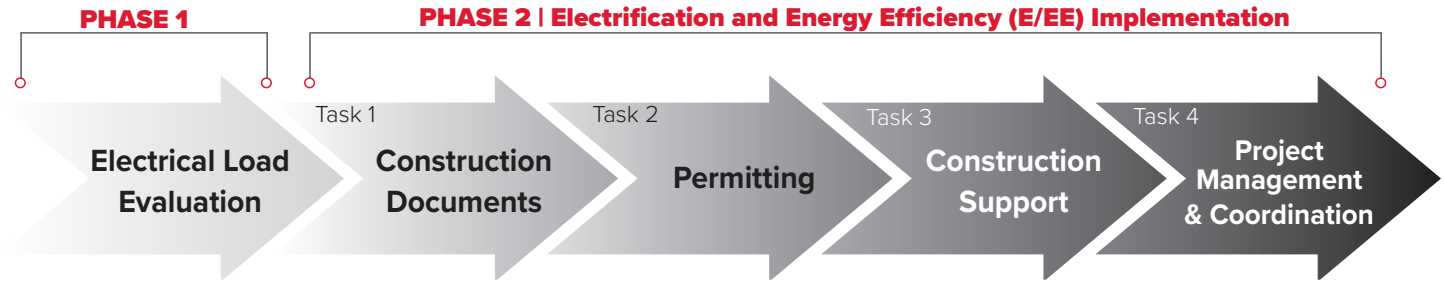



### Viega New Distribution Facilities | Shalersville, OH

Built on an 80-acre parcel of land, Viega's new distribution facilities were designed and built not just to support the increased demand for Viega products, but also in alignment with the company's sustainability goals. The Shalersville plant is 100% carbon neutral, features fully electrified HVAC systems, and supports Viega's long-term goal of achieving net-zero emissions by 2035.

## 1. Project Understanding

The City is undertaking a citywide decarbonization initiative to meet all municipal electrical needs with 100% carbon-free sources, reduce emissions 60% by 2030, and achieve carbon neutrality by 2050. This RFP focuses on two primary phases:




PEC recognizes the importance of integrating technical analysis, design, permitting, and construction services across all relevant engineering disciplines to deliver a cohesive, cost-effective, and resilient decarbonization strategy. Our full-service firm possesses the unrivaled expertise to help the City achieve its decarbonization goals.

## 2. Approach and Methodology

### PHASE 1

#### Electrical Load Evaluation

- Kickoff Meeting: City staff and all consultant team members meet to establish Client Success Factors (CSF), which will assist in confirming goals and desired outcomes. Additionally, there will be a high-level overview of any changes since the McKinstry report was published.
- PEC review utility bills and drawings provided by the City.
- Site Assessments: Conducted with electrical contractor, PEC project manager, PEC Principal-In-Charge, PEC electrical, and PEC mechanical. Interview staff during the walk. Summarize discoveries and questions arising from observations with City staff.
  -Inventory major electrical equipment, as well as major mechanical and plumbing equipment to be replaced as part of the electrification efforts.
- 30-day metering installation of major gear and panelboards.
- Concurrent activities during metering:
  - PEC mechanical - Preliminary equipment selection to inform electrical load requirements.
  - PEC electrical - Field verification of existing panels and one-line diagrams.
  - Collaboration on issues with consultants for the other two concurrent projects referenced in the RFP, Emergency Backup Generator Implementation, and EV Charger Installation.
  - PEC mechanical/electrical - Annotate existing drawing PDFs.
  - PEC begins drafting report skeleton and reviews with Owner.
- Electrical Calculations: PEC performs calculations based on metering data and future load requirements to assess additional capacity requirements.
- Cost Estimating: Merit Electric develops cost estimates based on PEC calculations.
- PEC annotates existing one-line PDFs to reflect required upgrades and modifications.
- Narrative describing scope of work at each building for electrification implementation
- Building Modifications: Saunders supports cost estimating for any building modifications required due to increased electrical capacity.
- Draft Report: Summarize load evaluation, cost breakdown per building, and annotated PDFs noting impacted equipment and anticipated modifications. Shared with EV and generator backup consultants.
- Owner review meeting: Document Owner comments.
- Incorporate feedback from EV and generator backup consultants.
- Final Report: Respond to Owner comments and provide final report.

# PHASE 2

## Electrification & Energy Efficiency (E/EE) Implementation

**Task 1 - Construction Documents**

- Team Kickoff Meeting: All team members review Phase 1 findings. Reconfirm Client Success Factors and scope for each building. Confirm available budget, priorities, and findings from EV and generator backup assessments. Discuss preliminary schedule.
- Site Walks: Team walks all sites with Phase 1 findings in mind.
- Conceptual Design: Design team develops conceptual plans with preliminary cost estimates, broken down by building and critical components.
- City Review: Compare budget, priorities, and cost estimates with the City to determine which items move forward.
- Field Verification: Assess impacts on other building systems and building operations for a holistic approach to construction.
- Construction Documents Phase: Includes 60%, 90%, and 100% submittals. Each submittal includes drawings, specifications, cost estimates, and a comment/response log.
  - Design documents will include solar arrays, electrification of equipment, and energy efficiency upgrades, including building envelope improvements and controls optimization.
  - Each milestone submittal will involve a review of budget, Owner comments, design team response, schedule update, and if appropriate, realignment of priorities and strategies.
  - 90% submittal will be issued for permit to the City of Louisville.
  - 90% submittal will be used as a “plan-in-hand” review on site for constructability with all design team members and contracting partners.
  - 100% set will incorporate permit review and Owner comments and be issued for bid.

**Task 2 - Permitting**

- Meet with all City Departments listed in the Request for Proposal.
- Meet with all impacted Utility providers.
- Submit 90% plans for review.
- Revise drawings and respond to plan review comments and resubmit for approval.
- Maintain contact log for each department and probable fees that may be incurred at each facility.
- Ongoing communication with the City Project Manager, with access to records for all contacts, correspondence, and meetings.
- Secure building permits.
- Provide final records to the City Project Manager.

**Task 3 - Construction Support**

- Multiple bid packages may be considered to save time and cost.
- Prepare bid packages.
- Assist City with contractor selection and solicitation.
- Lead pre-bid and pre-construction kickoff meetings.
- Attend regular OAC meetings
- Routine site visits to assess progress.
- Review submittals and respond to RFIs.

**Task 4 - Project Management and External Coordination**

- Monthly status reports detailing work completed, work in progress, outstanding items, and updated schedule.
- Collaboration and coordination with consultants working on the Emergency Backup Generator Implementation and EV Charger Installation projects.
- Grant documentation reporting for DOLA, HEEHA, and PBEG funding.
- 90% review meeting with the City of Louisville Building Department.
- Coordination with utility companies to identify cost/schedule impacts and PV system interfaces.
- Team will provide the following: meeting agendas and minutes, schedule updates, monthly progress reports, critical path identification, coordination with consultants and City staff, collaboration with EV and backup assessment teams.

# 3. Timeline & Milestones

## Q1 2026
### Complete Phase 1 - Electrical Load Evaluations

## Q2 2026
### Complete Concept Design

- Establish budget constraints and priorities.
- Identify long lead item equipment.
- Develop schedule and deliverables based on budget, priorities, and equipment lead times.

## Q4 2026
### Complete Phase 2 E/EE Design of Prioritized Items for Bid and Permitting

## 2027
### Construction Activities Begin

| PEC \| City of Louisville COLORADO • SINCE 1878 | 2025 | | 2026 | | | | | | | | | | | | 2027 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 |
| Phase 1 - Electrical Load Evaluations | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Phase 2 - Complete Concept Design | | | | | ■ | ■ | ■ | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Phase 2 - Complete E/EE Design of Prioritized Items for Bid and Permitting | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Construction Activity | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ |

**PEC understands the importance of listening to the community and residents with a stake in the project.**




**We continually meet our clients' expectations for quality projects delivered on time and within budget.**

## 4. Team Roles and Responsibilities

### PRINCIPAL-IN-CHARGE

Primary point of accountability, ensuring that the project meets the client's goals, quality standards, budget, and schedule. Provides executive-level guidance, facilitates communication between stakeholders, and supports the project team with leadership and the required resources to deliver excellence.

### PROJECT MANAGER

Responsible for day-to-day leadership and coordination of the project team, ensuring successful delivery of technical work, schedule adherence, and budget control. Main point of contact for the client, manages communication among stakeholders, and oversees project planning, execution, and reporting. Proactively identify risks, resolve issues, and ensure quality standards are met throughout the project lifecycle. Facilitates collaboration across disciplines and ensures alignment with project goals.

### LEAD ELECTRICAL ENGINEER

Technical oversight of load evaluations and electrification design.

### LEAD MECHANICAL ENGINEER

Technical oversight of mechanical equipment replacement selection and coordination with all other disciplines.

### CIVIL & STRUCTURAL ENGINEERS

Support for HVAC, envelope, and PV array.

### ARCHITECT

Support for HVAC electrification and envelope efficiency upgrades. Drives the permitting process and grant reporting requirements. Supports project management tasks.

### SOLAR DESIGNER

Consult with Owner on goals related to backup power and utility grid interface. Collaborate with Electrical Engineer to evaluate equipment impacts during Phase 1 load evaluation and cost estimating. PV array designer for Phase 2.

### ELECTRICAL CONTRACTOR

Equipment metering and cost estimating in Phase 1.

### GENERAL CONTRACTOR

Cost estimating assistance as necessary for Phase 1. Cost estimating for Phase 2. Constructability and cost savings consultation.

### TAX CONSULTANT

Advising the team on potential schedule drivers to allow the Owner to take advantage of the solar investment tax credits that are being phased out. Assist Owner in understanding the magnitude of the Investment Tax Credit available.

### QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) ENGINEER OF RECORD

Quality assurance throughout design and construction.

## 5. Risk Management & Quality Assurance

- Proactive identification and mitigation of risks related to system capacity, permitting, supply chain, and coordination of internal and/or external communication(s) between stakeholders.
- Embedded QA/QC protocols for all deliverables and construction activities.
- Compliance with the City's design criteria, state/local codes, and grant requirements.

# COMMENDATIONS

## PROJECT AWARDS

PEC has been honored to work on projects that have gone on to receive recognition from prestigious institutions for our work. Receiving those awards validates our core values and reaffirms that our commitment to excellence and putting our clients and their needs first is the right way to do business. The following are a couple of examples of our work that we have been honored to be awarded and have humbly accepted.

### COLORADO STATE UNIVERSITY

**Michael Smith Natural Resources Center Addition | Fort Collins, CO**

Colorado State University (CSU) had a vision to add cohesive expansion to the Michael Smith Natural Resources building to be able to offer more facilities to its students. In the design process, the challenge for PEC was to maintain the aesthetic that matched the existing building's height. The tight floor to floor height required a creative solution to maintain its LEED Silver certification.

PEC's mechanical design included connections to the campus steam and chilled water utilities, a new custom air handling unit in the basement, heating and cooling heat exchangers, and hydronic piping throughout the space. PEC's electrical design included a new electrical service for the addition and new lighting and controls.

The addition provides much-needed space for the growing college: a student success center, state-of-the-art teaching labs, meeting space, and a new home for the Center for Collaborative Conservation. The addition's integrated design embodies the college's connections to natural resources and its commitment to sustainability.

In 2019, the CSU Michael Smith Natural Resources Center Addition was honored with the ENR Western Mountain States Best Project Award.







**SCAN THE QR CODE TO SEE MORE OF THE CSU MICHAEL SMITH NATURAL RESOURCES BUILDING ADDITION**

## WICHITA STATE UNIVERSITY

### Youngmeyer Ranch Field Station | Elk County, KS

Driven by the goal to be ecologically conscience, PEC engineers dug deep to ensure their design left a positive footprint in this regional treasure. One of the biggest factors in the design was the desire to have the building be 100% off-grid. Solar panels are the main source of power with a generator available as a backup. Keeping the solar panels discreet was also a concern. The best solution to respect the surrounding environment was to design the solar panels to be installed on the roof with the pitch of the roof being a clean line aesthetic.

Along with electrical, PEC also provided mechanical and structural design. Working with one of PEC's longtime partners, Hutton Builds, required excellent communication on such an eco-forward project. While sustainability was a major goal, an equally important one was designing a solid and secure structure while maintaining the beautiful visual landscape of the Flint Hills. The building is partially embedded in the surrounding land consistent with the architect's vision to minimally impact the area. This required adjustments to what is normally used in a structural design. The most distinctive visual aspect is the roofline of the field station. Intended to look as if blended in with the horizon, PEC engineers created structural solutions for the unique design.

In 2023 the Youngmeyer Field Station design and build was honored with the Small Projects Award by the American Institute of Architects (AIA).









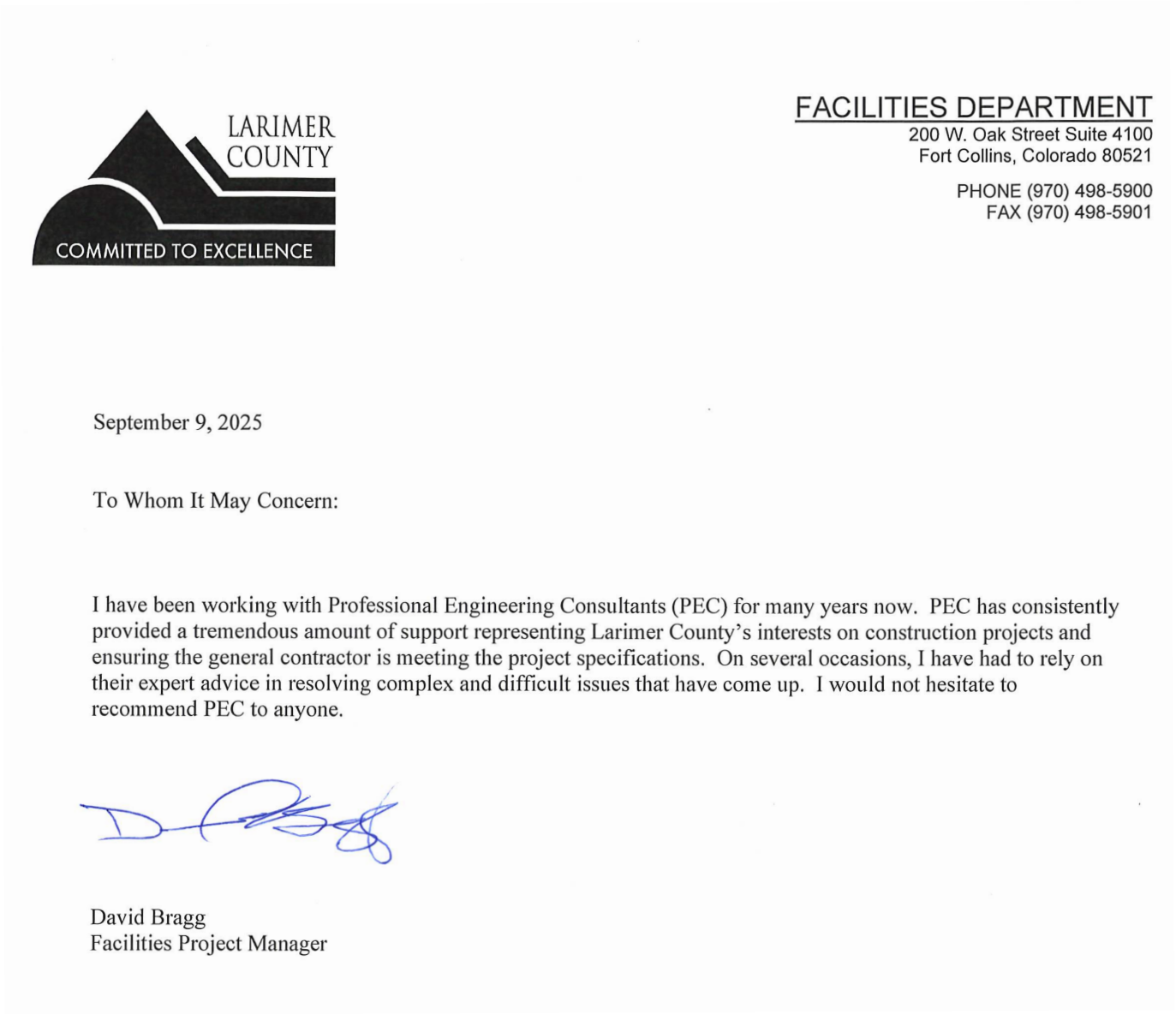
**SCAN THE QR CODE TO READ MORE ABOUT THE YOUNGMEYER RANCH FIELD STATION'S 2023 SMALL PROJECTS AWARD WIN**

## LETTERS OF REFERENCE

**There is no greater measure of success than a satisfied client. Satisfied clients become repeat clients.**

Our team members provide a substantial volume of services for existing clients, who benefit from our commitment to quality solutions, timeliness, and cost control. PEC values trust and works tirelessly to establish that trust from the very beginning.

This trust leads to the best bid prices and the most well constructed projects for our clients. Our strong reputation and ability to deliver exceptional engineering services are confirmed by our high number of satisfied clients. The following client references will attest to PEC's integrity, quality of service, and competence. We invite you to contact them for additional information.



LARIMER COUNTY
COMMITTED TO EXCELLENCE

FACILITIES DEPARTMENT
200 W. Oak Street Suite 4100
Fort Collins, Colorado 80521

PHONE (970) 498-5900
FAX (970) 498-5901

September 9, 2025

To Whom It May Concern:

I have been working with Professional Engineering Consultants (PEC) for many years now. PEC has consistently provided a tremendous amount of support representing Larimer County's interests on construction projects and ensuring the general contractor is meeting the project specifications. On several occasions, I have had to rely on their expert advice in resolving complex and difficult issues that have come up. I would not hesitate to recommend PEC to anyone.

David Bragg
Facilities Project Manager

LARIMER COUNTY
COMMITTED TO EXCELLENCE

FACILITIES DEPARTMENT

200 W. Oak Street, Suite 4100
Fort Collins, Colorado 80521

PHONE (970) 498-5900

**March 25, 2022**

**To Whom It May Concern:**

**When Larimer County selected D2C Architects in 2021 to lead the design and engineering on its new Fleet Campus project, PEC was a key component of that consulting team. The County has had many positive experiences working with PEC on mechanical engineering for previous capital construction projects, though this was the first significant role PEC played for civil engineering requirements.**

**Kent Bruxvoort with PEC's Municipal Division has been their lead on the County Fleet Campus project and has been an excellent member of the team. He is careful with his analysis and commitments, but also responsive and very helpful. The project team has sent him in a variety of directions since the project began in mid-2021, and he's remained flexible and focused on what's ultimately best for the customer. Whenever possible, he's been able to offer quick and helpful tidbits of information that keep project meetings moving forward. He's also quick to interject humor, adding helpful energy to the meetings and to the overall culture of the project.**

**This current project is located on a 30-acre site and the County recently purchased an additional 13-acre option parcel just to the south. Again, PEC has added value through helpful snapshots of what the campus could look like both in this first project phase, but also keeping an eye on flexible options to help meet longer-term County needs.**

**Our Facilities Team in Larimer County would be very comfortable selecting a team that included Kent and his PEC Civil Engineering Team on future capital projects. We wish you well in your own project and selection process.**

**Sincerely,**



**Ken Cooper**

**Facilities Director – Larimer County**

**Cell 970-775-3782**

91 W Broadway Avenue
Keenesburg, CO 80643
TownofKeenesburg.com

Phone: 303.732.4281
Fax: 303.732.0599
TownofKeene@Keenesburg.org

January 24, 2023

RE: Professional Engineering Consultants Performance for the Town of Keenesburg

To Whom it May Concern:

Please accept this recommendation for PEC and the civil engineering services they have provided for the Town of Keenesburg. PEC has been under contract as our Town Engineer since May 2019. PEC has completed engineering review of development applications, has assisted the Town in a variety of public works maintenance projects, and has completed design of street, water main, and storm water projects for the Town. We have been pleased with the professionalism, quality of work, and knowledge they have brought to the table and consider them a valuable member of our team. They have also provided us with the structural, mechanical, and electrical engineering design with our municipal building projects.

Please do not hesitate to contact me for additional information.

Sincerely,

Mark D. Gray
Public Works Director

TOWN OF KEENESBURG
FOUNDED JULY 1906
A MUNICIPAL CORPORATION SINCE JULY 1919

POUDRE SCHOOL DISTRICT

February 22, 2019

Jefferson County School District
Facilities Planning and Construction
Attn: Consultant Prequalification
809 Quail Street, Building #4
Lakewood, CO 80215

RE: PEC Engineering Performance for Poudre School District
Fort Collins, Colorado

Dear Selection Committee:

I am pleased to have this opportunity to recognize PEC and its staff for the quality of their engineering services for Poudre School District.

PEC staff has worked with Poudre School District on projects ranging from significant school renovations to very small office remodels since 2011. As PEC staff members, and prior to joining PEC, their key staff has completed over a dozen multi-million-dollar HVAC and electrical renovations for our high schools, middle schools, and elementary schools, as well as a variety of small maintenance and renovation projects for other District buildings. Based on the quality of their past service to Poudre School District, the relationship has now expanded to include civil engineering projects.

PEC's focus on understanding the needs of all stakeholders involved has resulted in project outcomes that exceed our expectations. PEC understands that budget, maintenance costs, end-user experience, and energy costs all must be considered when generating design solutions.

PEC demonstrates a genuine interest in our needs and requirements. They take the time to listen to maintenance staff concerns and desired outcomes. They hear the concerns of staff and teachers and focus on solutions that will improve the student environment. PEC staff differentiate themselves further through their diligent work in documenting existing conditions. This diligence resulted in reduced change orders and summer remodel work that was completed on time.

We appreciate their extra attention to detail and unparalleled commitment to customer service. PEC has exceeded our expectations.

Please do not hesitate to contact me for additional information.

Best regards,

Brad Knutson

Brad Knutson
Construction Project Coordinator
Poudre School District
Office: 970-490-3465
bknutson@psdschools.org

February 21, 2019

Jefferson County School District
Facilities Planning and Construction
ATTN: Consultant Prequalification
809 Quail Street, Building #4
Lakewood, CO 80215

RE: PEC Professional Engineering Consultants, P.A.

To whom it may concern,

The Poudre School District Facility Services Department is pleased to recommend PEC to Jefferson County School District for engineering and consulting services.

For the better portion of the last decade Poudre School District has been working through a bond dedicated largely to mechanical upgrades on existing buildings. PEC has been an extension of the PSD team throughout this process and are an integral part of the success enjoyed by Poudre School District throughout the bond. As we enter another bond cycle filled with small retrofits and upgrades PEC will continue to be called on for their services.

As I am sure most public-school districts can attest to the smaller mechanical upgrades and retrofits can often be the most difficult. It is in these projects that PEC has consistently delivered quality design and outstanding support. PEC addresses these projects with a solution minded approach weighing the needs of all stakeholders. It is this whole minded project approach that has allowed us to maximize limited resources and maintain a goal of continual improvement to our building systems and efficiency.

Another high mark for PEC is the manner they embrace and parallel the mission, vison and goals of the district. Outside of technical specifications, building codes and load calculations, PEC considers how a space is used, who uses it and the long-term plan for the space. These considerations align PSD and PEC in a drive to plan and complete quality projects with positive impact on the educational process.
We are available for any further conversation regarding PEC.

Sincerely,

Jerry Garretson
Poudre School District
Director of Facilities
970-490-3589 jerryg@psdschools.org

Josh Higgins
Poudre School District
Building Maintenance Manager
970-490-3551 joshh@psdschools.org

## EXHIBIT A

A. The Louisville Internal Decarbonization Project Phase 1 (Project) shall consist of an electrical load evaluation to determine the existing electrical system capacity being used, spare capacity available and upgrades required to implement electrification of the existing HVAC and plumbing systems, as well as the EV Charging Installation anticipated for each building. Additionally, this study shall work hand-in-hand with consultants executing the Emergency Generator Backup Implementation project. This evaluation shall establish costs to implement electrification and serve as a guide to move into Phase 2 of designing the systems required for electrification.

B. **Project Description**

1. The Project estimated construction budget is unknown at this time. Estimates were developed a few years ago by a Decarbonization Study and will be updated as this project progresses. The McKinstry Decarbonization Study estimates approximately $36 million for electrification and PV implementation across all buildings.

C. **Anticipated Project Schedule**

1. PEC shall commence its services on the Project within 10 days after receiving Client's notice to proceed.
2. PEC and Client anticipate that the duration to complete load evaluation and report will be approximately 10 weeks after receiving Notice to Proceed.
3. Client acknowledges that directed changes, unforeseen conditions, and other delays may affect the completion of PEC's services. PEC will not have control over or responsibility for any contractor or vendor's performance schedule.

D. **Project Deliverables**

1. The Project Deliverables shall consist of the following:
   a) Draft and Final Reports including:
      1) Narrative
      2) Probable Cost
      3) Annotated drawings for each building.

E. **Scope of Services**

1. General Scope Items for Mechanical and Electrical Services:
   a) Conduct pre-design site visit to assess existing conditions.
   b) Attend meetings with Client.
   c) Record and distribute meeting minutes.
   d) Collaborate with consultants working on Emergency Generator Backup Implementation and EV Charger Installation projects.
   e) Provide Engineer's opinion of probable construction cost, broken down by building.

2. Mechanical engineering design including:
    a) Meet with building maintenance staff to discuss existing system conditions and existing system performance for buildings within the scope of work.
    b) Site verification of existing systems and verifying the existing documents match the site conditions.
    c) PDF markups explaining the extent of the system replacement.
    d) Preliminary equipment selections based on existing units. New equipment selections shall comply with the city's decarbonization and electrification goals. It is anticipated that all new units shall be heat pumps. Hybrid and backup systems as appropriate for the building application and City resiliency desires.
    e) Prepare report of findings at each building with major deficiencies and potential complications with execution of the scope of work.

3. Electrical engineering design including:
    a) Review and document existing electrical infrastructure in the 7 buildings within scope of work.
        1) Provide One-Line documentation of existing electrical infrastructure for each building based on findings at site walk.
    b) Participate in interviews with building and city staff pertaining to the electrical system within each building.
    c) Determine future electrical usage within building based on information provided by end users and collaboration with other disciplines.
    d) Prepare report of findings with recommendations for electrical service and/or infrastructure modifications.
    e) Coordination with Electrical Contractor for metering.
    f) Service size calculations and updated one-line concept.
    g) PV planning and collaboration.

4. Solar consulting including:
    a) Addressed within this scope.
        1) The Public Library project is a 128kW DC roof mount.
        2) The Police and Municipal Building is a 257kW DC ground mount.
        3) The Recreation & Senior Center is a 380kW DC ground mount.
    b) Solar Design Scope is to:
        1) Attend up to five team coordination meetings and assist with PV-related questions, such as loads and electrical infrastructure potential requirements. Integration with PV, generators, and utility to understand how backup and PV interact with one another during a utility outage.
        2) Review of how the proposed system sizes were determined and confirm feasibility and identify potential improvements
        3) Provide general consulting related to the Phase 1 report.

5. Architectural services including:
    a) Attend kickoff meeting, draft report and final review meeting.
    b) Design team collaboration for mechanical and electrical systems impacts.
    c) Site walk of all buildings.

6. Electrical Contractor services including:
   a) 30-day metering at 7 buildings.
   b) Electrical cost estimating.
   c) Team meetings.

7. General Contractor services including:
   a) Attendance at team kickoff meeting.
   b) Building site walk.
   c) Collaboration with design team and electrical contractor.
   d) Cost estimating for decarbonization efforts by building to help establish current budgets and assist with prioritization.

8. Tax Consultant services including:
   a) Attendance at team kickoff meeting.
   b) Advising on timeline of solar Investment Tax Credits phaseout, potential amounts to be achieved and how to best position the City to receive the Tax Credit via the Direct Pay program.

F. **Additional Responsibilities of Client**

The Client agrees to provide the following pursuant to PEC accomplishing the Scope of Services outlined herein.

1. Electronic files for base sheet development.
2. Utility requirements for all equipment specified and/or provided by the Client or other Contractors.
3. Drawings, studies, reports, and other information available pertaining to the existing building and site.

G. **Additional Services**

The following services can be provided by PEC at an additional cost by Supplemental Agreement:

1. Design of utilities to the PROJECT site.

H. **Exclusions**

The following shall be specifically excluded from the Scope of Services to be provided by PEC.

1. Printing costs.

## I. PEC's Fees & Reimbursable Expenses

1. PEC will invoice Client one time per month for services rendered and Reimbursable Expenses incurred in the previous month.
2. PEC's Fee for its Scope of Services related to Phase 1 will be a lump sum fee of $142,700, plus Reimbursable Expenses.
3. Reimbursable Expenses shall include digital scanning and printing by outside firms, deliveries made by outside services, vehicle mileage, meals, and filing/permit fees.
4. Taxes are not included in PEC's Fees. Client shall reimburse PEC for any sales, use, and value added taxes which apply to these services.
5. Phase 2 fees cannot be established at this time. The load evaluation results, updated cost estimating, prioritization, as well as the Owner budget and schedule will all impact the Scope of Services and Fees for Phase 2. For planning purposes, the City should allocate between 7 and 10 percent of construction for the Tasks and Deliverables requested in Phase 2. Smaller historic buildings may incur a higher percentage of construction, while buildings with relatively minor energy efficiency measures such as lighting replacement and controls may incur a lower percentage of construction costs.

City of Louisville
COLORADO • SINCE 1878

**CITY OF LOUISVILLE**
**Internal Decarbonization Project – Electrification/Energy Efficiencies (E/EE)**

**Pricing & Information**

1. Check the correct boxes according to the scope and fee included in your Proposal and provide the lump sum cost for each phase:

☐ Phase 1 – Electrical Load Evaluation Only:

Phase 1 Cost: $_____

☐ Phase 2 – Electrification/Energy Efficiency Implementation Only

Phase 2 Cost: $_____

☒ Phases 1 and 2:

Phase 1 Cost: $ 142,700

Phase 2 Cost: $ Please refer to estimate in RFP response package at the bottom of the Exhibit A detailing Phase 1 Scope and Fee

2. Provide the proposed Project start and completion dates or timeline, as applicable:

Phase 1 – Electrical Load Evaluation

Start Date: 11/15/25 End Date: 2/15/26

Phase 2 – Electrification/Energy Efficiency Implementation

Start Date: 4/1/26 End Date: 12/18/26

3. Details that are relevant to the Proposal and completion of the Project (may be attached separately):

Please reference the enclosed Exhibit A for a full scope of services

4. Additional Documents – The following documents are attached to and made a condition of this Proposal:

a) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Proposal,
b) Anti-Collusion Affidavit,
c) If Proposer is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

5. Communications concerning this proposal shall be addressed to:

The address of Proposer indicated below.

Corey Rhodes

351 Linden St. Fort Collins, CO 80526

corey.rhodes@pecl.com 970-682-5092

**SUBMITTED on** September 12 **, 2025.**

## SCHEDULE OF SUBCONTRACTORS

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

This Bid is based on subcontracting certain portions of the work to subcontractors as listed below.

Name: RB+B Architects Telephone No. 970-484-0117
Address: 315 East Mountain Avenue, Suite 100
City: Fort Collins State: CO Zip Code: 80524
Services/equipment to be provided: Architectural services (architectural design, grant reporting, permitting.

Name: Saunders Telephone No. 303-699-9000
Address: 86 Inverness Place North
City: Englewood State: CO Zip Code: 80112
Services/equipment to be provided: General Contractor (cost estimating)

Name: Mayfield Renewables Telephone No. 541-754-2001
Address: 2210 NW Hayes Ave
City: Corvallis State: OR Zip Code: 97330
Services/equipment to be provided: Solar designer (PV array design)

Name: Merit Electric Telephone No. 970-329-1322
Address: 2590 Midpoint Drive
City: Fort Collins State: CO Zip Code: 80525
Services/equipment to be provided: Electrical contractor (load metering)

Name: TaxTaker Telephone No. 949-933-8928
Address: 1401 Lavaca Street #645
City: Austin State: TX Zip Code: 78701
Services/equipment to be provided: Assisting in navigating energy tax incentives/credits

Name: Telephone No.
No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

Name: Telephone No.
Address:
City: State: Zip Code:
Services/equipment to be provided:

## ANTI-COLLUSION AFFIDAVIT

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a BIDDER or potential prime BIDDER.

2A. Neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a BIDDER or potential prime BIDDER on this project, and will not be so disclosed prior to bid opening.

2B. Neither the prices nor the amount of the Bid of any other firm or person who is a BIDDER or potential prime BIDDER on this project have been disclosed to me or my firm.

3A. No attempt has been made to solicit, cause or induce any firm or person who is BIDDER or potential prime BIDDER to refrain from bidding on this project, or to submit a Bid higher than the Bid of this firm, or any intentionally high or noncompetitive Bid or other form of complementary Bid.

3B. No agreement has been promised or solicited for any other firm or person who is a BIDDER or potential prime BIDDER on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.

4. The Bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.

8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the OWNER of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

| CONTRACTOR'S FIRM OR COMPANY NAME | | SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE) | |
|---|---|---|---|
| BY: | Cuyler M Radke | BY: | |
| TITLE: | Principal | TITLE: | |
| DATE: | 9/11/25 | DATE: | |

SWORN BEFORE ME THIS 11 DAY OF, September, 2025

NOTARY PUBLIC: Cassandra Hayes MY COMMISSION EXPIRES: 05/29/2028

CASSANDRA MARIE HAYES
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20204018925
MY COMMISSION EXPIRES MAY 29, 2028

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

If PROPOSER is:

**An Individual**

By _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

_____

Phone No.: _____

**A Partnership**

By _____ (SEAL)
(Individual's Name)

_____
(General Partner)

Business address: _____

_____

Phone No.: _____

**A Corporation**

By Professional Engineering Consultants, PA, Kansas
(Corporation Name, State of Incorporation)

By Michael D. Hughes
(Name of person authorized to sign)

Executive Vice President
(Title)

Attest
(Secretary)

(CORPORATE SEAL)

Business address: 303 S. Topeka
Wichita, KS
67202

Phone No.: 316-262-2691

Date of Qualification to do business: August 17, 1965

**A Joint Venture**

By _____
(Name)

_____
(Address)

By _____
(Name)

_____
(Address)

Phone Number and Address for receipt of official communications:

_____

_____

(Each joint venture partner must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)



351 Linden St, Ste 100 | Fort Collins, CO 80524

970.232.9558

PEC1.COM

**AN AGREEMENT BY AND BETWEEN THE CITY OF LOUISVILLE AND AECOM TECHNICAL SERVICES, INC. FOR CONSULTING SERVICES**

## 1.0 PARTIES

This AGREEMENT FOR CONSULTING SERVICES (this "Agreement") is made and entered into this ____ day of _____, 20____ (the "Effective Date"), by and between the **City of Louisville**, a Colorado home rule municipal corporation, hereinafter referred to as the "City", and **AECOM Technical Services, Inc.** a California Corporation, hereinafter referred to as the "Consultant".

## 2.0 RECITALS AND PURPOSE

2.1 The City desires to engage the Consultant for the purpose of providing **professional engineering services** as further set forth in the Consultant's Scope of Services (which services are hereinafter referred to as the "Services").

2.2 The Consultant represents that it has the special expertise, qualifications and background necessary to complete the Services.

## 3.0 SCOPE OF SERVICES

The Consultant agrees to provide the City with the specific Services and to perform the specific tasks, duties and responsibilities set forth in Scope of Services attached hereto as **Exhibit A** and incorporated herein by reference.

## 4.0 COMPENSATION

4.1 The City shall pay the Consultant for services under this agreement a total not to **Three Hundred Seventy-Four Thousand Three Hundred Thirty Five Dollars ($374,335.00)** as set forth in **Exhibit B** attached hereto and incorporated herein by this reference. For Services compensated at hourly or per unit rates, or on a per-task basis, such rates or costs per task shall not exceed the amounts set forth in **Exhibit B.** The City shall not pay mileage and other reimbursable expenses (such as meals, parking, travel expenses, necessary memberships, etc.), unless such expenses are (1) clearly set forth in the Scope of Services, and (2) necessary for performance of the Services ("Pre-Approved Expenses"). The foregoing amounts of compensation shall be inclusive of all costs of whatsoever nature associated with the Consultant's efforts, including but not limited to salaries, benefits, overhead, administration, profits, expenses, and outside consultant fees. The Scope of Services and payment therefor shall only be changed by a properly authorized amendment to this Agreement. No City employee has the authority to bind the City with regard to any payment for any services which exceeds the amount payable under the terms of this Agreement.

4.2 Compensation under this Agreement shall be on a lump sum basis. The lump sum amount shall constitute full compensation for the Services performed and the Pre-Approved Expenses incurred during the applicable phase of work. The Consultant shall submit invoices in accordance with the payment schedule set forth in **Exhibit B** by task number. Each invoice shall reference the applicable milestone or deliverable and certify that the Services invoiced have been completed in accordance with the Agreement requirements. The Consultant shall provide additional backup documentation as may be required by the City. No additional compensation shall be paid for Services performed beyond the agreed-upon lump sum amount unless authorized in advance through a written contract amendment executed by the parties. The City shall pay the invoice within thirty (30) days of receipt unless the Services or the documentation therefor are unsatisfactory. Payments made after thirty (30) days may be assessed an interest charge of one percent (1%) per month unless the delay in payment resulted from unsatisfactory work or documentation therefor. Payment of invoices is subject to review and approval by the Owner.

## 5.0 PROJECT REPRESENTATION

5.1 The City designates Taylor McCauley as the responsible City staff to provide direction to the Consultant during the conduct of the Services. The Consultant shall comply with the directions given by such person and such person's designees.

5.2 The Consultant designates Jason Sielcken as its project manager and as the principal in charge who shall be providing the Services under this Agreement. Should any of the representatives of Consultant be replaced, and such replacement require the City or the Consultant to undertake additional reevaluations, coordination, orientations, etc., the Consultant shall be fully responsible for all such additional costs and services.

## 6.0 TERM

6.1 The term of this Agreement shall be from the Effective Date until all the Services have been fully performed, unless sooner terminated pursuant to Section 13, below. The Consultant's Services under this Agreement shall commence on the Effective Date and Consultant shall proceed with diligence and promptness so that the Services are completed in a timely fashion consistent with the City's requirements.

6.2 Nothing in this Agreement is intended or shall be deemed or construed as creating any multiple-fiscal year direct or indirect debt or financial obligation on the part of the City within the meaning of Colorado Constitution Article X, Section 20 or any other constitutional or statutory provision. All financial obligations of the City under this Agreement are subject to annual budgeting and appropriation by the Louisville City Council, in its sole discretion. Notwithstanding anything in this Agreement to the contrary, in the event of non-appropriation, this Agreement shall terminate effective December 31 of the then-current fiscal year.

## 7.0 INSURANCE

7.1 The Consultant agrees to procure and maintain, at its own cost, the policies of insurance set forth in Subsections 7.1.1 through 7.1.4. The Consultant shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. The coverages required below shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained from the date of commencement of services hereunder. The required coverages are:

7.1.1 Workers' Compensation insurance as required by the Labor Code of the State of Colorado and Employers Liability Insurance. Evidence of qualified self-insured status may be substituted.

7.1.2 General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each occurrence and TWO MILLION DOLLARS ($2,000,000) aggregate. The policy shall include the City of Louisville, its officers and its employees, as additional insureds, with primary coverage as respects the City of Louisville, its officers and its employees, and shall contain a severability of interests provision.

7.1.3 Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than FOUR HUNDRED THOUSAND DOLLARS ($400,000) per person in any one occurrence and ONE MILLION DOLLARS ($1,000,000) for two or more persons in any one occurrence, and auto property damage insurance of at least FIFTY THOUSAND DOLLARS ($50,000) per occurrence, with respect to each of Consultant's owned, hired or non-owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests provision. If the Consultant has no owned automobiles, the requirements of this paragraph shall be met by each employee of the Consultant providing services to the City of Louisville under this Agreement.

7.1.4 Professional Liability coverage with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each claim and ONE MILLION DOLLARS ($1,000,000) aggregate.

7.2 The Consultant's general liability insurance, automobile liability and physical damage insurance, and professional liability insurance shall be endorsed to include the City, and its elected and appointed officers and employees, as additional insureds, unless the City in its sole discretion waives such requirement. Every policy required above, except Professional Liability and Worker's Compensation and Employer's Liability, shall be primary insurance, and any insurance carried by the City, its officers, or its employees, shall be excess and not

contributory insurance to that provided by the Consultant. Such policies shall contain a severability of interests provision. The Consultant shall be solely responsible for any deductible losses under each of the policies required above.

7.3 Certificates of insurance shall be provided by the Consultant as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the City. No required coverage shall be cancelled, terminated or materially changed until at least 30 days' prior written notice has been given to the City. The City reserves the right to request and receive a certified copy of any endorsement thereto.

7.4 Failure on the part of the Consultant to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the City may immediately terminate this Agreement, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Consultant to the City upon demand, or the City may offset the cost of the premiums against any monies due to Consultant from the City.

7.5 The parties understand and agree that the City is relying on, and does not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S., as from time to time amended, or otherwise available to the City, its officers, or its employees.

## 8.0 INDEMNIFICATION

8.1 To the fullest extent permitted by law, the Consultant agrees to indemnify and hold harmless the City, and its elected and appointed officers and its employees, from and against all liability, claims, and demands, on account of any injury, loss, or damage, which arise out of or are connected with the services hereunder, if and to the extent such injury, loss, or damage is caused by the negligent act, omission, or other fault of the Consultant or any subcontractor of the Consultant, or any officer, employee, or agent of the Consultant or any subcontractor, or any other person for whom Consultant is responsible. The Consultant shall investigate, handle, respond to, and provide defense for and defend against any such liability, claims, and demands. The Consultant shall further bear all other costs and expenses incurred by the City or Consultant and related to any such liability, claims and demands, including but not limited to court costs, expert witness fees and attorneys' fees if the court determines that these incurred costs and expenses are related to such negligent acts, errors, and omissions or other fault of the Consultant.

8.2 The City shall be entitled to its costs and attorneys' fees incurred in any action to enforce the provisions of this Section 8.0. The Consultant's indemnification

obligation shall not be construed to extend to any injury, loss, or damage which is caused by the act, omission, or other fault of the City.

8.3 If the Consultant is providing architectural, engineering, surveying or other design services under this Agreement, the extent of the Consultant's obligation to indemnify and hold harmless the Town may be determined only after the Consultant's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement between the parties, as provided by C.R.S. § 13-50.5-102(8)(c).

## 9.0 QUALITY OF WORK

Consultant's professional services shall be in accordance with the prevailing standard of practice normally exercised in the performance of services of a similar nature in the Denver metropolitan area.

## 10.0 INDEPENDENT CONTRACTOR

It is the expressed intent of the parties that the Consultant is an independent contractor and not the agent, employee or servant of the City, and that:

10.1 Consultant shall satisfy all tax and other governmentally imposed responsibilities including but not limited to, payment of state, federal, and social security taxes, unemployment taxes, worker's compensation and self-employment taxes. No state, federal or local taxes of any kind shall be withheld or paid by the City.

10.2 **Consultant is not entitled to worker's compensation benefits except as may be provided by the Consultant nor to unemployment insurance benefits unless unemployment compensation coverage is provided by the Consultant or some entity other than the City.**

10.3 Consultant does not have the authority to act for the City, or to bind the City in any respect whatsoever, or to incur any debts or liabilities in the name of or on behalf of the City.

10.4 Consultant has and retains control of and supervision over the performance of Consultant's obligations hereunder and control over any persons employed by Consultant for performing the Services hereunder.

10.5 The City will not provide training or instruction to Consultant or any of its employees regarding the performance of the Services hereunder.

10.6 Neither the Consultant nor any of its officers or employees will receive benefits of any type from the City.

10.7 Consultant represents that it is engaged in providing similar services to other clients and/or the general public and is not required to work exclusively for the City.

10.8 All Services are to be performed solely at the risk of Consultant and Consultant shall take all precautions necessary for the proper and sole performance thereof.

10.9 Consultant will not combine its business operations in any way with the City's business operations and each party shall maintain their operations as separate and distinct.

## 11.0 ASSIGNMENT

Consultant shall not assign or delegate this Agreement or any portion thereof, or any monies due or to become due hereunder without the City's prior written consent.

## 12.0 DEFAULT

Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event either party should fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

## 13.0 TERMINATION

13.1 This Agreement may be terminated by either party for material breach or default of this Agreement by the other party not caused by any action or omission of the other party by giving the other party written notice at least thirty (30) days in advance of the termination date. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

13.2 In addition to the foregoing, this Agreement may be terminated by the City for its convenience and without cause of any nature by giving written notice at least fifteen (15) days in advance of the termination date. In the event of such termination, the Consultant will be paid for the reasonable value of the services rendered to the date of termination, not to exceed a pro-rated daily rate, for the services rendered to the date of termination, and upon such payment, all obligations of the City to the Consultant under this Agreement will cease. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

## 14.0 INSPECTION AND AUDIT

The City and its duly authorized representatives shall have access to any books, documents, papers, and records of the Consultant that are related to this Agreement for the purpose of making audits, examinations, excerpts, and transcriptions.

## 15.0 DOCUMENTS

All computer input and output, analyses, plans, documents photographic images, tests, maps, surveys, electronic files and written material of any kind generated in the performance of this Agreement or developed for the City in performance of the Services are and shall remain the sole and exclusive property of the City. All such materials shall be promptly provided to the City upon request therefor and at the time of termination of this Agreement, without further charge or expense to the City. Consultant shall not provide copies of any such material to any other party without the prior written consent of the City.

## 16.0 ENFORCEMENT

16.1 In the event that suit is brought upon this Agreement to enforce its terms, the prevailing party shall be entitled to its reasonable attorneys' fees and related court costs.

16.2 This Agreement shall be deemed entered into in Boulder County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Agreement shall be filed in the District Court of Boulder County of the State of Colorado, and in no other court. Consultant hereby waives its right to challenge the personal jurisdiction of the District Court of Boulder County of the State of Colorado over it.

## 17.0 COMPLIANCE WITH LAWS

17.1 Consultant shall be solely responsible for compliance with all applicable federal, state, and local laws, including the ordinances, resolutions, rules, and regulations of the City; for payment of all applicable taxes; and obtaining and keeping in force all applicable permits and approvals.

17.2 Consultant acknowledges that the City of Louisville Code of Ethics provides that independent contractors who perform official actions on behalf of the City which involve the use of discretionary authority shall not receive any gifts seeking to influence their official actions on behalf of the City, and that City officers and employees similarly shall not receive such gifts. Consultant agrees to abide by the gift restrictions of the City's Code of Ethics.

## 18.0 INTEGRATION AND AMENDMENT

This Agreement represents the entire Agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties.

## 19.0 NOTICES

All notices required or permitted under this Agreement shall be in writing and shall be given by hand delivery, by United States first class mail, postage prepaid, registered or certified, return receipt requested, by national overnight carrier, or by facsimile transmission, addressed to the party for whom it is intended at the following address:

If to the City:

City of Louisville
Attn: City Manager
749 Main Street
Louisville, Colorado 80027
Telephone: (303) 335-4533
Email: dlangley@louisvilleco.gov

If to the Consultant:

AECOM
Attn: Jason Sielcken
7595 Technology Way, Suite 200
Denver, CO 80237
Telephone: (720) 250-6961
Email: jason.sielcken@aecom.com

Any such notice or other communication shall be effective when received as indicated on the delivery receipt, if by hand delivery or overnight carrier; on the United States mail return receipt, if by United States mail; or on facsimile transmission receipt. Either party may by similar notice given, change the address to which future notices or other communications shall be sent.

## 20.0 EQUAL OPPORTUNITY EMPLOYER

20.1 Consultant will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, disability or national origin. Consultant will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, age, sex, disability, national origin, sexual orientation, gender identify or expression, marital status or any other protected basis. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

20.2 Consultant shall be in compliance with the applicable provisions of the American with Disabilities Act of 1990 as enacted and from time to time amended and any other applicable federal, state, or local laws and regulations. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of this Agreement or any renewal thereof.

**21.0 NO THIRD PARTY BENEFICIARIES**

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to City and Consultant, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than City or Consultant receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

**22.0 SUBCONTRACTORS**

Consultant may utilize subcontractors identified in its qualifications submittal to assist with non-specialized works as necessary to complete projects. Consultant will submit any proposed subcontractor and the description of its services to the City for approval. The City will not work directly with subcontractors.

**23.0 AUTHORITY TO BIND**

Each of the persons signing below on behalf of any party hereby represents and warrants that such person is signing with full and complete authority to bind the party on whose behalf of whom such person is signing, to each and every term of this Agreement.

In witness whereof, the parties have executed this Agreement to be effective on the date first above written.

CITY OF LOUISVILLE,
a Colorado Municipal Corporation

By:_____

Attest:_____

CONSULTANT:
AECOM TECHNICAL SERVICES, INC.,
a California Corporation

By: 

Name: Jason Sielcken

Title: VP & Managing Principal

## EXHIBIT A – SCOPE OF SERVICES




# City of Louisville
# Internal Decarbonization Project

September 12, 2025

Delivering a better world

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7595 Technology Way, Suite 200
Denver, CO 80237
(303) 694-2770

September 12, 2025

Taylor McCauley
Civil Engineer III
City of Louisville
749 Main Street
Louisville, CO 80027

*Submitted to* tmccauley@louisvilleco.gov

**RE: Internal Decarbonization Project**

Ms. McCauley,

The City of Louisville's Internal Decarbonization Project is a bold step toward a cleaner, more resilient future for our community and our state. AECOM is deeply committed to advancing decarbonization in Colorado, and we view this project as a milestone that will demonstrate what's possible when leadership, innovation, and local expertise come together. We are excited by the opportunity to partner with the City of Louisville on this important endeavor.

### Experienced Leadership

AECOM has been delivering decarbonization projects across the U.S. for more than a decade, giving us a deep understanding of the technical, regulatory, and community drivers that shape success. Our Project Manager, Laurie Meyer-Lancisi, AIA, is a licensed architect with over 20 years of specialized experience. She is supported by Jeff Bentley, PE (electrical lead) and Chris Imperato, PE (mechanical lead), who have partnered on major efforts such as Denver Water's Northwater Treatment Plant, Sijan Hall at the U.S. Air Force Academy, and multiple energy projects at the Anschutz Medical Campus. Together, our full team brings nearly 200 years of combined architectural, engineering, and specialty expertise, reinforced by cost estimating, construction management, and commissioning capabilities.

### Local, Responsive Resources

The team we have assembled is predominantly based in Colorado's Front Range, ensuring ready access for site visits, in-person coordination, and responsive support throughout the project. This strong local presence not only helps control costs but also strengthens continuity across Phases 1 and 2. With Phase 2 expected to extend into 2027, having a reliable, Colorado-based team will be essential to maintaining momentum and delivering results across multiple facilities.

### National Expertise, On Demand

As part of AECOM's 18,000-person U.S. network, our team has seamless access to national specialists in battery storage, electrified mobility, grid modernization, policy, stakeholder

engagement, and more. Our Denver office frequently collaborates with California colleagues who bring extensive experience delivering decarbonization programs for Oakland County, Yolo County, the Los Angeles Unified School District, and are now advancing sustainability planning for the 2028 LA Olympics. Louisville will benefit from this combination of trusted local delivery and proven national expertise.

AECOM is honored to submit this proposal to the City of Louisville. We are inspired by the City's leadership and look forward to supporting this landmark project. Ryan is available to answer any questions as you deliberate.

As AECOM's authorized signatory I, Ryan Meador, certify that the information submitted is true and complete to the best of my knowledge. I acknowledge receipt of Addenda 1-5 as well.

Sincerely,
AECOM Technical Services, Inc.

Ryan Meador, PE, LEED AP
Principal, Authorized signatory
Ryan.Meador@aecom.com
(303) 843-2178

Laurie Meyer-Lancisi, AIA
Senior Project Manager
Laurie.Meyer-Lancisi@aecom.com
(303) 881-9066

*Please note, AECOM no longer maintains a fax number.*

# PROJECT TEAM

# Project Team

**Firm Overview**
AECOM Technical Services, Inc. (AECOM) is a full-service, global consultancy with 50,000 employees worldwide, over 600 of whom are in Colorado; our offices are in Denver, Boulder, Fort Collins, Colorado Springs, and Glenwood Springs. Our broad service categories are architecture and design, engineering, construction management, environmental services, and program management. AECOM performs a wide range of services for our clients, from designing and constructing major infrastructure including bridges, roadways, and electrical transmission lines, to rigorous analytical studies, environmental quality monitoring and analysis, managing wastewater treatment systems, landscape design, developing economic development plans, and more.

AECOM is an innovator with a global network of integrated services uniquely tailored to the delivery of multi-discipline projects. Our integrated offering means we work seamlessly with our clients throughout the life cycle of the project by bringing in subject matter experts within our larger company framework in addition to our granular local knowledge.

With more than 50 years of history in Colorado, AECOM has executed many projects across the state. This depth of experience provides us great working knowledge of metropolitan areas and rural markets across the state, and we understand the differing geographies our state represents. The challenges, climates, economies and labor forces are as diverse as the terrain.

## AECOM's Colorado Clients




**Sustainable Legacies**
Through our Sustainable Legacies strategy, AECOM has pledged to advance sustainability and Environmental, Social & Governance (ESG) initiatives within our operations and in partnership with our clients. Strongly aligned with Louisville's climate goals and values, our commitments include:

- Achieving operational net zero emissions in 2021 (completed and maintaining)
- Achieving science-based net zero emissions by 2040
- Offsetting residual carbon by creating our own nature-based solution projects
- Partnering with our supply chain to develop carbon reduction targets
- Integrating climate adaptation and climate resilience into all aspects of our advisory, planning, feasibility, design, and program management solutions
- Ensuring our project teams reflect the diversity of the clients and communities we serve

- Ensuring women comprise at least 20% of senior leadership roles and at least 35% of the overall workforce in the near-term
- Implementing and enhancing our enterprise framework that assesses ESG risk in all project pursuits
- Driving accountability through specific ESG goals/metrics in leadership annual goals
- Reporting on our ESG performance in line with the Sustainability Accounting Standards Board (SASB) and Task Force on Climate-related Financial Disclosures (TCFD) frameworks

**Team Members**
For the City of Louisville, we have assembled a team based in our Denver office who have worked together on multiple projects. As an interdisciplinary practice, our staff regularly work collaboratively on several projects, simultaneously. In many cases the task leads not only work together on a daily basis but also sit together in the same office. This creates opportunities for spontaneous interaction and collaboration.

## Meet Your Project Manager: Laurie Meyer-Lancisi, AIA, LEED GA



Laurie is a licensed architect with over 20 years of experience in the industry working on a variety of project types from preliminary design through construction contract administration. With a background in urban and regional planning, she has developed a deep understanding of how projects impact their end users, the communities they live in, and the environment. Her diverse project portfolio has strengthened her ability to navigate varying scopes, timelines, and resource constraints bringing an experienced but fresh approach to each project she manages.

*"Communication and reliability are key to my approach to project management. I strive to understand my client's goals and parameters so that our team delivers a high-quality work product on time and on budget"*

**Jeff Bentley, PE: Electrical Engineering Lead.** Jeff is a Senior Electrical Engineer committed to sustainable designs, quality control, and mentoring. His specialties include indoor agriculture design, project management, jobsite services, and construction administration services. He has conducted feasibility studies, facility assessments, and electrical system evaluations as well as conceptual design, construction document production and construction administration for a wide variety of both existing and new facilities.

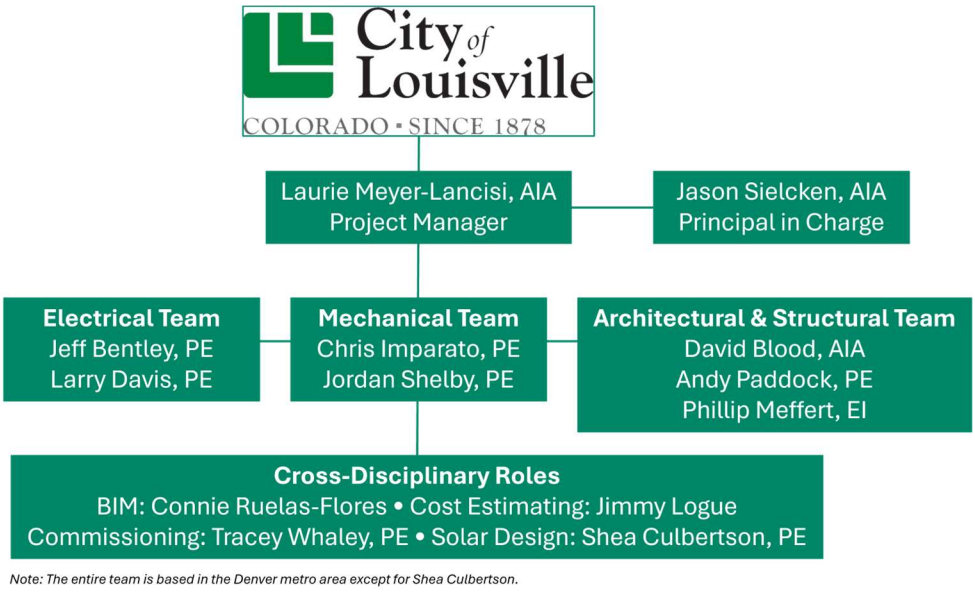
**Chris Imparato, PE, LEED AP: Mechanical Engineering Lead.** Chris is a mechanical engineer with more than 16 years of experience. He is a mechanical design engineer for building HVAC and plumbing systems. His project roles include project lead and discipline lead providing design guidance, oversight, and technical reviews of the HVAC and plumbing disciplines, as well as project engineer overseeing the multidisciplined technical execution of the client's scope of work.

**David Blood, AIA, LEED AP: Architectural Lead.** David has architectural experience in new construction and improvements to existing projects. He has participated in several site/building restoration projects that were of historical significance and integrated them into the existing infrastructure. His experience in construction and presentation documents development allows him to provide support in conveying complex information to clients and the public. David has expertise in several industry standard CAD software programs allowing AECOM to be compatible with whatever software the client is currently using

**Jason Sielcken, AIA, LEED AP**: Principal-In-Charge. Jason has been a driving force in delivering high-performance, sustainable buildings in the public sector for over 15 years. His leadership includes industry firsts such as completing the nation's first net-zero energy building on the National Register of Historic Places and

leading the design for the first net-zero BSL-3 laboratory and the first net-zero land port of entry on the northern border. Jason has also guided major adaptive reuse projects achieving LEED Gold and Platinum, SITES Silver, and substantial reductions in energy and water use. His work consistently integrates renewable energy, electrification, and advanced strategies that set new standards for resilient and sustainable public infrastructure.

Our team is organized to address each of the service areas outlined in the RFP. We strongly believe in consistency among team members to maintain continuity and quality control from project conception to execution. To this end, we carefully organize teams at the start so that they are comprised of individuals with strengths in design, technical coordination and management. Resumes for key personnel are provided in the Appendix.




*Note: The entire team is based in the Denver metro area except for Shea Culbertson.*

**Time Commitment and Capacity**

This team is deliberately assembled to demonstrate that we are able to provide the expertise necessary to address the requirements of the SOW with redundancy and depth in each specialty area. Our task leadership and support staff have been determined by a combination of appropriate skill set and availability to fully commit to successful delivery. We pride ourselves in doing what we say. Each task will be led and managed by the individuals listed in this proposal.

**Current and Projected Workload**

AECOM has an established record of meeting schedules with well-defined project and business management systems. Louisville's decarbonization program aligns with our expertise and works easily into our team's current commitments. Our team is prepared to proceed immediately upon selection, and our current workload does not impede our ability to meet the schedule of any upcoming task orders.

The table below demonstrates our task leads' experience with facility planning and programming and decarbonization, and our availability to complete this project for the City of Louisville.

| | | | | | Unique Knowledge | | | |
|---|---|---|---|---|---|---|---|---|
| **Name** | **Role** | **% of Workload Allocated** | **% of Workload Available** | **Years with AECOM** | **Electrical Design** | **Mechanical Design** | **Architectural Design** | **Construction Management** |
| Jason Sielcken, AIA | Principal in Charge | 10% | 20% | <1 | | | ● | ● |
| Laurie Meyer-Lancisi, AIA | Project Manager | 10% | 20% | <1 | | | ● | |
| Jeff Bentley, PE | Electrical Lead | 10% | 20% | 2 | ● | | | ● |
| Chris Imperato, PE | Mechanical Lead | 10% | 20% | 8 | | ● | | ● |
| David Blood, AIA | Architectural Lead | 10% | 20% | 26 | | | ● | ● |

**Project Experience**

The table below provides the required information about each referenced project. Additional descriptions of relevant projects, including those for which clients have provided letters of commendation, are provided in the References section.

| **Client** | **Project Name** | **Year Completed** |
|---|---|---|
| **US Air Force Academy** | Sijan Hall | Design complete, in bid process |
| Contact | Corine Weiss, RA, GS-13, Chief, Portfolio Optimization<br>(719) 651-9744 (requests to be contacted by phone) | |
| AECOM's Role | AECOM designed HVAC for 675,000 SF dormitory facility on the campus. The project included ground source heat pumps throughout the facility to achieve high energy efficiency targets. A total of 180 boreholes were designed to provide enough energy transfer for the building without the need for any other outside heating or cooling sources. Cost estimates were provided at each delivery stage which helped keep the project on budget and on schedule. | |
| **Denver Water** | Northwater Treatment Plant | 2024 |
| Contact | Pete McCormick, Design Project Manager; peter.mccormick@denverwater.org | |
| AECOM's Role | The proposed team for Louisville designed the HVAC for 12 different buildings on a new site for a 75 MGD water treatment facility aligned with Denver Water's goal of a net zero energy facility. The project achieved Envision Gold certification through ISI and looking to achieve LEED Gold certification for the Operations Building through USGBC. AECOM also provided construction administration services for the mechanical and plumbing disciplines continuing our pursuit of quality all the way through to startup and turnover of each of the buildings. | |

| | | |
|---|---|---|
| **City & County of Denver** | National Western Center District Energy System | 2019 |
| Contact | Brad Buchanan, CEO; (720) 326-9506; b.buchanan@nationalwesterncenter.com | |
| AECOM's Role | This state-of-the-art central utility plant utilizes sewer heat recovery to provide 90% of its heating and cooling to buildings across the campus. The largest installation in North America to date, the system can provide up to 4 MW of heating for the campus. The sewer heat recovery systems pull thermal energy from wastewater instead of burning fossil fuels. Using this system, the 250-acre campus will avoid emitting an estimated 2,600 metric tons of carbon per year. Contracting method was a design-build effort with Saunders Construction, this enabled the project to incorporate cost saving features while still maintaining the quality of the equipment. | |
| **University of Colorado, Boulder** | Energy Master Plan | 2022 |
| Contact | Brian Lindoerfer, Assoc. Vice Chancellor, Facilities Mgmt<br>(720) 514-9860; brian.lindoerfer@colorado.edu | |
| AECOM's Role | AECOM developed an Energy Master plan for the University of Colorado, Boulder Campus. Scope included investigating the existing facilities and infrastructure to recommend energy efficient upgrades and plans to help the campus meet their Greenhouse Gas Emission (GHG) reduction goals. | |
| **University of Colorado, Anschutz Medical Campus** | Bundled Energy Projects | 2020-2025 |
| Contact | Jarrett Smith, MPA, Sustainability Manager<br>(303) 956-1712; jarrett.smith@cuanschutz.edu | |
| AECOM's Role | AECOM evaluated more than one million square feet of facility assets in an effort to advance CU Anschutz's Climate Action Plan and reduce their energy footprint. The scope included whole-building energy modeling, energy conservation measure (ECM) designs, cost estimates, and financial analysis. CU Anschutz continued AECOM's involvement after the ECMs were developed and costed, a selected group of ECMs were chosen to move into implementation. Permitting and construction documents were created and AECOM supported construction efforts through project close-out. | |

# WORK PLAN

# Work Plan

### Project Understanding

Based on the City of Louisville's sustainability plans and reports, the RFP (including RFI responses), and the pre-bid site visit, AECOM understands that the objective of this project is to electrify up to 10 municipal facilities to facilitate decarbonization. The City has been awarded grants from the state which, if matched to their maximum capacity, would equal a total project budget of approximately $13.1M, of which the City has secured $6.5M, with $5.8M of that allocated to Phase 2. The City intends to proceed with the Phase 1 task of conducting an electrical load analysis for these seven facilities:

- Art Center
- Austin-Neihoff House (White House)
- City Hall
- City Services Facility
- Public Library
- Sid Copeland Water Treatment Plant
- Wastewater Treatment Plant

The consultant selected for this project will need to coordinate with other consultants and City staff on related projects for certain buildings regarding EV charging and emergency backup generator projects.

The results of the Phase 1 assessment will inform Phase 2, in which the engineering designs will be created and construction implemented. The consultant selected under this RFP may or may not advance to Phase 2, i.e., providing the engineering designs and managing the construction administration, depending on their proposals. AECOM proposes herein to provide the full suite of services to complete the projects, inclusive of Phase 1 and Phase 2. With the full scope and timeline for Phase 2 unknown at this time, a scope and budget are provided only for Phase 1. A detailed scope and budget for Phase 2 will be developed with the City at the conclusion of Phase 1, when the prioritization of projects is known.




*AECOM's decarbonization planning process, focused on developing holistic and implementation action plans, has been applied to over 500,000,000 SF of facilities across the US.*

### Project Approach

Our approach to identifying and developing fossil fuel reduction strategies is predicated on our experience of developing decarbonization roadmaps for clients across the country and abroad. We have completed similar projects for campuses, communities, and real estate portfolios totaling over 500 million square feet of facilities spanning governing bodies, public agencies and institutions, and private businesses. Our approach combines facility assessments, energy modeling, opportunity development, and pathway development, and leverages a holistic methodology built around four key questions:

- Where are you? — Data review, inventory, and assessment of existing performance
- Where do you want to go? — Objective setting and future performance evaluation
- What are your opportunities? — Identification and feasibility evaluation of potential projects
- How will you get there? — Funding, Implementation and Monitoring plan development

### Quality Control

AECOM implements quality processes as an integral part of project delivery; AECOM's Project Delivery System (PDS) is our Quality Management System (QMS). The QMS is part of our Integrated Management System (IMS) that includes global programs for safety and environmental management. The requirements and processes for the global IMS are described in AECOM's IMS Manual, which comprises the overarching requirements for business processes within AECOM and executes our Quality Policy. AECOM's PDS incorporates the roles of technical reviewers and a project lead verifier. These roles offer crucial checkpoints, ensuring the project adheres to contract obligations.




The quality of our work is rated on our technical service, professionalism, innovation, communication and adherence to budgets and schedules. AECOM maintains this quality control record through operation under a structured corporate Quality Management Plan (QMP). This plan is reviewed and updated annually and provides the direction and foundation for program – and project – specific quality management documents.

Our approach to quality assurance follows the international standard for quality management systems (QMS), ISO 9001. As one of the few ISO 9001-certified professional and technical services firms in North America, AECOM developed its system to address the standard's requirements, and we confirm compliance through formal auditing and verification.

A key component of AECOM's quality program and ISO 9001 is continuous improvement. We learn from our experiences and apply those lessons to future work through a formal, iterative process. The true focus of this process is to generate client satisfaction, one of AECOM's core values.

## Phase 1: Electrical Load Evaluation

**Task 0: Project Management**

As Project Manager, Laurie will leverage her 20 years of experience to provide leadership and oversight throughout the entire duration of the electrical load evaluation effort. She will implement a robust, ongoing communication plan and protocols, integrating review collaboration between Louisville and AECOM's multi-disciplinary team. Laurie will drive consistent engagement, emphasizing coordination, goal alignment, and seamless collaboration to keep the project on track and aligned with stakeholder expectations. Additionally, we will tailor our communication strategies to meet the distinct needs of stakeholders, deploying a range of communication tools to maintain clarity and responsiveness through the project.

**Task 0.1: Project Kickoff Meeting**

Kick-off begins with a collaborative meeting designed to confirm project goals, review existing documentation, and establish clear communication protocols. A virtual and/or, if preferred, in-person session with the Louisville project team will officially introduce the core team members and set the stage for success. During this meeting, participants will discuss project expectations, define what success looks like, and review key elements including the project timeline, background on City operations, logistics for site visits, and the biweekly meeting schedule.

AECOM will work closely with the Louisville project manager to fine-tune the proposed schedule. This schedule will pinpoint key deliverables, dependencies, and client review periods. Additionally, AECOM commits to continuously updating the schedule throughout the project and notifying Louisville of any potential delays.

**Task 0.2: Project Communications**

AECOM's communication strategy is designed to build a strong partnership with Louisville, ensuring alignment, transparency, and collaboration throughout the project. By prioritizing open dialogue, we create a platform for addressing challenges proactively, sharing critical insights, and maintaining momentum. Regular engagement will focus on progress updates, key decisions, and actionable solutions, fostering a shared understanding among all stakeholders.

**Deliverables**

- Draft and final project schedule
- Draft and final Kickoff Meeting agenda
- One 60-minute kickoff meeting
- Summary of kickoff meeting notes
- Virtual bi-weekly 30-minute coordination meetings for four months, transitioning to monthly thereafter.
- Status update included with monthly invoices.
- Immediate communication with the Louisville team of any delays, along with a written recovery plan

**Assumptions**

- Louisville will provide consolidated comments on each of the draft deliverables within three business days
- AECOM will incorporate and resolve comments on each of the draft deliverables within two business days
- AECOM will be responsible for scheduling the Kickoff and Project Coordination meetings including issuing meeting invites, facilitating coordination calls, preparing meeting materials including agendas, notes with follow-up items and resolutions, and a summary of questions raised in each meeting. (Word and/or Excel).

**Task 1: Power Needs Assessment**

Note: As noted in IDP-Addendum 2 – RFI Responses, the existing backup system assessment for the Recreation Center and Police and Municipal Building is included in the Generators Project Scope of Work and has been excluded from this Proposal Response.

A successful, implementable decarbonization work plan is built on a strong technical foundation. Our approach to developing the future power needs assessment of each facility will rely upon our analysis and prioritization methodologies established in our energy decarbonation and resilience planning work in communities across the US including the National Western District Energy System, CU Boulder's Energy Master Plan, and the University of Texas Medical Branch project, amongst many others. Evaluation of the feasibility of building retrofits, electrification, solar and storage in the context of City buildings will be applied to scope individual building improvements.

Overlaying the prioritized facility list with applicable technology factors and funding mechanisms will establish an optimized sequenced 'playbook' for implementation. This process is supported by subject matter experts and is flexible to the level of detail needed. For this effort, our key team composition reflects the need for building energy, electrification, and solar system technical expertise.

**Task 1.1: Existing Conditions Review and Site Visits**

AECOM will review City-provided energy data and as-built mechanical and electrical drawings to prepare for site visits, noting key questions and findings. We will conduct seven one-day site visits with up to four staff for larger buildings and two for smaller facilities to document mechanical, plumbing, and electrical systems, including fossil fuel equipment capacities and electrical panel details. If additional visits are required, they will be requested via change order. Using collected data, AECOM will analyze fossil fuel use, historic energy trends (up to five years), and key performance metrics like seasonal patterns and usage per capita, while identifying data gaps to refine fossil fuel removal strategies.

**Task 1.2: Data Evaluation and Power Projection**

Understanding the impact of planned operational changes and growth is critical to estimate future resource use. Following the site visits, our team will leverage the analysis undertaken in previous tasks, along with further modeling, to project future resource usage that accounts for planned development projects across the portfolio, including the impact of vehicle electrification on energy demand. AECOM will estimate the current fossil fuel use for each piece of equipment that consumes fossil fuels and will project the electrical energy consumption and demand for equipment that is to be electrified. AECOM will determine the peak electrical demand from utility bills and estimate the available capacity of the existing system. AECOM will generate a table of projected increase in electrical demand for electrification of each project, organized by remaining useful life (shortest to longest). The example here illustrates the analysis results.

| REPLACEMENT BY REMAINING LIFE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TAG | EST REMAINING LIFE | EXISTING PEAK kW | NEW LOAD | DELTA kW TO BE ADDED | UTILITY SUM DEMAND (kW) | EQUIPMENT SUM DEMAND (AMPS) | UTILITY CAPACITY (kVA) REMAINING | SWITCHGEAR CAPACITY (AMPS) REMAINING |
| CB-1 | 0 | 0.0 | 6.4 | 6.4 | 6.4 | 17.9 | 331.1 | 837.2 |
| DRYER | 0 | 21.6 | 67.1 | 45.5 | 52.0 | 144.3 | 285.5 | 710.7 |
| FG-1 | 0 | 0.7 | 10.7 | 10.0 | 62.0 | 172.1 | 275.5 | 682.9 |
| FIREPLACE | 0 | 0.0 | 4.0 | 4.0 | 66.0 | 183.1 | 271.5 | 671.9 |
| FR-1 | 0 | 0.0 | 11.2 | 11.2 | 77.2 | 214.3 | 260.3 | 640.7 |
| RN-1 | 0 | 0.7 | 19.9 | 19.2 | 96.4 | 267.5 | 241.1 | 587.5 |
| DWH-2 | 5 | 0.6 | 45.0 | 44.4 | 140.8 | 390.7 | 196.7 | 464.3 |
| DWH-1 | 7 | 0.4 | 45.0 | 44.6 | 185.4 | 514.6 | 152.1 | 340.4 |
| DWH-3 | 12 | 0.4 | 45.0 | 44.6 | 230.0 | 638.5 | 107.5 | 216.5 |
| DWH-4 * | 15 | 0.0 | 29.2 | 29.2 | 259.3 | 719.7 | 78.2 | 135.3 |
| PU-1 | 8 | 18.4 | 78.5 | 60.2 | 319.5 | 886.7 | 18.0 | -31.7 |
| RTU-1 | 14 | 15.8 | 68.1 | 52.3 | 371.7 | 1031.8 | -34.2 | -176.8 |
| RTU-2 | 14 | 15.8 | 68.1 | 52.3 | 424.0 | 1177.0 | -86.5 | -321.9 |
| * New piece of equipment required for electrification. | | | | | | | | |

*Example Electrification Analysis Summary Table*

AECOM will generate a draft memo aggregating all sites that includes the following sections:

1. Introduction and Building Details
2. Current HVAC and Domestic Hot Water Equipment
3. Current Non-HVAC Fossil Fuel Consuming Equipment
4. Current Electrical System Equipment, Capacity, and Analysis
5. 'Business As Usual' Base Case for Future Load Projection
6. Proposed Replacements for Fossil Fuel Consuming Equipment
7. Future Electricity Demand Estimation of Future Decarbonization Scenario

**Deliverables**

- Meeting notes from planning meetings and site visits
- Marked-up plans of buildings showing MEP systems and generator layouts.
- Comment response matrix.
- Draft and final summary report of existing conditions for each facility

**Assumptions**

- Louisville will identify core stakeholder representatives appropriate to contribute to this effort
- The data collection meeting will be virtual.
- Data will be provided by Louisville in a consolidated organized and editable Excel spreadsheet.
- The onsite assessments will include a team of up to three (3) AECOM staff onsite at each of the sites.
- Louisville will arrange for site access during normal business hours. AECOM will be given access to all areas of the sites. A single mobilization to each site and associated costs will be included in the fee.
- For the purposes of the site assessments, one site contact (e.g., Facilities Manager) will be provided for each site while AECOM is present to provide location of and access to all mechanical, lighting, and electrical equipment.
- If complete data cannot be collected within the estimated seven days of site visits, AECOM will discuss options for scope and/or budget modifications with the Louisville project manager.

**Task 1.3: Prepare Drawings**
Our approach to engineering and design will focus on early definition and development of upfront standards for mechanical, electrical, and structural engineering. Our team also understands that engaging the local utility early and understanding the utility standards, interconnection requirements, and associated timelines is critical to help the eventual projects achieve Louisville's desired schedule.

**Schematic Design**
As part of the design development, our team will meet with Louisville, the relevant local authorities, and the utility to redefine and confirm the scope for each project site based on the assessment reports. We will define potential designs and develop the concept drawing engineering package, including one-line diagrams, schematics for conduit layout and mechanical design.

We will work with Louisville to validate the correct standards and requirements and provide sample drawing sets for review to confirm the approach and delivery. Once verified, our team will develop a repository of standards for the program, including, but not limited to Electrical One Line Diagrams and concept layout, Identified plating areas, and geotechnical results, notes and key specifications.

For sites at which Louisville indicates solar generation will be included, AECOM will analyze the site for solar generation potential considering the orientation of solar modules, and the available area for solar canopies. We will develop estimated energy generation on an annualized basis and typical daily energy generation in the summer, fall, winter, and spring. We will synthesize all collected data to develop up to two conceptual design alternatives, including the conceptual approach to spacing site/civil/architectural elements and a preliminary one-line diagram of electrical design.

**Deliverables**
- 30% design drawings for each facility (CAD files)
- Comment log documenting resolution of all City comments on the drawings (Excel)
- Pro forma budget (excel spreadsheet)

**Assumptions**
- The City will provide AECOM with a single set of consolidated adjudicated comments to all draft deliverables within 10 business days of submittal.
- Drafts will be submitted in Word and Excel. Final versions will be submitted as PDFs accompanied by final Excel files.

## Phase 2: Electrification/Energy Efficiency Implementation

As noted under Project Understanding, AECOM understands that the scale and schedule of projects that will advance to Phase 2 is unknown at this time. In this section, we describe our approach to this phase in terms broadly enough to accommodate each project type (i.e., solar, e/ee, construction), but specific enough to convey AECOM's capability and value. This section is written with the understanding that a full scope will be developed near or after the completion of Phase 1, and likely on a project-by-project basis, therefore, assumptions and deliverables are not included.

## AECOM's Construction Management Services

Our team lays the foundation for project success in the preconstruction phase, integrating our construction expertise early to drive cost savings, compress schedules, and align every decision with your goals; through rigorous constructability reviews we resolve challenges before they surface, refine phasing strategies, and create master construction schedules that serve as strategic roadmaps—keeping ambitious, multi-site efforts such as Louisville's Decarbonization initiative on track—while our on-site teams provide hands-on leadership during execution, coordinating logistics across locations, upholding quality, adapting in real time, and responding swiftly to unforeseen changes to safeguard cost and schedule, so from planning through close-out, AECOM delivers precision, predictability, and measurable value at any scale or complexity.

**Task 0: Project Management**

The general project management tasks described under Phase 1, Task 0, Project management, will continue through Phase 2. Specifically:

- Draft and final schedules per executed project
- Kickoff meetings per project, including agenda and meeting notes
- Project coordination meetings, including agenda and meeting notes
- Notification via email to the Louisville project manager of any project delays, including a written plan to help the project stay on track

**Task 1: Solar Power Design**

This AECOM team brings extensive expertise in the design and integration of photovoltaic (PV) solar power systems, consistently delivering efficient and cost-effective energy solutions, including for historic structures, while leveraging close collaboration with vendors, contractors, and stakeholders to coordinate seamlessly. We identify efficiency opportunities and address potential challenges early. Our comprehensive scope of work encompasses the electrical engineering design services necessary for the installation of PV solar power systems, all executed in accordance with the project's requirements, inclusions, and assumptions.

AECOM can provide the following for applicable projects in Phase 2:

- Plans indicating equipment locations and routing of major raceways and conduits over 3".
- Installation drawings showing array mounting, racking, and attachment methods.
- Single-line diagrams illustrating AC and DC circuitry, inverter integration, and point of interconnection.
- AC and DC electrical calculations necessary to support system sizing, wiring, protection, and compliance with applicable codes.
- Details and layouts to ensure adequate access for outside equipment, including transfer switches and required clearances.
- Project-specific specifications covering PV equipment and conductors.
- An opinion of probable construction cost including PV equipment and hardware, modifications for PV integration, Installation and construction costs associated with the PV system.

**Task 2: Electrification/Energy Efficiency (E/EE) Design**

AECOM leads in electrification and energy efficiency design, leveraging decades of industry experience to conduct in-depth analyses for Louisville. Our specialized knowledge meets modern electrification demands

while achieving efficiency targets. By combining proven methodologies with a strong grasp of regulatory frameworks, our team navigates complex technical challenges and delivers actionable insights that enhance performance.

**Preliminary Design**
As part of the preliminary design, our team will meet with Louisville, include a final one-line diagram, detail required information regarding the electric utility interconnection and point of entry, and comport with any requirements of the electric utility. We will identify required long-lead equipment including switchgear, transformers, inverters and proprietary equipment. We will show the locations of existing and planned features of the Project Site, both subsurface, and above-ground. Plan sheets will show essential information. Our Preliminary Design plan sheets will constitute draft versions of plan sheets envisioned in the Final Construction Documents.

**Final Design**
Our final design will incorporate comments from the Preliminary Design received from Louisville (inclusive of agencies/departments having jurisdiction), and other interested parties into a Draft Final Design. The Draft Final Contract Documents will consist of a final version of the contract documents for review by Louisville and information necessary to build the project. A licensed engineer will sign and seal the final drawings in a format acceptable to AHJs.

**Constructability Reviews**
Our Constructability Review Process (CRP) was designed to help improve a project's constructability level by mitigating construction risks. Our ultimate goal is to solve as many issues or questions as early as possible before the physical construction of the project begins. Our review team will engage in the project from the beginning of the design process through the end of construction to help with any questions that may arise along the way.

The first review occurs during project planning when the concept design is complete. Subsequent reviews will be conducted at 30 percent, 75 percent, and final stages of design. Depending on the contract structure, AECOM or the general contractor will perform the CRP review at 75 percent and Final design.

**Opinion of probable construction cost (OPCC)**
Cost management is a vital component of construction management, providing the means for cost and schedule projections and control. We have extensive estimating experience across a wide range of project types. of

Cost reduction decisions made during design and before significant monetary commitments will save time and money and encourage responsive construction bidding. Depending on the available plan and specification data, we can adjust the takeoff method to varying detail levels. This approach results in reliable estimates from very preliminary information.

Estimating process steps include:

- Development of Budget and Conceptual Estimate. We compare the initial budget with historical cost data for similar projects at this stage. This estimate takes into account specific project and site constraints and financial limits. Construction costs are compared with our industry databases to identify and adjust high-cost elements.
- Development of Initial Costs. We develop initial costs for defining major infrastructure components, such as site work, unit foundations, and electrical items. A more detailed review of the A/E's cost estimate is performed during the design development phase as building systems and equipment are better defined.

To achieve these goals, the CRP is composed of several constructability reviews performed at various stages during the Project Development Process. The first review occurs during project planning when the concept

design is complete. Subsequent reviews will be conducted at 30 percent, 75 percent, and final stages of design. Depending on the contract structure, AECOM or the General Contractor will perform the CRP review at 75 percent and Final design.

Cost Estimates will comport with the American Association of Cost Engineers (AACE) International Cost Estimating Classification levels of detail at the following design stages:

- Conceptual Design Alternatives: Class 4
- Schematic Design: Class 3
- Preliminary Design: Class 2
- Draft and Final Construction Documents: Class 1

**Tasks 3 and 4: Construction and External Party Management**
AECOM will provide comprehensive Construction Management and Administration Services for the subject facilities, covering scope advancement, budgeting, scheduling, supervision, monitoring, commissioning, activation, and project closeout. During construction, we will manage procurement, logistics, and quality control, with weekly meetings among design and construction teams, safety officers, subcontractors, and Louisville representatives. Periodic value engineering sessions will streamline the design to save time and costs, and dedicated meetings with local utilities and the AHJ will proactively resolve issues.

AECOM will develop and implement a construction management plan specific to each project site including at least Document control and progress reporting, Construction surveillance, witnessing, and inspection testing, RFI and change request processing and review, pay app preparation and processing, as-builts/O&M manual approval, look-aheads, communication, warranties and handoff.

AECOM will create a job closeout checklist early on and keep an eye on it throughout the project. It will become easy to identify areas that might create problems later when it's time for closeout. The list will include at least design approvals documentation, resolution of all Requests for Information, Certificate of Occupancy, Certificate of Substantial Completion, warranties, O&M Manuals, as-built documentation, permits closeout, and interconnection inspections.

**Commissioning and Retrocommissioning**
We will ensure all infrastructure has completed full testing and commissioning as the manufacturers and governing agencies require. These services include testing and commissioning of charging units and rectifiers, final inspection of all electrical, civil, and structural infrastructure, and final approval of the sites as a whole.

Our approach to retrocomissioning includes data request and review, site visit, data analysis and report development. Additional activities supporting our retrocomissioning work includes the following:

> **Performance Testing and Inspection**: Inspect equipment, perform functional testing, and collect information about the building systems. All equipment testing procedures that may impact occupant comfort will be submitted for approval prior to scheduling site visits.
>
> **Trend Data Collection: O**perating data of all major equipment included in the scope, i.e., HVAC, electrical, and water-related equipment parameters. AECOM will set up trend collection based on control system capabilities and bandwidth. Data loggers will be installed and programmed to collect data through the end of the verification process. Trend intervals will be determined based on the equipment and project types being evaluated.
>
> **Data Analysis and RCx Measure Development:** AECOM will analyze data to identify those systems and sequences that are not performing as intended or that can optimized to improve current performance. Based on our findings, RCx measures will be recommended and the accompanying energy and O&M cost savings calculated and presented in a final report.

# REFERENCES and COMMENDATIONS

# Awards & Recognition

For over a decade, AECOM has been named one of Fortune's World's Most Admired companies and most recently was named the #1 global design firm by Engineering News Record. We are consistently voted one of the world's most ethical companies by Ethisphere. We have been recognized by VIQTORY as a 2025 Military Friendly® Silver Employer and received a perfect score on the 2025 Human Rights Campaign Foundation's Corporate Equality Index for the fifth consecutive year.

Over the years, AECOM as a firm and individual employees have been recognized around the globe for our commitment to creating a workplace that is welcoming to everyone. Recent examples include:

**Inclusive Excellence Award 2023**
Winner for two categories by Employers Network for Equality and Inclusion: Inclusive Culture and DEI Influencer of the Year for AECOM's Rachel Billington, Head of Equity, Diversity and Inclusion, Europe and India. This recognition is a testament to our ongoing dedication to fostering an inclusive workplace and making a meaningful impact on equity, diversity and inclusion.

**American Water Works Association (AWWA)**
In 2020, Tina Houston (Vice President-Metro Market Leader, GA/AL), was awarded a national Diversity Award from AWWA, in honor of her leadership in building a more inclusive work environment in her home state of Georgia. Tina possesses the key attributes necessary for creating a diverse team, including awareness, commitment and accountability. Tina's understanding and recognition of one's potential to hold biases, whether they are aware of them or not, has helped to mitigate and eliminate bias from the workplace. She has been influential in building a diverse workforce that includes people of different ages, ethnicities, race, education, and abilities. By creating a space where each team member's unique lifestyle is valued and understood, she fosters a collaborative and dynamic team environment.

**Construction Management Association of America (CMAA)**
Ralph Colarusso, Associate Vice President, Project Manager, was awarded the 2019 Chair's Award for Diversity and Inclusion which recognizes a CMAA member or member firm (owner or service provider) with a demonstrated commitment to equity, inclusion, social justice, or community and social responsibility and a record of acting on that commitment.

**Women's Transportation Seminar (WTS)**
AECOM received the 2020 WTS Pittsburgh Employer of the Year and the 2019 WTS Chicago Employer of the Year awards. WTS International is a nonprofit organization management company committed to securing the professional advancement of women in the transportation industry. In addition to executing this mission, the company's goals are to create profound experiences for its members, provide leadership in the global transportation industry and expand the available opportunities for women within it.




# University of Texas Medical Branch (UTMB), Sealy Institute for Drug Discovery (IDD)

Client: University of Texas Medical Branch
Reference: Chris Escamilla, Senior Project Manager; (210) 364-4794

The IDD will establish a drug discovery program working at the interface of medicinal chemistry and emerging infectious diseases, and brain research. This initiative capitalizes on UTMB's current strengths in infectious diseases, neuroscience, computational and structural biology, and pharmacology to develop an integrated drug discovery expertise. Its location on the fifth floor of Building 17E, which is strategically connected to five other research buildings, will be advantageous to the work in the new drug discovery program. The original Building 17 was built in 2004 and updated in 2018 to feature a six-story expansion, which will be the home of the new IDD.

AECOM designed the laboratory for 24 principal investigators and focused on creating a modern and open lab layout that encourages collaboration between researchers and graduate students. Write-up areas will be located adjacent to the lab and separated with a glass wall to allow for a visual connection and to bring daylight into the lab space. The space has been planned to include 10 private offices, a large conference room for meetings, and a collaboration area for smaller group interactions.

Chris Imparato provided mechanical and plumbing technical quality reviews throughout the project.

**Business Operations and Facilities**
301 University Boulevard
Galveston, Texas 77555-1116
O 409.772.3500 F 409. 747.2941
W utmb.edu/bof

Sept 9th, 2024

University of Texas Medical Branch
Chris Escamilla, Senior Project Manager
1302 Mechanic, Galveston, TX 77555-1116

Letter of Reference for University of Texas Medical Branch, Sealy Institute for Drug Discovery Project

To whom it may concern,

AECOM and its subconsultants provided programming, planning and design (architecture, interior design, MEP, technology engineering, cost estimating, and construction administration) for the Sealy Institute of Drug Discovery at UTMB Galveston. The project consists of a 13,500-sf interior build out and included high end research laboratories and support spaces, in addition to workplace areas for staff and researchers.

From the outset, AECOM demonstrated strong proficiency in managing and being proactive on both the budget and schedule. Their team acted with professionalism in executing all aspects of the contract and provided a valuable, overarching knowledge of the building type. The AECOM team truly took the time to understand UTMB's user needs and integrated solutions to these needs into every aspect of the design. Their planning and coordination amongst subconsultants ensured that the project remained on track and within financial constraints, despite the complexity involved.

AECOM's collaboration with the General Contractor, Turner Construction, and all UTMB stakeholders was marked by fast communication and transparency. They maintained open lines of communication, providing regular updates and addressing any concerns during construction promptly. This proactive approach fostered a collaborative environment, ensuring that all UTMB stakeholders were aligned and informed throughout the project lifecycle.

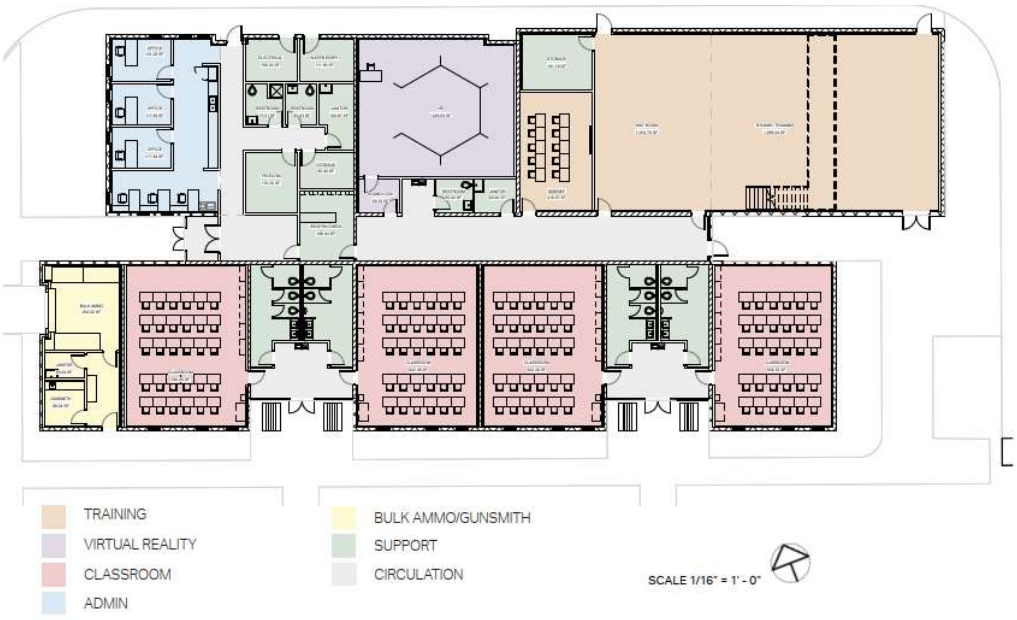
The quality of deliverables provided by AECOM was consistently high, reflecting their attention to detail. Their design team produced innovative and functional solutions to the research space, in addition to a practical and forward thinking overall design. The final design resulted in a space that is both inspiring and conducive to cutting-edge research.

In conclusion, I highly recommend AECOM due to their strong performance on this project. Their ability to manage complex projects, coupled with their dedication to quality, innovation, and communication, makes them a strong design partner.

Sincerely,

Chris Escamilla

Chris Escamilla
Senior Project Manager
UTMB – Design and Construction




# New Mexico Dept of Public Safety, Reality Based Training Facility

Client: New Mexico General Services Dept.
Reference: Carlos Barros, Project Manager; (505) 629-2302; carlos.barros@gsd.nm.gov

The Department of Public Safety is investing in upgrading their facilities to improve public safety through a reality-based training (scenario-based) facility and improving conditions at their outdoor firing ranges. AECOM was retained to conduct thorough observations, review current and future energy requirements, and provide facility and site planning ultimately leading to the design and construction administration of a new public safety training building coupled with strategic technological upgrades for electrification and improvements to the existing outdoor firing ranges.

Both the new building and range improvements required designing to stringent and comprehensive energy guidelines. Energy modeling, building envelope calculations, and mechanical equipment selection in concert with a detailed electrical systems analysis and design were all skillsets AECOM brought to bear for this project. AECOM's contract scope for this project includes full design and construction administration services, including closeout and warranty. In addition to basic design services, AECOM or its subcontractors provided the following additional services:

- Site survey
- Geotechnical investigation
- Electrical system analysis
- Energy code compliance
- Early work utility package
- Environmental soil sampling and characterization

Chris Imparato was mechanical and plumbing Engineer of Record (EOR). Provided oversight and design direction for all mechanical and plumbing systems. Jeff Bentley was electrical Engineer of Record (EOR). Provided oversight and design direction for all electrical systems.

**MICHELLE LUJAN GRISHAM**
GOVERNOR

**ROBERT E. DOUCETTE, JR.**
CABINET SECRETARY

**ANNA SILVA**
DIRECTOR, FACILITIES
MANAGEMENT DIVISION

# State of New Mexico
General Services Department

ADMINISTRATIVE SERVICES DIVISION
(505) 827-2000

FACILITIES MANAGEMENT DIVISION
(505) 827-2141

PURCHASING DIVISION
(505) 827-0472

RISK MANAGEMENT DIVISION
(505) 827-2036

STATE PRINTING & GRAPHIC DESIGN SERVICES
(505) 476-1950

TRANSPORTATION SERVICES DIVISION
(505) 827-1957

September 12, 2024

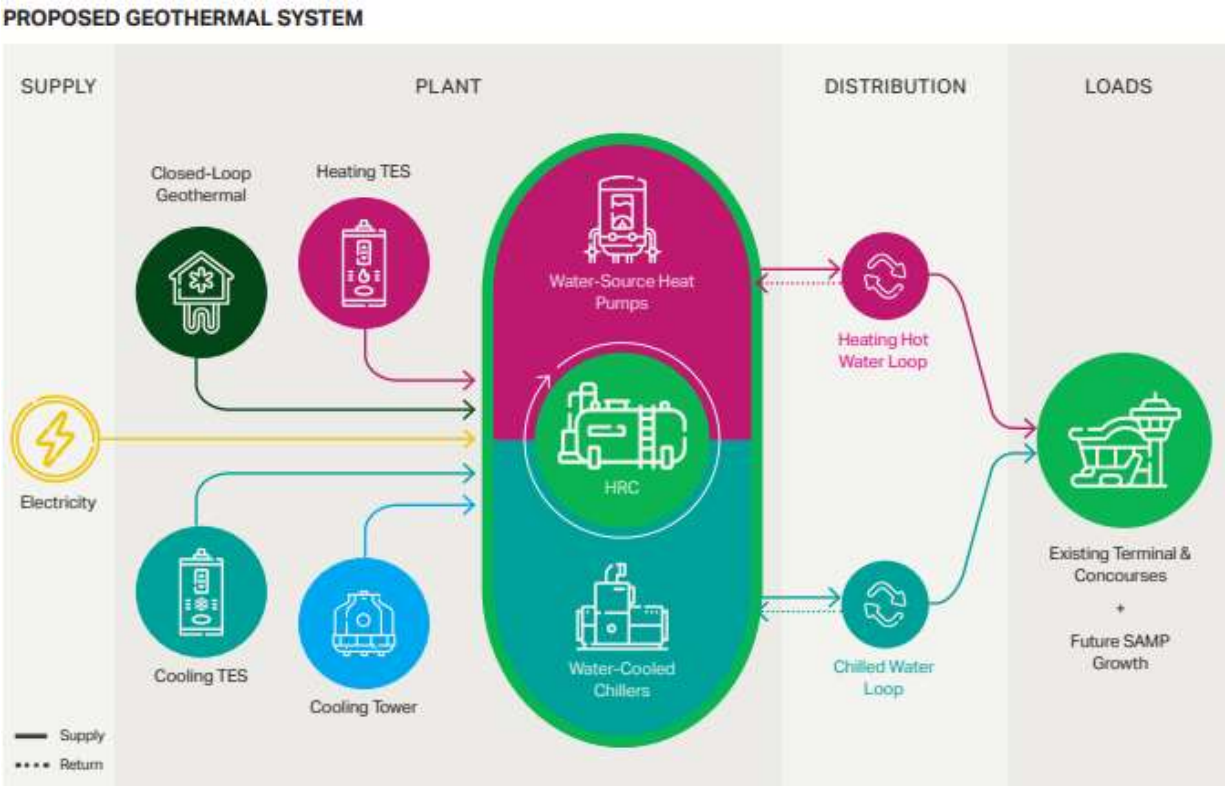
To whom it may concern:

AECOM has exceeded all of our expectations for professionalism and integrity in the completed phases for the design for the State of New Mexico Department of Public Safety Reality Based Training Facility project. Their dedication and expertise has been on full display in every step of the project as it has progressed. They have committed to maintaining efficient communication, and AECOM has the proven their dedication and ability to stick to the project schedule to make this project move at a smooth and steady pace. We are looking forward to working together with AECOM to complete the design for this project, and hopefully more projects in the future.

Respectfully,

Carlos Barros

Carlos Barros, Project Manager
Facilities Management Division
State of New Mexico General Services Department




# Seattle–Tacoma International Airport Central Mechanical Plant Decarbonization and Resiliency Study

Client: Port of Seattle
Reference: Joe Cook, PE, Mechanical Engineering Manager; (206) 605-6490

AECOM is developing a Central Mechanical Plant (CMP) decarbonization study to replace the existing steam boilers at the Seattle–Tacoma International Airport. Heating, domestic hot water and preconditioned air to aircraft is currently provided via a steam heating system served by three steam boilers and must decarbonize to meet their 2040 Carbon Neutrality goal. The process has included site infrastructure assessments and analysis of existing heating, cooling and electrical load profiles. Detailed CMP modeling of electrified options has included heat recovery chillers, geothermal heat pumps and airsource solutions, optimized in configuration and sizing in collaboration with the AECOM's financial modeling team that is conducting a detailed life cycle cost analysis into decarbonization scenarios. Coordination with local utility providers has occurred to verify available electrical capacity and timelines for necessary service upgrades.

Through engaging with the Port of Seattle and airport stakeholders, AECOM provided a qualitative analysis to analyze the risks associated with the different decarbonized solutions. This process included workshops to develop an evaluation criterion used to score the different solutions, and presentations to the Port of Seattle directors to inform airport leadership of the project status and decision-making protocol.

Chris Imparato is mechanical technical lead/advisor for the team. Identifying strategies, providing conceptual layouts, pipe sizing and pipe routing, and providing equipment selections to inform energy models. Energy modelling, costing, and maintenance efforts are compiled into life cycle cost analysis for final strategy selections. Working on creating the implementation plan through the end of 2025.

April 22, 2025

Seattle-Tacoma International Airport
Joe Cook, Mechanical Engineering Manager

**RE: Letter of Reference for Hartsfield–Jackson Atlanta International Airport, A Sustainable and Resilient Path to Net Zero Project**

To whom it may concern,

AECOM and its subconsultants are providing infrastructure analysis, energy modeling and analysis, implementation planning and state energy compliance documentation to support Seattle-Tacoma (SEA) International Airport in efforts to decarbonize the Central Mechanical Plant (CMP).

From the outset, AECOM demonstrated strong proficiency in managing and being proactive on both the budget and schedule. Their team acted professionally in executing all aspects of the contract and provided valuable insight and a strong knowledge into decarbonizing airport systems. The AECOM team took the time to understand SEA's user needs and integrated solutions to these needs into the planning process. Their planning and coordination amongst subconsultants ensured that the project remained on track and within financial constraints, despite the complexity involved.

The quality of deliverables provided by AECOM has been consistently high, reflecting their attention to detail. Their planning and engineering team produced several potential solutions and worked with SEA to assess the feasibility of each based on our operational experience, before selecting a single solution for implementation planning. We are confident the final solution selected will best meet SEA's long term sustainability goals.

In conclusion, I highly recommend AECOM due to their strong performance on this project. Their ability to manage complex projects, coupled with their dedication to quality, innovation, and communication, makes them a strong partner for any airport with decarbonization goals.

Sincerely,



Joe Cook, PE
Mechanical Engineering Manager
Aviation Facilities & Infrastructure
Phone: (206) 605-6490




# National Western Center District Energy System

Client: City and County of Denver and the National Western Center Authority
Reference: Brad Buchanan, CEO, National Western Center
b.buchanan@nationalwesterncenter.com, (720) 326-9506

AECOM designed a district energy system that captures the heat of effluent waste travelling through the sewer system under the campus. It is designed to provide 90% of the 250-acre site's energy demand. This system is the largest of its type in the nation and has inspired more waste-heat-to-energy systems in Colorado and throughout the US.

The project was designed and construction by a consortium of three firms: CenTrio Energy (formerly Enwave), AECOM, and Saunders Construction. AECOM developed the design and performed construction administration, including coordination of all parties through all of the phases, from project conception through turnover. AECOM worked closely with stakeholders and the construction contractors, and CenTrio performed daily system operations. The construction was completed without any disruption to campus operations, including during the peak season of the National Western Stock Show.

The EAS team offered National Western an innovative and holistic solution to its growing energy needs. The system was designed as a showcase of energy innovation and learning consistent with the overall National Western transformation objectives.



# Sijan Hall Renovation

Client: U.S. Air Force Academy & U.S. Army Corps of Engineers
Reference: Corine Weiss, RA, GS-13, Chief, Portfolio Optimization
(719) 651-9744 (requests to be contacted by phone)

Since 1999, AECOM has provided the U.S. Air Force Academy (USAFA) with a full range of planning, architecture, and engineering services. AECOM is providing engineering and architectural services in support of a U.S. Army Corps of Engineers design services contract for a 625,300 square-foot, 2,200-bed, five-phase renovation of Sijan Hall at the USAFA in Colorado Springs.

The work includes full interior and exterior gut and rebuild of systems and functions. AECOM's design team is reconfiguring shared spaces for studying and socializing to foster collaboration and improve cadet wellbeing. The modernization will incorporate energy-efficient materials and systems, smart building technologies such as occupancy sensors integrated with heating, ventilation and air conditioning, improved daylighting, and updated heating, ventilation and air conditioning systems, including geothermal energy and air conditioning for the first time - all while meeting U.S. Army Corps of Engineers high-performance and sustainable building requirements.

The scope of work includes planning, site investigations, site surveying and geotechnical investigations, space planning, design phasing/complete design documents for construction, interior design, parametric and construction cost estimating, other architectural and engineering.

# FEE PROPOSAL

# Cost Per Task

The cost estimate shown here is inclusive of labor and overhead. The only "other direct costs" anticipated at this time is mileage incurred for site visits and in person meetings.

| Task | Cost |
|---|---|
| **Task 0: Project management** | $31,602 |
| **Task 1: Power Needs Assessment** | |
| 1.1: Existing Conditions Review & Site Visits | $341,763 |
| 1.2: Data Evaluation & Power Projection | $217,536 |
| 1.3: Prepare Drawings | $83,582 |
| **ODCs** | $1,920 |
| **Total** | **$676,403** |

# Rate Table

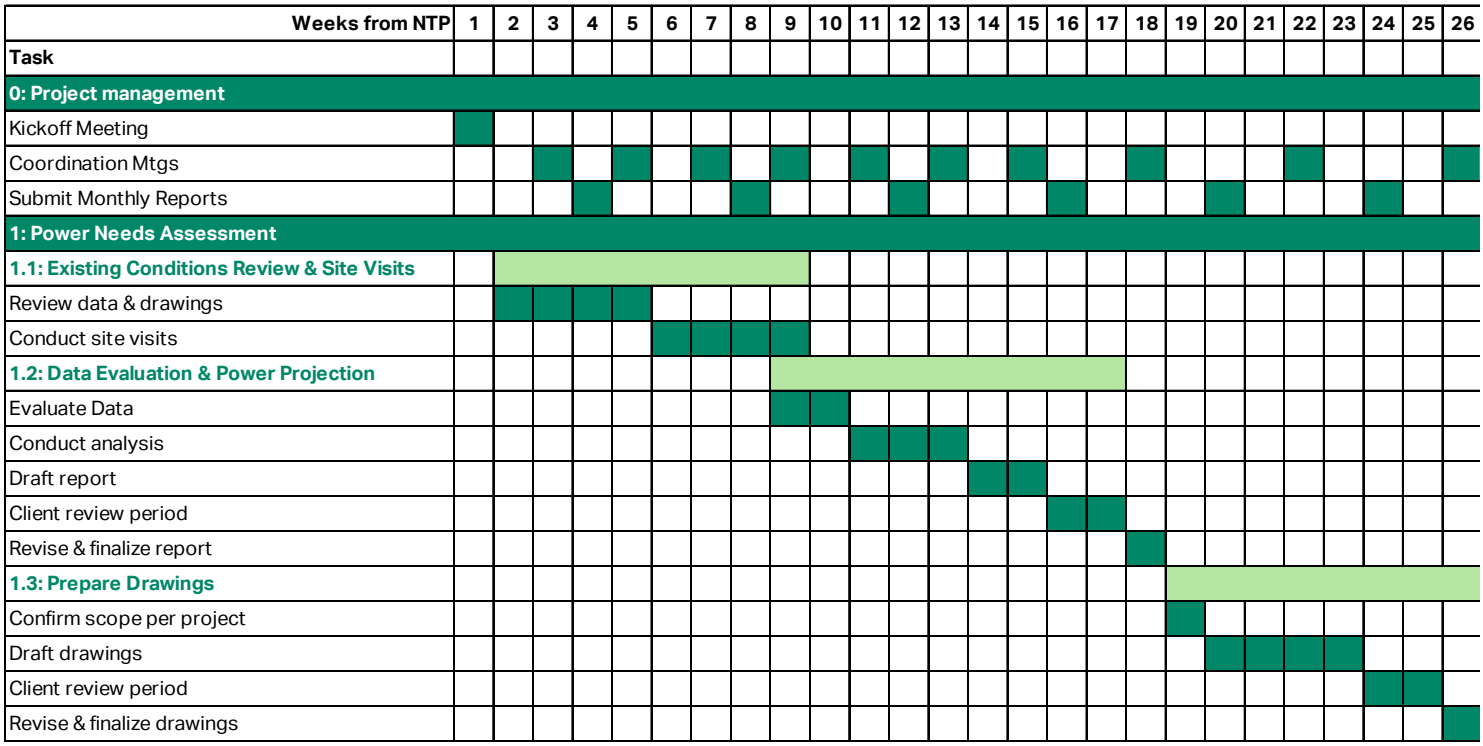
Our billing rate schedule is provided below. AECOM's fiscal year is October 1 to September 30 and our staff compensation is expected to increase by 4% on October 1, 2026.

| Title | Rate |
|---|---|
| Project Principal | $300 |
| Project Manager | $225 |
| Deputy Project Manager | $185 |
| Senior Mechanical Engineer | $225 |
| Mechanical Engineer I | $165 |
| Mechanical Engineer II | $145 |
| Mechanical Engineer III | $125 |
| Senior Electrical Engineer | $225 |
| Electrical Engineer I | $175 |
| Mechanical Engineer II | $160 |
| Mechanical Engineer III | $145 |

| Title | Rate |
|---|---|
| Senior Architect | $225 |
| Architect I | $165 |
| Architect II | $145 |
| Architect III | $125 |
| BIM Modeler | $60 |
| Senior Cost Estimator | $225 |
| Cost Estimator I | $165 |
| Cost Estimator II | $145 |
| Cost Estimator III | $125 |
| Project Controls | $150 |

## Project Schedule

It did not appear that a schedule was requested in the RFP or RFI responses, however, since the Pricing Form requests a start and end date, we are submitting this schedule to support our estimated timeline for Phase 1.



City of Louisville
COLORADO • SINCE 1878

**CITY OF LOUISVILLE**
**Internal Decarbonization Project – Electrification/Energy Efficiencies (E/EE)**

**Pricing & Information**

1. Check the correct boxes according to the scope and fee included in your Proposal and provide the lump sum cost for each phase:

☒ Phase 1 – Electrical Load Evaluation Only:

Phase 1 Cost: $ $676,403

☐ Phase 2 – Electrification/Energy Efficiency Implementation Only

Phase 2 Cost: $_____

☐ Phases 1 and 2:

Phase 1 Cost: $_____

Phase 2 Cost: $_____

2. Provide the proposed Project start and completion dates or timeline, as applicable:

Phase 1 – Electrical Load Evaluation

Start Date: Notice to Proceed End Date: 6 months after NTP

Phase 2 – Electrification/Energy Efficiency Implementation

Start Date: _____ End Date: _____

3. Details that are relevant to the Proposal and completion of the Project (may be attached separately):

Cost breakdown by task and schedule are provided in the proposal.

4. Additional Documents – The following documents are attached to and made a condition of this Proposal:

a) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Proposal,
b) Anti-Collusion Affidavit,
c) If Proposer is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

5. Communications concerning this proposal shall be addressed to:

The address of Proposer indicated below.
AECOM
7595 E. Technology Way, Suite 200
Denver, CO 80237

**SUBMITTED on** September 12 **, 2025.**

# APPENDIX

# Resumes

# Laurie Meyer-Lancisi, AIA

## Senior Project Manager

**Education**
Master of Urban and Regional Planning, University of Colorado, Denver
Master of Architecture, Univerity of Illinois
BS, Architectural Studies, University of Illinois

**Years of Experience**
With AECOM: <1
With Other Firms: 20

**Registrations/Certifications**
CA Architecture License C23479
CO License ARC.00405344
UT License: 14238742-0301
LEED GA

Laurie is a licensed architect with over 20 years of experience in the industry working on a variety of commercial building project types from preliminary design through construction contract administration. With a background in urban and regional planning, she has developed a deep understanding of how projects impact their end users, the communities they live in, and the environment. Her diverse project portfolio has strengthened her ability to navigate varying scopes, timelines, and resource constraints bringing an experienced but fresh approach to each project she manages.

## Selected Project Experience

**Mount Ogden Transit Administration Building and Canopy, Utah Transit Authority, Mount Ogden, Utah**
Deputy Project Manager. Laurie managed the project scope, schedule and fee during the preparation of construction documents for the Administration Building and the development of a new bus canopy to replace existing canopy areas displaced due to redevelopment of the site.

**Sugarhouse Electrical + Demo, Salt Lake City Community Reinvestment Agency, Salt Lake City, Utah**
Project Manager. Laurie is monitoring and coordinating this ongoing effort between the AECOM team, client and other stakeholders to prepare a site for redevelopment along the S-line extension in Salt Lake City.

**Fort Lyon Supportive Housing Steam Heat Replacement, State of Colorado Department of Local Affairs, Fort Lyons, Colorado**
Project Manager. Laurie is coordinating a multidisciplinary team to provide documents through design development for new HVAC equipment in twelve buildings at this historic campus in southeastern Colorado. The schematic design for this project will help the State determine an appropriate funding amount to complete the project.

**Theatre District/Convention Center Station Improvements, City and County of Denver, Colorado**
Project Manager. Laurie monitored and coordinated the design and construction document development for a renovation of the light rail station in downtown Denver.

**Denver Zoo Sea Lion Exhibit Renovation Denver Zoological Foundation, Denver, Colorado**
Project Manager. Laurie managed and coordinated a specialized engineering team to upgrade the water filtration system for the sea lion exhibit. This project included a study to determine the project budget and space planning for the new filtration system.

**Greenville Recreation Centers**
Project management responsibilities for this $47 million project including the renovation of an existing recreation center and the construction of a new 120,000 square foot recreation center in Greenville, Texas.

**Chico Aquatics Center**
Project management for the architectural components for this 10,245 square foot, $6 million project comprised of a bathhouse, administrative and meeting/party rooms in Chico, California.

**Yaquina Head Lighthouse Improvements, Bureau of Land Management, Newport, Oregon**
Project Manager. Managed and coordinated project scope with a specialized team to provide a structural investigation of the lighthouse, including approval of proposed destructive testing methods through the State Historic Preservation Office.

# Jeff Bentley, PE

## Senior Associate, Electrical Department Manager

**Education**
BS, Electronics Engineering Technology, DeVry University

**Years of Experience**
With AECOM: 2
With Other Firms: 19

**Registrations/Certifications**
Professional Engineer, Electrical
Colorado: 58933
Missouri: PE-2024003374
New Mexico: 29452
Utah: 14015404-2202
Washington: 24001643

Jeff is a Senior Electrical Engineer committed to sustainable designs, quality control, and mentoring. His specialties include indoor agriculture design, project management, jobsite services, and construction administration services. He has conducted feasibility studies, facility assessments, and electrical system evaluations as well as conceptual design, construction document production and construction administration for a wide variety of both existing and new facilities.

## Selected Project Experience

**USACE Omaha, SOC North Theater Operational Support Facility; Peterson SFB** - Perform electrical construction administration services for this project. Review submittals, reply to requests for information and participate in construction administration meeting with the general contractor and sub-contractors. AECOM, as a subconsultant, is providing A-E services for a design-build project to construct a special operations, command support facility. It will be constructed of precast concrete panels with exterior metal cladding to match the adjoining Command Complex area. A backup generator and protected distribution system will be provided for command and control systems. The scope of this project also includes the demolition of Building 104 (1,784 square meters) and associated temporary facilities constructed interim to the military construction. Facilities will be designed as permanent construction. The requirements include a secured area, non-standard space allocation to integrate command, control, communications, computers, intelligence systems, and robust audio/visual teleconferencing capability. This project will provide command and control, administrative, deployment, storage, and maintenance space.

**USACE Omaha, Cannon AFB Pilot Study and Hydraulic Containment** – Perform electrical construction administration services for this project. Review submittals, reply to requests for information and participate in construction administration meeting with the general contractor and sub-contractors. AECOM, as a subconsultant, is providing A-E services for a design-build project to perform a time-sensitive implementation of a hydraulic capture system at the boundary of Cannon AFB. The general Scope of Work includes initial site reconnaissance, bench scale study for media selection, capture zone analysis to include implementation of a system designed to effectively capture and treat PFAS groundwater below the LHA of 70 ppt and re-inject treated water into the affected aquifer.

**USACE Omaha, US Air Force Academy - Sijan Hall Renovation Design 2020-2025. Phase I Design Services (2023-2024) –** At the US Air Force Academy, provided support for A/E design services for the renovation of the existing academy dormitory. Estimated to be complete in five phases while maintaining building occupancy, the Phase 1 design includes removal of existing electrical service substations, and electrical distribution. The design also includes new fire alarm, lighting, and lighting controls. Services include site investigation, cost estimation, and issuance of ready-to-advertise construction documents for D-B-B project execution.

***Energy Conservation Investment Program (ECIP) – Defense Logistics Agency Susquehanna Distribution Center, New Cumberland, PA.** Electrical Design Lead for a lighting energy reduction design/build project. The design utilized new lighting technologies and lighting controls to reduce installed lighting power densities to meet energy conservation goals for four of the warehouses located on the Susquehanna Distribution Center Campus. Two of the warehouses were constructed during WWII and required adding egress and emergency lighting, and electrical distribution, panelboard, and branch circuit wiring replacement due to end of serviceable lifetime for the items being replaced. The project was managed by the U.S. Army Engineering and Support Center, Huntsville, Alabama.

# Chris Imparato, PE, HBDP, LEED AP

Mechanical Engineering Manager

**Education**
Bachelor of Science (BSc), Mechanical Engineering, Florida State University, 2008

**Years of Experience**
With AECOM: 8
With Other Firms: 8

**Registrations/Certifications**
Professional Engineer (PE): States of Colorado, Arizona, Florida, Washington, New Mexico, Utah

Chris is a Professional Mechanical Engineer with over sixteen years of experience. He is a mechanical design engineer for building HVAC and Plumbing systems and is highly proficient in mechanical and plumbing systems with a strong emphasis on energy efficient equipment, decarbonization, and controls.

Chris' project roles include project lead and discipline lead providing design guidance, oversight, and technical reviews of the HVAC and plumbing disciplines for new and existing facilities, as well as project engineer overseeing the multi-disciplined technical execution of the client's scope of work.

## Selected Project Experience

**Sijan Hall, U.S. Air Force Academy, Colorado Springs, CO:** Mechanical engineer provided building HVAC for 675,000 SF dormitory facility on the campus. The project included a ground source heat pumps throughout the facility to achieve high energy efficiency targets. A total of 180 boreholes were designed to provide enough energy transfer for the building without the need for any other outside heating or cooling sources. Project required cross coordination and design efforts across multiple offices within the region.

**Energy Study Anschutz Medical Campus, Aurora, Colorado:** Assisted with ASHRAE level 2 energy audits for 2 buildings on a medical campus. Collaborated across multiple internal offices to provide energy conservation measures to owners to implement the campus goals of reducing energy consumption and green-house gases.

**Energy Master Plan CU Boulder, Colorado:** Assisted with development of an Energy Master plan for the University of Colorado, Boulder Campus. Investigated the existing facilities and infrastructure to recommend energy efficient upgrades and plans to help the campus meet their Greenhouse Gas Emission (GHG) reduction goals.

**Northwater Treatment Plant, Golden, Colorado:** Assisted with the mechanical HVAC design for 12 different buildings on a new site for a 75 MGD water treatment facility. Provided an energy efficient design to suit the owner's requirements of heading towards a net zero energy facility. Collaborated with other engineering firms that provided the process and electrical designs. Worked closely with outside electrical/instrument engineers to come up with a control strategy for each building type. Site achieved Envision Gold certification through ISI and looking to achieve LEED Gold certification for the Operations Building through USGBC.

**National Western Complex Central Utility Plant, Denver, Colorado:** Mechanical project engineer provided the design of a Central Utility Plant. Collaborated across multiple business lines to include sewer waste heat energy recovery and other energy efficient technologies for use on a site-wide complex. The state-of-the-art central utility plant utilizes sewer heat recovery to provide 90% of its heating and cooling to buildings across the campus. The largest installation in North America to date, the sewer can provide up to 4 MW of heating for the campus. The sewer heat recovery systems pull thermal energy from wastewater instead of burning fossil fuels. Using this system, the 250-acre campus will avoid emitting an estimated 2,600 metric tons of carbon per year.

**Peterson Air Force Base, Data Center Energy Study, Colorado Springs, Colorado:** Mechanical project engineer provided ASHRAE Level 1 energy audits for 20 data center rooms across the campus. Recommended energy efficiency measures for each specific data center to reduce energy consumption and improve airflow management.

# David Blood, AIA

## Principal, Architecture Manager

**Education**
BArch, Architecture, University of Illinois

**Years of Experience**
With AECOM: 26
With Other Firms: 4

**Registrations/Certifications**
Registered Architect, Colorado, Guam, Illinois, Indiana, Maryland, Michigan, Missouri, Nevada, New Jersey, New Mexico, Northern Mariana Islands, Ohio, Oklahoma, South Dakota, Tennessee, Utah, Wisconsin

David has architectural experience in new construction and improvements to existing projects. His involvement has encompassed many scales of projects from focused renovation to large-scale master planning. He has participated in several site/building restoration projects that were of historical significance and integrated them into the existing infrastructure. His experience in construction and presentation documents development allows him to provide support in conveying complex information to clients. David has expertise in several industry standard CAD software programs allowing AECOM to be compatible with whatever software the client is currently using.

## Selected Project Experience

**Salt Lake City Department of Public Utilities, Salt Lake City Department of Public Utilities, New Water Reclamation Facility (WRF**), **Salt Lake City, UT.**
Lead Architect. Providing architectural services for a new 56-mgd WRF. The overall plant design provides an AECOM- developed campus aesthetic guideline and complies with the goals to achieve Envision for the plant and LEED Gold for the Administration building. The project includes facilities for a more traditional expanded permanent onsite staff.

**Denver Water, North Treatment Plant WRF, Golden, Colorado**
Lead Architect. As part of the overall Envision Gold plant design, AECOM provided an Operations facility design that is targeted to achieve a LEED Gold certification. The overall site design achieved compliance with Jefferson County zoning ordinates by using materials to complement the landscape and blending the facility into the topography. The Operations facility design is tailored to meet the personnel requirements of a plant that is anticipated to become increasingly automated and supported a focus on centralizing spare parts and maintenance staff to a system wide centralized location offsite.

**Chicago Department of Water Management Springfield Avenue Pumping Station Electrification - Phase III Services, Chicago, Illinois**
Responsible for the architectural design services during construction. The $65 million construction project included conversion of five existing steam- turbine-driven municipal water pumps to electric motor drives, renovation of an existing pump station and boiler building, and an addition to house the new power requirements. The entire project was designed to meet LEED certification and is anticipated to achieve a LEED Gold certification.

**Metropolitan Water Reclamation District of Greater Chicago, Stickney Water Reclamation Plant - New Sludge Thickening Facilities, Chicago, IL.**
Project Architect, Involved in data management for construction services records. Responsible for the architectural coordination of contractor change order requests, requests for quotes, and independent cost estimates among multiple disciplines and offices.

**Stickney Water Reclamation Plant, Biosolids Heat Drying Facility Design, Veolia Water North America, Stickney IL.** Performed 3D modeling for this structural, process piping, and equipment locations project, responsible for modeling of the equipment based on the manufacturer's two-dimensional drawing, location on equipment within the facility, and modeling the five-story support structure and routing all of the piping and duct work in the main processing building and adjacent mechanical building. Used Autodesk Building Systems software and incorporated all piping, including valve placement, into the 3D model. Created contract plans using the software to generate two-dimensional sections and plans. Liaison to the client, equipment manufacturers, and project engineers

# Jason Sielcken, AIA, LEED AP BD+C

## Vice President, Rocky Mountain Managing Principal

**Education**
MS, Architecture, University of Pennsylvania, 2003
B. ENVD, Architecture, University of Colorado Boulder, 2001

**Years of Experience**
With AECOM: <1
With Other Firms: 22

**Registrations/Certifications**
Registered Architect- CO (00405171)
Registered Architect- NY (00039254)
LEED AP BD+C Issued Mar 2009 Credential ID 10362978)
AIA (38336322)

With over 15 years of public sector experience, including his most recent role as Chief Architect for the U.S. General Services Administration (GSA) Rocky Mountain Region—Jason brings a unique client-centered perspective to our work. As Managing Principal, his focus is on harnessing the strength of our exceptionally talented team to drive design excellence, amplify our impact, and strengthen our client and community partnerships. Jason is passionate about delivering sustainable, high performing, and award-winning design guided by client priorities and shaped by adaptive, enduring solutions.

## Selected Project Experience

**Prior to AECOM*

**GSA, Denver Federal Center Deep Energy Retrofit, Denver, CO.***
Chief Architect & Project Executive. Oversaw the IGA and design award for a $140M Energy Savings Performance Contract at the Denver Federal Center, including a geothermal heat pump and solar PV system to provide heating, cooling, and power across 623 acres. The project will cut grid energy use by 51% and water use by 10%, saving 24 GWh of electricity and 85,000 MMBtu of natural gas annually.

**GSA, Frank E. Moss U.S. Courthouse Seismic Upgrade & Modernization, Salt Lake City, UT.*** Chief Architect and Project Executive. Led the CM/GC delivery of a 120-year-old, 250,000 SF historic structure, seismically stabilized and restored to create modern offices for nine federal agencies. The project is projected to achieve a 59% energy reduction, will convert to 100% electric, and targeting LEED Gold.

**GSA, Denver Federal Center Building 48 Modernization Project, Denver, CO.*** Chief Architect and Project Executive. Led the design-build adaptive reuse of a 150,000 SF warehouse and former munitions facility into offices for 700 Department of the Interior employees. The project achieved Net- Zero Energy and Operational Carbon, earned LEED Gold and SITES Silver, and received a 2024 GSA Design Excellence Award.

**GSA, FDA Laboratory, Denver, CO.*** Chief Architect. Led the design phase for the CM/GC delivery of a new three-story, 70,000 SF FDA laboratory, replacing an outdated facility. The project will be the nation's first Net-Zero Energy and Net-Zero Carbon Emissions BSL-3 lab, eliminating fossil fuels and setting a precedent for sustainable, high-containment research.

**GSA, Dunseith Land Port of Entry, Dunseith, ND.**
Chief Architect. Led the design of the design-build delivery of a new Land Port of Entry in Dunseith, ND, replacing an outdated facility while keeping operations fully functional. Designed for Net-Zero Energy with on-site renewables and geothermal, Net-Zero Water, and LEED Platinum, the project sets a benchmark for resilient, sustainable border infrastructure.

**GSA, USDA Consolidation Project, Salt Lake City, UT.***
Senior Project Manager - Jason led the design and construction of a six-story restack of the Wallace F. Bennett Federal Building in Salt Lake City, UT. The project consolidated multiple federal agencies and relocated the USDA from a costly private lease, implementing space optimization and workplace strategies that will save taxpayers over $75 million. For this achievement, Jason was honored with a 2020 Gears of Government Award from the White House.

**GSA, Wayne Aspinall Federal Building & U.S. Courthouse Modernization, Grand Junction, CO.***
Senior Project Manager. Jason led the nation's first Net-Zero Energy and Net Zero Operational Carbon project in a National Register of Historic Places building through a Design-Build contract. The modernization preserved historic elements while updating the facility for U.S. District Courts and executive agencies.

# Larry Davis, PE

## Senior Electrical Engineer

**Education**
BS, Electronics Engineering Technology, Metropolitan State University of Denver

**Years of Experience**
With AECOM: 2
With Other Firms: 23

**Registrations/Certifications**
Professional Engineer, Electrical
Colorado: 56830
Ohio: 91760
Master Electrician
Colorado: 29682

Larry is a Senior Electrical Engineer committed to exacting standards, innovative sustainable designs, authentic transparent client relationships, and quality control. Mr. Davis is also a licensed Master Electrician with an abundance of field experience in commercial, industrial, and residential applications. Engineering specialties include medium and low voltage power configuration, distribution system resiliency, emergency and standby backup systems, technical quality, construction feasibility, project oversight, and construction administration services. Larry has comprehensive experience conducting feasibility studies, facility assessments, and electrical system evaluations as well as conceptual design. He is highly skilled in designing and producing construction documents along with construction administration for a broad array of both existing and new facilities.

## Selected Project Experience

**USACE Omaha, Tinker AFB Pilot Study and Hydraulic Containment, Oklahoma City, OK.**
Mr. Davis was the lead engineer for the new construction of hydraulic recapture facility. Designing all aspects of the power, controls and lighting aspects and controls systems. AECOM, as a subconsultant, is providing A-E services for an innovative design-build project with a time-sensitive implementation roadmap for a hydraulic capture system at the boundary of Tinker AFB. The general Scope of Work includes initial site reconnaissance, bench scale study for media selection, capture zone analysis including the implementation of a system designed to effectively capture and groundwater.

**USACE Omaha, US Air Force Academy, Fairchild Electrical Systems Study, Colorado Springs, CO.**
Mr. Davis is the lead engineer for conducting a comprehensive electrical study for the 1.2 million sq/ft Fairchild Hall. His duties included performing client coordination, site observations, existing conditions analysis, arc flash, short circuit calculations, load study, mitigation recommendations, and issue solution prescriptions.

**USACE Omaha, Offutt AFB B500 Renovation, NE.**
Mr. Davis is the lead engineer providing the design, construction documents, and construction administration services for this comprehensive renovation of a 600,000 sq/ft facility housing some of the nation's critical defense mission teams and the necessary equipment to accomplish those mission sets. Power design comprised of medium voltage substations, local power distribution, mission critical power requirements, and complete lighting and controls systems.

**TXDOT Training Classroom Renovation, Texas Department of Transportation, Wichita Falls, TX.**
Mr. Davis is the lead engineer for a 10,000 sq/ft detailed classroom renovation. Mr. Davis is leading power and lighting design. He has been instrumental in consulting with and meeting our client's concerns and specific needs all while following an intense and rapid design schedule.

**DLA Arc Flash Assessment, Defense Logistics Agency, New Cumberland, PA.**
Mr. Davis was part of a team of engineers and SMEs leading an arc-flash assessment and selective coordination study for a multi-building campus of the United States defense logistics agency (DLA). Surveying the existing buildings' electrical services and distribution system. Developed recommendations for eliminating incident energies beyond acceptable levels and developed solutions for bringing outdated equipment up to current safety standards.

# Jimmy Logue

## Senior Associate Cost Consultant

**Education**
ND Quantity Surveying
NC Construction Management

**Years of Experience**
With AECOM: 15
With Other Firms: 0

**Training, Registrations, Affiliations**
CATO Estimating Software
CAD Measure Digital Takeoff
CostX Estimating Software
CostX 3D BIM Measurement Software
OST-On Screen Takeoff
NZIQS (Afil)
New Zealand Institute of Quantity Surveyors

As a trained Quantity Surveyor, Jimmy's experience includes providing clients with integrated solutions for preconstruction consulting, cost management, project controls and scheduling on complex construction projects. He has a diverse background with over fifteen years in the construction industry. Areas of expertise include preconstruction management, construction cost estimating from feasibility through to bid, value engineering, cash flow and trend analysis, construction phase cost management including change management, preparing and negotiating final construction cost agreements between clients and contractors. Jimmy also has a background on a range of projects acting as the funding manager, preparing initial project reports for construction funding institutions to assess lending requirements and preparing drawdown reports and recommendations.

## Selected Project Experience

**2025 World Expo USA Pavilion, Osaka Japan**
Our role, within an integrated AECOM team was to provide the Department of State with both Construction and Operations budgets for the 2025 World Expo in Osaka, Japan. This included analyzing / developing the best approach to construct a pavilion that is temporary in nature while not impacting the architectural form and function of the building. Our cost management team compiled detailed early stage budgets and tailored the budget to the clients reporting needs. This involved an integrated approach with our design and planning team as well as research and coordination with our partners locally in Japan.

**City and County of Denver RISE Bond Program**
Client: Denver Department of Transportation and Infrastructure
Our role was to provide DOTI with independent horizontal and vertical project cost estimates related to the RISE Bond Program. Our cost management team compiled parametric, detailed and tailored cost assessments of over 30 individual projects to provide an independent opinion of cost to compare against existing project estimates. The estimates also assisted DOTI with bond project prioritization.

**City and County of Denver ELEVATE Bond Program**
Client: Denver Department of Transportation and Infrastructure
Our role was to provide DOTI with four independent vertical project cost estimates related to the ELEVATE Bond Program. Our cost management team compiled parametric, detailed and tailored cost assessments for the specific individual projects to allow DOTI to update previously prepared capital budgets. The estimates also assisted DOTI monitoring how the escalation and construction market has been affected from 2019-2021.

**Northern Arizona Intergovernmental Public Transport Authority, Downtown Connection Center, Flagstaff, AZ**
Client: NIPTA
Our role was to provide concept - schematic level cost consulting and estimates for a two-phase project which includes a new 20,000 SF transit connection center and event space, bus transit center and associated site improvements.

**Cripple Creek Bus and Streetcar Operations Facility, Cripple Creek, CO**
Client: City of Cripple Creek
Our role was to early stage cost planning to assist the client in setting their capital budget for a new transit operations facility located in Cripple Creek, Colorado on a challenging sloped site. The 130,000 SF facility includes bus and streetcar maintenance areas, structured above grade parking, operations offices, history museum, secure police sallyport areas, core & shell office space and all associated site development.

# Shea Culbertson, PE

## Senior Electrical Engineer

**Education**
BS, Electrical Engineering, The Pennsylvania State University

**Years of Experience**
With AECOM: 6
With Other Firms: 6

**Registrations/Certifications**
PE, CA, E22311, 06.30.2026
PE, GA, PE050215, 12.31.2025
PE, ID, 2671432, 11.30.2026
PE, NC, 051793, 12.31.2025
PE, SC, 41359, 06.30.2026
PE, TN, 128149, 03.31.2027
PE, TX, 140570, 12.31.2025
PE, UT, 14191910-2202, 03.31.2027

Shea is a licensed senior electrical engineer with over ten years of experience in projects ranging from single-family residential to multi-building campuses. His portfolio of projects includes office, light industrial, airport, healthcare/life sciences, technology, mall/retail, university/higher education, data center, battery storage, photovoltaic, and microgrid. Shea is experienced in working with various federal, state, and local building codes and standards, and he is adept at working with many different design and calculation programs. He has extensive knowledge in electrical design, including design management, construction documentation, lighting design, power design, grounding design, and low- and medium-voltage electrical distribution design.

## Selected Project Experience

**Intuit Dome Microgrid, Clippers, Los Angeles, CA**
Lead electrical engineer for the design of the Intuit Dome's microgrid system. The microgrid featured 2.2MWac of PV, 5.7MW/11.5MWh BESS system, and 4MW of diesel generator backup. The microgrid sequence focused primarily on reduction of peak demand reduction for significant cost savings instead of reducing overall energy consumption. The microgrid sequence had different scenarios for non-event and event days to focus on different thresholds. Additionally, the microgrid allowed for unplanned and planned islanding of the facility in the event of outages or when disconnection from the utility was desired. The system met Southern California Edison's interconnection requirements for ramp rates, inverter certifications, limiting of PV export to less than 1MW, BESS non-export settings and protections, and closed-transition return to utility.

**SLO-L52 Advanced Air Mobility (AAM) Study, SLO County Airport, San Luis Obispo and Oceano, CA**
Lead electrical engineer for the study of SLO and L52 airports' AAM potential and electrical infrastructure impacts. The study utilized inputs from the AAM potential of each site and a basis-of-design AAM electric charger to develop future loading requirements and analyze the existing electrical distribution. Based on the analysis, recommendations were given for both airports including potential location of electrical services, the service size and loading, and utility points of connection.

**MV Infrastructure Upgrades, LACCD, Los Angeles, CA**
Lead electrical engineer for the creation of bidding documents (PPCs) for three (3) campuses for the installation of medium voltage (MV) infrastructure upgrades related to future PV systems, EVCS installation, decarbonization of campus facilities, future BESS installation, and future load growth. PPC reports included preliminary calculations, project requirements and guidelines, and conceptual drawings and diagrams for the MV upgrades, EVCS installation, and replacement of existing PV systems. Included high-level assessment of facilities to develop conceptual plans, coordination with the electric utility, and coordination with the campuses regarding new EVCS stall locations and ADA compliance, BESS locations, and master plans.

**B23 Cyber Ops TI, CA ANG, Van Nuys, CA**
Lead electrical engineer for the design of a 90kW ground mounted PV system at the Van Nuys ANG Station. The design featured a pre-manufactured mounting system, and load-side utility connection to the existing main switchgear with an existing PV system. Interconnections and PV equipment were designed to comply with LADWP requirements.

# Tracey Whaley PE, FPE, CCP

## Mechanical/Plumbing Commissioning Engineer

**Education**
BS, Architectural Engineering;
Kansas State University

**Years of Experience**
With AECOM: 6
With Other Firms: 31

**Registrations/Certifications**
Professional Engineer; Arkansas, California, Colorado, Florida, Oregon, Montana, Indiana, Texas, Wyoming
Certified Commissioning Professional (CCP) Building Commissioning Association (BCxA)
Top Secret Seurity Clearance

Tracey brings 36 years of experience in design as a mechanical and fire protection engineer and certified commissioning professional. Her project experience includes a wide range of public, state, local, and federal sectors. Tracey assists clients in achieving their goals by reducing project costs, eliminating wasted effort, optimizing project goals and intent, improving user and occupant satisfaction, and using quality statistical tools. Her expertise in total building commissioning, combined with extensive design experience, leads to a technical commissioning process geared towards critical facilities.

## Selected Project Experience

**McCarran International Airport, Las Vegas, NV**
Facility Condition Assessment/Retro-Commissioning. Commissioning Manager providing retro-commissioning support for the airport. Assessment and retro-commissioning was provided for select AHU systems in the aging terminals. Data loggers were installed to monitor the temperature, humidity, airflows, and power used by the HVAC units that are past the useful life. Retro-commissioning reports offer solutions for sustaining the existing equipment until a plan for renovation and replacement of the equipment is developed.

**Department of State, Overseas Building Operations, Merida Mexico New Consulate Compound.**
Commissiong Manager and mechanical commissioning engineer for the design and construction phase for Whole Building commissioning services on a new overseas consulate compound. Responsibilities include commissioning design reviews, development of commissioning procedures, coordination and scheduling of the commissioning requirements with the Government and design-build team. Our tasks include building enclosure assemblies, building systems, and building equipment including the chiller plant, air handling systems, plumbing systems, electrical systems with power monitoring, multi-generator back up power supply, paralleling gear, and hybrid solar photovoltaic panels.

**Department of Veteran Affairs, Spinal Cord Injury/Community Living Center, San Diego, CA.**
Ms. Whaley is the lead Mechanical/Plumbing/Fire Protection Commissioning Engineer on the new Medical Center Hospital located on the San Diego VA Campus. The project includes a central plant, site infrastructural upgrades and a new 800-car parking structure. The commissioning scope includes the VA Whole Building Commissioning Scope and standards. The new expansion project is on the site of an existing fully operational hospital which requires considerable coordination between construction activities and the commissioning process.

**Arlington County, Long Bridge Aquatics & Fitness Center, Arlington, VA**
Commissioning Engineer. Performed LEED Fundamental and Enhanced Commissioning for a new recreation facility. Commissioned systems included the HVAC Systems and associated controls, Power Distribution, Lighting, Domestic Water, Fire Alarm, Fire Protection, Building Enclosure, and Specialty Pool Systems.

**Alton Lennon Federal Building, Wilmington, NC:**
Renovation of the federal building and US Courthouse that was damaged by Hurricane Florence in 2018. Commissioning support for the design and renovation of the building. The General Services Administration (GSA) intends to replace the existing roof, conduct repairs and replacement of portions of the facade, repair/replace existing exterior historic windows and doors, replace and upgrade the MEP systems, provide updated normal and emergency power service for the new equipment, update the life safety systems, abatement of hazardous materials, remediate mold, and repair and replace interior finishes.

# Andy Paddock, PE

## Senior Engineering Manager

**Education**
Bachelor of Science (BSc), Civil Engineering, Colorado State University

**Years of Experience**
With AECOM: <1
With Other Firms: 12

**Registrations/Certifications**
Professional Engineer, Colorado, PE.0037607
Professional Engineer, Wyoming, 12330
Professional Engineer, Wisconsin, 39110-6
Professional Engineer, Utah, 7997493-2202
Professional Engineer, New Mexico, 21630
Professional Engineer, Nebraska, E-13748
Professional Engineer, Mississippi, 19297
Professional Engineer, Iowa, 18995
Professional Engineer, Arkansas, 13283
Professional Engineer, Arizona, 48385

Andy is the engineering director for buildings and places sector in the Rocky Mountain Region, where he coordinates and leads multidisciplinary teams composed of hundreds of engineers. Andy has successfully managed large-scale programs and guided diverse teams across various market sectors, including intricate infrastructure projects. His career is marked by a profound ability to anticipate and address challenges in project delivery and management through innovative solutions and strategic foresight. Committed to excellence, Andy ensures alignment with industry standards and fosters a culture of continuous improvement within his teams, driving the adoption and implementation of best practices.

## Selected Project Experience

**US Department of Commerce - National Institute of Standards and Technology, Building 1 Renovation: Wing 4, Wing 5, and Spine, Boulder, Colorado.**
Senior engineering manager responsible for overseeing multidisciplinary engineering aspects, including civil, structural, mechanical, plumbing, fire protection, electrical, telecommunications, and laboratory planning. Provided mechanical, plumbing, and fire protection planning and design for a 30% construction document package/design-build RFP. The project focused on transforming a 1960s historic building into a modern laboratory, supporting advanced fields such as electronics, nanotechnology, time and frequency studies, quantum computing and communications, laser science, optics, radiofrequency communications, and magnetic field measurements. The design emphasized the integration of modern mechanical systems to meet stringent requirements for temperature, humidity, and vibration control, ensuring the facility met the needs of advanced research and development.

**Denver Water, Northwater Treatment Plant Site and Civil Improvements, Denver, Colorado.**
Senior engineering manager who contributed to the NTP project, encompassing 12 distinct buildings and numerous treatment structures within a new campus for a 75 MGD water treatment facility in the Denver Metro area—the largest project in Denver Water's history. Responsibilities included managing QA inspections and inspectors, reviewing submittals and RFIs for contract compliance, coordinating field activities with the CMAR, designing facilities for future phases of the project (Moffat Expansion), and verifying that construction adhered to quality standards. The site achieved Envision Gold certification through ISI and is pursuing LEED Gold certification for the Operations Building through USGBC.

**US Air Force Academy, National A-E IDIQ 2010-2015 - Cadet Chapel Restoration Design, US Air Force Academy, Colorado.**
Senior engineering manager who led the design for building envelope repairs, ensuring the integrity and functionality of the structure. Updated AT/FP provisions and redesigned the deteriorated exterior while preserving the National Historic Landmark's historic context. Developed and implemented structural protocols for measuring in-situ wind speeds, pressures, and corresponding structural deflections, which were utilized to calibrate wind tunnel studies and structural software for analyzing tetrahedral frames and determining glazing tolerances.

# Phillip Meffert, EI

## Structural Engineer II

**Education**
MS, Civil Engineering, Michigan State University
BS, Civil Engineering, Michigan State University

**Years of Experience**
With AECOM: 4
With Other Firms: 0

**Registrations/Certifications**
Engineer Intern (EI) Colorado – EI.0047800

Phillip is a Structural Engineer in Training in the AECOM Buildings + Places Group in Denver, CO with 4 years of industry experience, all at AECOM. He is a goal driven and process-oriented individual, who strives for team success. He has experience in structural steel, concrete, masonry, and light gauge steel design and analysis, structural modeling, discipline coordination, and creation of project documentation.

Phillip is passionate about working through challenges that require unique structural engineering solutions. He is proficient in many structural engineering computer applications, such as ETABS, RAM products, and modular applications, as well as drafting software. He enjoys collaboration across disciplines to expand his knowledge of building systems.

## Selected Project Experience

**United States Air Force Academy, Sijan Hall Renovation, Colorado Springs, CO: (2021 – present)**
Structural engineer for a $500 million dollar renovation of historic student housing of the Sijan Hall dormitory on the USAFA campus. Investigated as built drawing from the 1960's. Analyzed existing structural elements including two-way slabs, built up steel columns, load bearing RC walls, and prestressed double tee concrete beams. Designed retrofit solutions for the above items. Designed a 20'x140' floor frame to infill an existing two-story space. Responsible for coordination with MEP engineers and architects, coordinated structural team task delegation, and the development and submittal of project documents.

**United States Air Force Academy, McDermott Library Renovation, Colorado Springs, CO: (2022 – 2024)**
Structural engineer for an extensive renovation of historic library on the USAFA campus. Responsibilities included obtaining information from as built drawings from 1950's and 1980's, performing a schematic design and detailing of a new entranceway and canopy steel frame and connections at the face of the existing building, analyzing existing structural elements including structural steel beams, joists, and columns. Provided analysis of 84-foot-long existing steel truss. Assisted in providing load design criteria per building codes, including national, federal, and local codes. Coordinated with several disciplines to provide guidance on placement of electrical floor boxes.

**Peterson AFB, Colorado Springs, CO: (2021)**
Phillip served as a structural engineer for a two-story steel frame Theatre Operational Support Facility for Peterson Air Force Base. As a member of the structural team, he designed multiple structural elements, including steel connections, retaining wall systems, and column pedestals, and was responsible for the design of an exterior steel frame canopy. In addition, he analyzed the gravity and lateral structural systems.

**Water Reclamation Facility, Salt Lake City, UT: (2021-2022)**
Phillip worked as a structural engineer for one of the largest buildings in the project. Engineered an internal 8'x28' self-supporting light gauge steel structure. Designed load bearing masonry structural elements. Participated in the creation of project documentation.

**Denver Public Library -Denver, CO: (2021 – 2023)**
Structural EIT in the renovation of historical Denver Public Library designed by Michael Graves. Investigated existing drawings and provided demolition details. Designed new steel assemblies and post-installed anchorage connections for a new grand stairway. Participated in site visit engineer inspection.

# Connie Ruelas-Flores

## Architecture II

**Education**
Master of Architecture and BS of Architecture, University of Colorado, Denver

**Years of Experience**
With AECOM: 5
With Other Firms: 0

Connie is an architecture designer and the BIM lead for AECOM's Denver office.

### Selected Project Experience

**USAFA Preparatory Athletics Facilities, U.S. Army Corps of Engineers, Colorado Springs, CO.**
Modeler
BIM Manager

**Space Force Education Facility, U.S. Army Corps of Engineers, Colorado Springs, CO.**
Modeler/Drafter
BIM Manager

**McDermott Library Renovation, U.S. Army Corps of Engineers, Colorado Springs, CO.**
Modeler/Drafter
BIM Manager

**SOCNORTH Theater Special Operations Forces Operational Support Facility, U.S. Army Corps of Engineers, Peterson Air Force Base, CO.**
Modeler/Drafter
BIM Manager

**Improve Military Housing PAIP 8B, U.S. Army Corps of Engineers – Japan Engineering District, Yokota Air Base, Japan.**
Modeler/Drafter
BIM Manager

**Improve Military Housing PAIP 9B, U.S. Army Corps of Engineers – Japan Engineering District, Yokota Air Base, Japan.**
Modeler/Drafter
BIM Manager

**Renovate Building 406, 50th Civil Engineering Squadron, Shriever Space Force Base, CO.**
Modeler/Drafter
BIM Manager

**Denver Water Roof Assessments, Denver Water, Denver, CO.**
Site Assessor

**SNL Strategic Capital – Chain 12, NNSA/SANDIA Site Office U.S. Department of Energy, Albuquerque, NM.**
Site Assessor

**MT. Ogden Administration Building, Utah Transit Authority, Ogden, UT.**
Modeler/Drafter

**Building 500, U.S.AF 55th Wing, U.S. Army Corps of Engineers Omaha District, Offutt Air Base, NE.**
Modeler/Drafter
BIM Manager

**Renovate MOD 3/4A Building 400, 50th Civil Engineering Squadron, Shriever Space Force Base, CO.**
Modeler/Drafter
BIM Manager

**DOLA Steam Heat Replacement, Colorado Department of Local Affairs, Las Animas, CO.**
Modeler/Drafter
BIM Manager

# Agreement Exceptions

**AN AGREEMENT BY AND BETWEEN THE CITY OF LOUISVILLE AND _____ FOR CONSULTING SERVICES**

## 1.0 PARTIES

This AGREEMENT FOR CONSULTING SERVICES (this "Agreement") is made and entered into this ____ day of _____, 20____ (the "Effective Date"), by and between the **City of Louisville**, a Colorado home rule municipal corporation, hereinafter referred to as the "City", and **_____**, a Colorado [entity type], hereinafter referred to as the "Consultant".

## 2.0 RECITALS AND PURPOSE

2.1 The City desires to engage the Consultant for the purpose of [_____]as further set forth in the Consultant's Scope of Services (which services are hereinafter referred to as the "Services").

2.2 The Consultant represents that it has the special expertise, qualifications and background necessary to complete the Services.

## 3.0 SCOPE OF SERVICES

The Consultant agrees to provide the City with the specific Services and to perform the specific tasks, duties and responsibilities set forth in Scope of Services attached hereto as **Exhibit A** and incorporated herein by reference.

## 4.0 COMPENSATION

4.1 The City shall pay the Consultant for services under this agreement a total not to **_____ Dollars ($_____)** as set forth in **Exhibit A** attached hereto and incorporated herein by this reference. For Services compensated at hourly or per unit rates, or on a per-task basis, such rates or costs per task shall not exceed the amounts set forth in **Exhibit A.** The City shall not pay mileage and other reimbursable expenses (such as meals, parking, travel expenses, necessary memberships, etc.), unless such expenses are (1) clearly set forth in the Scope of Services, and (2) necessary for performance of the Services ("Pre-Approved Expenses"). The foregoing amounts of compensation shall be inclusive of all costs of whatsoever nature associated with the Consultant's efforts, including but not limited to salaries, benefits, overhead, administration, profits, expenses, and outside consultant fees. The Scope of Services and payment therefor shall only be changed by a properly authorized amendment to this

Agreement. No City employee has the authority to bind the City with regard to any payment for any services which exceeds the amount payable under the terms of this Agreement.

4.2 The Consultant shall submit monthly an invoice to the City for Services rendered and a detailed expense report for Pre-Approved Expenses incurred during the previous month. The invoice shall document the Services provided during the preceding month, identifying by work category and subcategory the work and tasks performed and such other information as may be required by the City. The Consultant shall provide such additional backup documentation as may be required by the City. The City shall pay the invoice within thirty (30) days of receipt unless the Services or the documentation therefor are unsatisfactory. Payments made after thirty (30) days may be assessed an interest charge of one percent (1%) per month unless the delay in payment resulted from unsatisfactory work or documentation therefor.

**5.0 PROJECT REPRESENTATION**

5.1 The City designates _____ as the responsible City staff to provide direction to the Consultant during the conduct of the Services. The Consultant shall comply with the directions given by such person and such person's designees.

5.2 The Consultant designates _____ as its project manager and as the principal in charge who shall be providing the Services under this Agreement. Should any of the representatives of Consultant be replaced, and such replacement require the City or the Consultant to undertake additional reevaluations, coordination, orientations, etc., the Consultant shall be fully responsible for all such additional costs and services.

**6.0 TERM**

6.1 The term of this Agreement shall be from the Effective Date until all the Services have been fully performed, unless sooner terminated pursuant to Section 13, below. The Consultant's Services under this Agreement shall commence on the Effective Date and Consultant shall proceed with diligence and promptness so that the Services are completed in a timely fashion consistent with the City's requirements.

6.2 Nothing in this Agreement is intended or shall be deemed or construed as creating any multiple-fiscal year direct or indirect debt or financial obligation on the part of the City within the meaning of Colorado Constitution Article X, Section 20 or any other constitutional or statutory provision. All financial obligations of the City under this Agreement are subject to annual budgeting and appropriation by the Louisville City Council, in its sole discretion. Notwithstanding anything in this Agreement to

the contrary, in the event of non-appropriation, this Agreement shall terminate effective December 31 of the then-current fiscal year.

**7.0 INSURANCE**

7.1 The Consultant agrees to procure and maintain, at its own cost, the policies of insurance set forth in Subsections 7.1.1 through 7.1.4. The Consultant shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. The coverages required below shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained from the date of commencement of services hereunder. The required coverages are:

7.1.1 Workers' Compensation insurance as required by the Labor Code of the State of Colorado and Employers Liability Insurance. Evidence of qualified selfinsured status may be substituted.

7.1.2 General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each occurrence and TWO MILLION DOLLARS ($2,000,000) aggregate. The policy shall include the City of Louisville, its officers and its employees, as additional insureds, with primary coverage as respects the City of Louisville, its officers and its employees, and shall contain a severability of interests provision.

7.1.3 Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than FOUR HUNDRED THOUSAND DOLLARS ($400,000) per person in any one occurrence and ONE MILLION DOLLARS ($1,000,000) for two or more persons in any one occurrence, and auto property damage insurance of at least FIFTY THOUSAND DOLLARS ($50,000) per occurrence, with respect to each of Consultant's owned, hired or non-owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests provision. If the Consultant has no owned automobiles, the requirements of this paragraph shall be met by each employee of the Consultant providing services to the City of Louisville under this Agreement.

7.1.4 Professional Liability coverage with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000) each claim and ONE MILLION DOLLARS ($1,000,000) aggregate.

Deleted: occurrence

7.2 The Consultant's general liability insurance, automobile liability and physical damage insurance, and professional liability insurance shall be endorsed to include the City, and its elected and appointed officers and employees, as additional insureds, unless the City in its sole discretion waives such requirement. Every policy required above, except Professional Liability and Worker's Compensation and Employer's Liability, shall be primary insurance, and any insurance carried by the City, its officers, or its employees, shall be excess and not contributory insurance to that provided by the Consultant. Such policies shall contain a severability of interests provision. The Consultant shall be solely responsible for any deductible losses under each of the policies required above.

7.3 Certificates of insurance shall be provided by the Consultant as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the City. No required coverage shall be cancelled, terminated or materially changed until at least 30 days' prior written notice has been given to the City. The City reserves the right to request and receive a certified copy of any endorsement thereto.

7.4 Failure on the part of the Consultant to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the City may immediately terminate this Agreement, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Consultant to the City upon demand, or the City may offset the cost of the premiums against any monies due to Consultant from the City.

7.5 The parties understand and agree that the City is relying on, and does not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S., as from time to time amended, or otherwise available to the City, its officers, or its employees.

**8.0 INDEMNIFICATION**

8.1 To the fullest extent permitted by law, the Consultant agrees to indemnify and hold harmless the City, and its elected and appointed officers and its employees, from and against all liability, claims, and demands, on account of any injury, loss, or damage, which arise out of or are connected with the services hereunder, if and to the extent such injury, loss, or damage is caused by the negligent act, omission, or other fault of the Consultant or any subcontractor of the Consultant, or any officer, employee, or agent of the Consultant or any subcontractor, or any other person for whom Consultant is responsible. The Consultant shall investigate, handle, respond



**Commented [JB2]:** Requiring a primary non-contributory endorsement is not available on a Professional Liability policy – only policies that allow Additional Insured status (e.g. General Liability, Automobile Liability) can be designated as primary and non-contributory. Professional Liability covers AECOM's legal liability for damages arising out of our professional services. Only lines of coverage that allow additional insured endorsements will be provided on a primary basis. Workers' Compensation and Employer's Liability are the express responsibility of each company or organization to provide on behalf of their own employees, and Professional Liability is designed solely to cover claims to other parties who experience a loss as a result of the Consultant's professional services. These lines of coverage do not allow additional insured endorsements and cannot be provided on a primary basis. This is an insurance standard and is not unique to AECOM.

**Deleted:** policy

**Deleted:** and any

to, and provide defense for and defend against any such liability, claims, and demands. The Consultant shall further bear all other costs and expenses incurred by the City or Consultant and related to any such liability, claims and demands, including but not limited to court costs, expert witness fees and attorneys' fees if the court determines that these incurred costs and expenses are related to such negligent acts, errors, and omissions or other fault of the Consultant.

8.2 The City shall be entitled to its costs and attorneys' fees incurred in any action to enforce the provisions of this Section 8.0. The Consultant's indemnification obligation shall not be construed to extend to any injury, loss, or damage which is caused by the act, omission, or other fault of the City.

8.3 If the Consultant is providing architectural, engineering, surveying or other design services under this Agreement, the extent of the Consultant's obligation to indemnify and hold harmless the Town may be determined only after the Consultant's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement between the parties, as provided by C.R.S. § 13-50.5-102(8)(c).

**9.0 QUALITY OF WORK**

Consultant's professional services shall be in accordance with the prevailing standard of practice normally exercised in the performance of services of a similar nature in the Denver metropolitan area.

**10.0 INDEPENDENT CONTRACTOR**

It is the expressed intent of the parties that the Consultant is an independent contractor and not the agent, employee or servant of the City, and that:

10.1. Consultant shall satisfy all tax and other governmentally imposed responsibilities including but not limited to, payment of state, federal, and social security taxes, unemployment taxes, worker's compensation and self-employment taxes. No state, federal or local taxes of any kind shall be withheld or paid by the City.

10.2. **Consultant is not entitled to worker's compensation benefits except as may be provided by the Consultant nor to unemployment insurance benefits unless unemployment compensation coverage is provided by the Consultant or some entity other than the City.**

10.3. Consultant does not have the authority to act for the City, or to bind the City in any respect whatsoever, or to incur any debts or liabilities in the name of or on behalf of the City.

10.4. Consultant has and retains control of and supervision over the performance of Consultant's obligations hereunder and control over any persons employed by Consultant for performing the Services hereunder.

10.5. The City will not provide training or instruction to Consultant or any of its employees regarding the performance of the Services hereunder.

10.6. Neither the Consultant nor any of its officers or employees will receive benefits of any type from the City.

10.7. Consultant represents that it is engaged in providing similar services to other clients and/or the general public and is not required to work exclusively for the City.

10.8. All Services are to be performed solely at the risk of Consultant and Consultant shall take all precautions necessary for the proper and sole performance thereof.

10.9. Consultant will not combine its business operations in any way with the City's business operations and each party shall maintain their operations as separate and distinct.

**11.0 ASSIGNMENT**

Consultant shall not assign or delegate this Agreement or any portion thereof, or any monies due or to become due hereunder without the City's prior written consent.

**12.0 DEFAULT**

Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event either party should fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

**13.0 TERMINATION**

13.1 This Agreement may be terminated by either party for material breach or default of this Agreement by the other party not caused by any action or omission of the other party by giving the other party written notice at least thirty (30) days in advance of the termination date. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

13.2 In addition to the foregoing, this Agreement may be terminated by the City for its convenience and without cause of any nature by giving written notice at least fifteen (15) days in advance of the termination date. In the event of such termination, the Consultant will be paid for the reasonable value of the services

rendered to the date of termination, not to exceed a pro-rated daily rate, for the services rendered to the date of termination, and upon such payment, all obligations of the City to the Consultant under this Agreement will cease. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

**14.0 INSPECTION AND AUDIT**

The City and its duly authorized representatives shall have access to any books, documents, papers, and records of the Consultant that are related to this Agreement for the purpose of making audits, examinations, excerpts, and transcriptions.

**15.0 DOCUMENTS**

All computer input and output, analyses, plans, documents photographic images, tests, maps, surveys, electronic files and written material of any kind generated in the performance of this Agreement or developed for the City in performance of the Services are and shall remain the sole and exclusive property of the City. All such materials shall be promptly provided to the City upon request therefor and at the time of termination of this Agreement, without further charge or expense to the City. Consultant shall not provide copies of any such material to any other party without the prior written consent of the City.

**16.0 ENFORCEMENT**

16.1 In the event that suit is brought upon this Agreement to enforce its terms, the prevailing party shall be entitled to its reasonable attorneys' fees and related court costs.

16.2 This Agreement shall be deemed entered into in Boulder County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Agreement shall be filed in the District Court of Boulder County of the State of Colorado, and in no other court. Consultant hereby waives its right to challenge the personal jurisdiction of the District Court of Boulder County of the State of Colorado over it.

**17.0 COMPLIANCE WITH LAWS**

17.1 Consultant shall be solely responsible for compliance with all applicable federal, state, and local laws, including the ordinances, resolutions, rules, and regulations of the City; for payment of all applicable taxes; and obtaining and keeping in force all applicable permits and approvals.

17.2 Consultant acknowledges that the City of Louisville Code of Ethics provides that independent contractors who perform official actions on behalf of the City which involve the use of discretionary authority shall not receive any gifts seeking to influence their official actions on behalf of the City, and that City officers and employees similarly shall not receive such gifts. Consultant agrees to abide by the gift restrictions of the City's Code of Ethics.

**18.0 INTEGRATION AND AMENDMENT**

This Agreement represents the entire Agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties.

**19.0 NOTICES**

All notices required or permitted under this Agreement shall be in writing and shall be given by hand delivery, by United States first class mail, postage prepaid, registered or certified, return receipt requested, by national overnight carrier, or by facsimile transmission, addressed to the party for whom it is intended at the following address:

If to the City:

City of Louisville
Attn: City Manager
749 Main Street
Louisville, Colorado 80027
Telephone: (303) 335-4533
Email: dlangley@louisvilleco.gov

If to the Consultant:

_____
_____
_____
Email:

Any such notice or other communication shall be effective when received as indicated on the delivery receipt, if by hand delivery or overnight carrier; on the United States mail return receipt, if by United States mail; or on facsimile transmission receipt. Either party may by similar notice given, change the address to which future notices or other communications shall be sent.

**20.0 EQUAL OPPORTUNITY EMPLOYER**

20.1 Consultant will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, disability or national origin. Consultant will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, age, sex, disability, national origin, sexual orientation, gender identify or expression, marital status or any other protected basis. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

20.2 Consultant shall be in compliance with the applicable provisions of the American with Disabilities Act of 1990 as enacted and from time to time amended and any other applicable federal, state, or local laws and regulations. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of this Agreement or any renewal thereof.

**21.0 NO THIRD PARTY BENEFICIARIES**

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to City and Consultant, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than City or Consultant receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

**22.0 SUBCONTRACTORS**

Consultant may utilize subcontractors identified in its qualifications submittal to assist with non-specialized works as necessary to complete projects. Consultant will submit any proposed subcontractor and the description of its services to the City for approval. The City will not work directly with subcontractors.

**23.0 AUTHORITY TO BIND**

Each of the persons signing below on behalf of any party hereby represents and warrants that such person is signing with full and complete authority to bind the party on whose behalf of whom such person is signing, to each and every term of this Agreement.

In witness whereof, the parties have executed this Agreement to be effective on the date first above written.

CITY OF LOUISVILLE, a
Colorado Municipal Corporation

By:_____

Attest:_____

CONSULTANT:
_____

By:_____
Name: _____
Title: _____

**Exhibit A – Scope of Services and Fees**

# Required Forms

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/03/2025

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

**PRODUCER**
Marsh Risk & Insurance Services
CA License #0437153
633 W. Fifth Street, Suite 1200
Los Angeles, CA 90071
Attn: LosAngeles.CertRequest@Marsh.Com

CN101348564-STND-GAUE-25-26 09 2025

**CONTACT NAME:** Marsh | U.S. Operations
**PHONE (A/C, No, Ext):** 866-966-4664 **FAX (A/C, No):** 212-948-0533
**E-MAIL ADDRESS:** LosAngeles.CertRequest@marsh.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : ACE American Insurance Company | 22667 |
| INSURER B : N/A | N/A |
| INSURER C : N/A | N/A |
| INSURER D : | |
| INSURER E : | |
| INSURER F : | |

**INSURED**
AECOM
AECOM Technical Services, Inc.
7595 East Technology Way
Suite 200
Denver, CO 80237

**COVERAGES** **CERTIFICATE NUMBER:** LOS-002824560-01 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X **COMMERCIAL GENERAL LIABILITY**<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>X POLICY PRO-JECT LOC<br>OTHER: | | | HDO G48971714 | 04/01/2025 | 04/01/2026 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG | $ 1,000,000<br>$ 1,000,000<br>$ 5,000<br>$ 1,000,000<br>$ 2,000,000<br>$ 2,000,000 |
| A | **AUTOMOBILE LIABILITY**<br>X ANY AUTO<br>OWNED AUTOS ONLY<br>SCHEDULED AUTOS<br>HIRED AUTOS ONLY<br>NON-OWNED AUTOS ONLY | | | ISA H11370494 | 04/01/2025 | 04/01/2026 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident) | $ 1,000,000<br>$<br>$<br>$ |
| | **UMBRELLA LIAB** OCCUR<br>**EXCESS LIAB** CLAIMS-MADE<br>DED RETENTION $ | | | | | | EACH OCCURRENCE<br>AGGREGATE | $<br>$ |
| A<br>A | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY**<br>ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N<br>**(Mandatory in NH)**<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | WLR C72792300 (AOS)<br>SCF C72792312 (WI Retro) | 04/01/2025<br>04/01/2025 | 04/01/2026<br>04/01/2026 | X PER STATUTE OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$ 2,000,000<br>$ 2,000,000<br>$ 2,000,000 |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

RE; Project is to decarbonize up to 10 municipal facilities through HVAC equipment replacements, new windows, new lighting. Scope of work includes electrical load study, engineering design, construction administration. For RFP/RFQ Purposes.

City of Louisville is named as additional insured for GL & AL coverages, but only as respects work performed by or on behalf of the named insured and where required by written contract.

**CERTIFICATE HOLDER**

City of Louisville, Colorado
Attn: Civil Engineer III
749 Main Street
Louisville, CO 80027

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

*Marsh Risk & Insurance Services*

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## ANTI-COLLUSION AFFIDAVIT

**PROJECT:**
**OWNER: CITY OF LOUISVILLE, COLORADO**

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a BIDDER or potential prime BIDDER.

2A. Neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a BIDDER or potential prime BIDDER on this project, and will not be so disclosed prior to bid opening.

2B. Neither the prices nor the amount of the Bid of any other firm or person who is a BIDDER or potential prime BIDDER on this project have been disclosed to me or my firm.

3A. No attempt has been made to solicit, cause or induce any firm or person who is BIDDER or potential prime BIDDER to refrain from bidding on this project, or to submit a Bid higher than the Bid of this firm, or any intentionally high or noncompetitive Bid or other form of complementary Bid.

3B. No agreement has been promised or solicited for any other firm or person who is a BIDDER or potential prime BIDDER on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.

4. The Bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.

8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the OWNER of the true facts relating to submission of bids for this contract.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS THAT THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

| CONTRACTOR'S FIRM OR COMPANY NAME | SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE) |
|---|---|
| AECOM TECHNICAL SERVICES, INC. | |
| BY: RYAN E. MEADOR | BY: |
| TITLE: ASSOCIATE VICE PRESIDENT | TITLE: N/A |
| DATE: 09 SEP 2025 | DATE: |

SWORN BEFORE ME THIS 9th DAY OF, September, 2025

NOTARY PUBLIC: Kim Herr MY COMMISSION EXPIRES: 10/21/25

Kim Herr
**NOTARY PUBLIC**
**STATE OF COLORADO**
NOTARY ID 20214041525
MY COMMISSION EXPIRES October 21, 2025

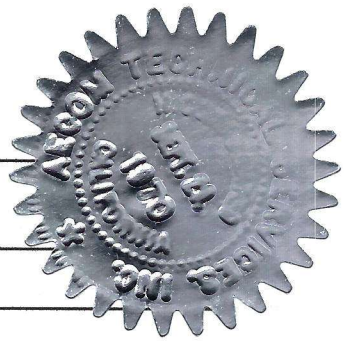
**A Corporation**

By AECOM Technical Services, Inc. (California Corporation)
(Corporation Name, State of Incorporation)

By Ryan Meador
(Name of person authorized to sign)

Authorized Signatory
(Title)

(CORPORATE SEAL)



Attest _____
(Assistant Secretary)

Business address: 300 S. Grand Ave., 9th Floor, Los Angeles, CA 90071

Phone No.: 1-626-710-2951

Date of Qualification to do business: 4/14/2003

**A Joint Venture**

By _____
(Name)

_____
(Address)

By _____
(Name)

_____
(Address)

Phone Number and Address for receipt of official communications:

(Each joint venture partner must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

AECOM Technical Services, Inc. 213.593.8100 tel
300 South Grand Avenue 213.593.8730 fax
9th Floor
Los Angeles, CA 90071
www.aecom.com

# SECRETARY'S CERTIFICATE

## AECOM TECHNICAL SERVICES, INC.
## a California corporation

I, Armond Tatevossian, DO HEREBY CERTIFY that I am a duly elected and acting Secretary of AECOM Technical Services, Inc., a corporation organized under the laws of the State of California ("ATS" or "Corporation"), and the keeper of its records and corporate seal.

I FURTHER CERTIFY that the Corporation's principal place of business is 300 South Grand Avenue, 9th Floor, Los Angeles, California 90071.

I FURTHER CERTIFY that pursuant to the Written Consent of the Board of Directors of ATS, adopted on June 23, 2025, and attached hereto as Exhibit A, Ryan Meador has signatory authority for ATS and is authorized to execute contracts and other documents on behalf of the Corporation.

IN WITNESS WHEREOF, I have subscribed my name and affixed the seal of the Corporation, this 10th day of September 2025.

Armond Tatevossian
Secretary



# UNANIMOUS ACTION OF THE BOARD OF DIRECTORS
# OF
# AECOM TECHNICAL SERVICES, INC.

The undersigned, being all the members of the Board of Directors of AECOM TECHNICAL SERVICES, INC. (the "Corporation"), a California corporation, hereby take the following action:

**RESOLVED:** That, “the following U.S. based persons are designated with authority by the Board of Directors to execute contracts and other legal documents on behalf of the Corporation within the boundaries of specific Regions and Business Lines as noted and effective as of the dates set forth below:”

Effective June 23, 2025:

| Last Name | First Name | Region | Business Line |
|---|---|---|---|
| Meador | Ryan | West | Buildings & Places |

**IN TESTIMONY WHEREOF**, all the Directors have hereunto set their hands this 23rd day of June, 2025.

Allison Hall

Matthew Crane

Karl Jensen

Armond Tatevossian

# SECRETARY'S CERTIFICATE

**AECOM TECHNICAL SERVICES, INC.**
**a California corporation**

I, Armond Tatevossian, DO HEREBY CERTIFY that I am the duly elected and acting Secretary of AECOM Technical Services, Inc., a corporation organized under the laws of the State of California (the "ATS"), and the keeper of its records and corporate seal.

I FURTHER CERTIFY that ATS's full legal address is c/o CT Corporation System, 818 West 7th Street, Los Angeles, CA 90017-0000 and that the principal place of business is 300 South Grand Avenue, 9th Floor, Los Angeles, California 90071.

I FURTHER CERTIFY that the person named below presently holds the office in the Corporation set forth opposite such person's name, and that the person has the authority to execute documents on behalf of the company.

| NAME | OFFICE | APPOINTMENT DATE |
|---|---|---|
| Bryan Rash | Assistant Secretary | 02/13/2023 |

IN WITNESS WHEREOF, I have subscribed my name and affixed the seal of the Corporation, this 10th day of September, 2025

Armond Tatevossian
Secretary



## EXHIBIT B – FEE BREAKDOWN

AECOM
7595 Technology Way, Suite 290
Denver, CO 80237
tel. 303.694.2770

December 5, 2025

Taylor McCauley
Civil Engineer III
City of Louisville
749 Main Street
Louisville, CO 80027

**Subject: Louisville Decarbonization Project | Fee Revision 2**

Dear Ms. McCauley,

On behalf of AECOM, I'm pleased to present our revised price proposal. Our team is deeply committed to advancing decarbonization, and we greatly appreciate your leadership in driving this important initiative.

Below, we have outlined the adjustments made to our original fee proposal on Phase 1 since our submission on September 12, 2025.

**Original Proposal – September 12, 2025**
Org. Proposal Total Hours: 3,722
Org. Proposal Total Fee: $676,403

**Revision 1 – November 20, 2025**

The first pricing adjustment removed costs for the buildings that are going to be completed under the existing Generator project outside of this contract (Howard Berry WTP, Police and Municipal Building, Recreation and Senior Center). The buildings were noted for the Phase 2 scope; however, AECOM's original proposal included hours for mechanical and electrical site investigations, drawings, deficiencies, and evaluations of those facilities. Based on the meeting with Louisville on November 18, 2025, we reduced the hours to only reflect coordination efforts between AECOM and the other firm doing the work on the Generator project.

We also identified duplicative efforts within our hour's breakdown. Task 1 and Task 2 both had reviews of existing drawings/equipment. The original proposal followed the bullets within the RFP aligning our hours with the tasks. Lastly, we broke down the hours into building-by-building efforts to illustrate the hours associated with each building under this contract.

Revision 1 Total Hours: 3,072
Revision 1 Total Fee: $573,614

**Revision 2 – December 5, 2025**

Electrical Load Evaluation Facilities – 7 Sites

- Art Center
- Austin-Neihoff House (White House)
- City Hall – [Not included in PH2]
- City Services Facility
- Public Library
- Sid Copeland Water Treatment Plant
- Wastewater Treatment Plant

Within our current revision, we removed mechanical site visits. To maximize efficiency, we will now utilize our Electrical team to capture mechanical items during their site visit. To coordinate this effort, the Mechanical team will note areas of interest/concern for the Electrical team to photo and document as appropriate. The Roadmap provides details related to the mechanical equipment which we can use as our basis. We have further reduced mechanical hours to support efforts in electrical evaluations. Much of the mechanical scope which was

originally included in Phase 1 can be accomplished in Phase 2 while still providing the information necessary to complete Phase 1.

Phase 2 Sites for Mechanical work – Site visits removed from Phase 1 and will be completed under Phase 2.

- Austin-Neihoff House
- Public Library
- Sid Copeland WTP

We also removed all related BIM hours for drafting efforts in Phase 1 associated with setting up drawings for use amongst the team. The drawings needed for Phase 1 are associated with electrical one-lines, which our electrical team will create, and documentation of existing information which does not necessarily require BIM efforts in Phase 1. Our BIM/Drafting teams can be engaged during Phase 2 for the creation of permitting documents.

Revision 2 Total Hours: 1,852
Revision 2 Total Fee: $374,335

**Fee Revision 2 Summary**

| Task | Cost |
|---|---|
| **Task 0: Project Management** | $31,220 |
| **Task 1: Power Needs Assessment** | |
| 1.1: Existing Conditions Review & Site Visits | $138,592 |
| 1.2: Data Evaluation & Power Projection | $145,943 |
| 1.3: Prepare Drawings | $56,660 |
| ODCs | $1,920 |
| **Total** | **$374,335** |

We appreciate your review and welcome any questions or feedback you may have. I'm excited about the opportunity to work together and greatly appreciate your time as we align our scope and efforts on this groundbreaking project.

Yours Sincerely,

**Jason Sielcken, AIA, LEED AP BD+C**
AECOM
Vice President & Managing Principal
Buildings + Places Rocky Mountain Practice
720.250.6961 | jason.sielcken@aecom.com

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase 1 PM | **PROJECT MANAGEMENT** | 11/1/2025 | 2/28/2026 | 119 | 42 | 23 | 18 | 23 | 18 | | 0 | 38 | $ - | Total Task Hours/Cost | 162 | |
| | 1a Setup/Billing | | | | 2 | 0 | 0 | 0 | 0 | | | 2 | | | | |
| | 1b Internal Kick-off | | | | 2 | 2 | 2 | 2 | 2 | | | 0 | | | | |
| | 1c External Kick-off | | | | 2 | 5 | 0 | 5 | 0 | | | 0 | | | | |
| | 1d Project Controls/Invoicing | | | | 4 | 0 | 0 | 0 | 0 | | | 2 | | | | |
| | 1e Weekly Meetings | | | | 16 | 16 | 16 | 16 | 16 | | | 0 | | | | |
| | 1f Project Management | | | | 16 | 0 | 0 | 0 | 0 | | | 34 | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase 1, Task 1 | **Existing Backup System Assessment** | 11/1/2025 | 2/28/2026 | 119 | 0 | 0 | 16 | 326 | 382 | 0 | 0 | 0 | $ - | Total Task Hours | 724 | |
| | 2a Review Record Drawings | | | | | | | | | | | 0 | | | | |
| | Arts Center | | | | | | 1 | 1 | 1 | | | | | | | |
| | Austin-Neihoff House | | | | | | 1 | 1 | 1 | | | | | | | |
| | City Hall | | | | | | 4 | 4 | 4 | | | | | | | |
| | City Services Building | | | | | | 4 | 4 | 4 | | | | | | | |
| | Public Library | | | | | | 4 | 4 | 4 | | | | | | | |
| | Sid Copeland WTP | | | | | | 1 | 4 | 4 | | | | | | | |
| | Wastewater Treatment Plant | | | | | | 1 | 4 | 4 | | | | | | | |
| | 2b Site Visits | | | | | | | | | | | 0 | | | | |
| | Arts Center | | | | | | | 8 | | | | | | | | |
| | Austin-Neihoff House | | | | | | | 8 | | | | | | | | |
| | City Hall | | | | | | | 8 | | | | | | | | |
| | City Services Building | | | | | | | 8 | | | | | | | | |
| | Public Library | | | | | | | 8 | 8 | | | | | | | |
| | Sid Copeland WTP | | | | | | | 8 | | | | | | | | |
| | Wastewater Treatment Plant | | | | | | | 8 | | | | | | | | |
| | 2c Document Existing MEP / Background Development | | | | | | | | | | | 0 | | | | |
| | Arts Center | | | | | | | 12 | 24 | | | | | | | |
| | Austin-Neihoff House | | | | | | | 12 | 24 | | | | | | | |
| | City Hall | | | | | | | 24 | 48 | | | | | | | |
| | City Services Building | | | | | | | 24 | 48 | | | | | | | |
| | Public Library | | | | | | | 24 | 48 | | | | | | | |
| | Sid Copeland WTP | | | | | | | 24 | 48 | | | | | | | |
| | Wastewater Treatment Plant | | | | | | | 24 | 48 | | | | | | | |
| | Police and Municipal Bldg | | | | | | | 8 | 8 | | | | | | | |
| | Rec and Senior Center | | | | | | | 8 | 8 | | | | | | | |
| | Howard Berry WTP | | | | | | | 8 | 8 | | | | | | | |
| | 2d Document Deficiencies | | | | | | | | | | | 0 | | | | |
| | Arts Center | | | | | | | 8 | 4 | | | | | | | |
| | Austin-Neihoff House | | | | | | | 8 | 4 | | | | | | | |
| | City Hall | | | | | | | 8 | 4 | | | | | | | |
| | City Services Building | | | | | | | 8 | 4 | | | | | | | |
| | Public Library | | | | | | | 8 | 4 | | | | | | | |
| | Sid Copeland WTP | | | | | | | 8 | 4 | | | | | | | |
| | Wastewater Treatment Plant | | | | | | | 8 | 4 | | | | | | | |
| | Police and Municipal Bldg | | | | | | | 8 | 4 | | | | | | | |
| | Rec and Senior Center | | | | | | | 8 | 4 | | | | | | | |
| | Howard Berry WTP | | | | | | | 8 | 4 | | | | | | | |
| | | | | | | | | | | | | 0 | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase 1, Task 2 | **Power Needs Assessment** | 11/1/2025 | 2/28/2026 | 119 | 0 | 51 | 0 | 191 | 175 | | 224 | 0 | $ - | Total Task Hours | 641 | |
| | 3a Interview City Staff | | | | | | | 5 | 5 | | | 0 | | | | |
| | 3b Determine Future Power Needs/Demand | | | | | | | | | | | | | | | |
| | Arts Center | | | | | | | 12 | 4 | | | | | | | |
| | Austin-Neihoff House | | | | | 8 | | 12 | 4 | | | | | | | |
| | City Hall | | | | | | | 12 | 4 | | | | | | | |
| | City Services Building | | | | | | | 12 | 4 | | | | | | | |
| | Public Library | | | | | 8 | | 12 | 4 | | | | | | | |
| | Sid Copeland WTP | | | | | 8 | | 12 | 4 | | | | | | | |
| | Wastewater Treatment Plant | | | | | | | 12 | 4 | | | | | | | |
| | Police and Municipal Bldg | | | | | 8 | | 8 | 2 | | | | | | | |
| | Rec and Senior Center | | | | | 8 | | 8 | 2 | | | | | | | |
| | Howard Berry WTP | | | | | | | 8 | 2 | | | | | | | |
| | 3c One-Line Modifications | | | | | | | | | | | | | | | |
| | Arts Center | | | | | | | 8 | 16 | | | | | | | |
| | Austin-Neihoff House | | | | | 1 | | 8 | 16 | | | | | | | |
| | City Hall | | | | | | | 8 | 16 | | | | | | | |
| | City Services Building | | | | | | | 8 | 16 | | | | | | | |
| | Public Library | | | | | 1 | | 8 | 16 | | | | | | | |
| | Sid Copeland WTP | | | | | 1 | | 8 | 16 | | | | | | | |
| | Wastewater Treatment Plant | | | | | | | 8 | 16 | | | | | | | |
| | Police and Municipal Bldg | | | | | 1 | | 4 | 8 | | | | | | | |
| | Rec and Senior Center | | | | | 1 | | 4 | 8 | | | | | | | |
| | Howard Berry WTP | | | | | | | 4 | 8 | | | | | | | |
| | 3d Costing | | | | | | | | | | | | | | | |
| | Arts Center | | | | | 1 | | 1 | | | 20 | | | | | |
| | Austin-Neihoff House | | | | | 1 | | 1 | | | 20 | | | | | |
| | City Hall | | | | | | | 1 | | | 40 | | | | | |
| | City Services Building | | | | | | | 1 | | | 40 | | | | | |
| | Public Library | | | | | 1 | | 1 | | | 40 | | | | | |
| | Sid Copeland WTP | | | | | 1 | | 1 | | | 20 | | | | | |
| | Wastewater Treatment Plant | | | | | | | 1 | | | 20 | | | | | |
| | Police and Municipal Bldg | | | | | 1 | | 1 | | | 8 | | | | | |
| | Rec and Senior Center | | | | | 1 | | 1 | | | 8 | | | | | |
| | Howard Berry WTP | | | | | | | 1 | | | 8 | | | | | |
| | | | | | | | | | | | | 0 | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase 1 Deliverables | **Deliverables** | | | | 0 | 14 | 48 | 73 | 190 | | | 0 | $ - | Total Task Hours | 325 | |
| | 4a Meeting Minutes | | | | 0 | 4 | 8 | 10 | 36 | | | 0 | | | | |
| | 4b Draft Report | | | | | 4 | 16 | 28 | 56 | | | | | | | |
| | 4c Final Report | | | | | 4 | 16 | 28 | 84 | | | | | | | |
| | 4d Comment Response Log | | | | | 2 | 8 | 7 | 14 | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | **Individual Total Hours** | **42** | **88** | **82** | **613** | **765** | **0** | **224** | **38** | | **Total Hours** | **1852** | |

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 5.D.**

**Subject:** Resolution No. 37, Series 2026 - A Resolution Approving a Revised Fourth Amended and Restated Cooperation Agreement with the Louisville Revitalization Commission

**Date:** April 21, 2026

**Prepared By:** Kathleen Kelly, City Attorney

**Presented By:** Kathleen Kelly, City Attorney

**Summary:**
The City and the Louisville Revitilization Commission (LRC) have had a longstanding cooperation agreement addressing the functions of the LRC and providing for support and oversight by the City. In March 2025, the City Council and LRC held a joint meeting to discuss amending the current Cooperation Agreement to streamline the LRC's ability to conduct its business, particularly with contracts and adoption of its annual budget. The City Council and LRC held another joint meeting in February 2026 to further discuss amendments to the Cooperation Agreement, resulting in the amendments reflected in the revised Fourth Amended and Restated Cooperation Agreement attached hereto.

**Background / Prior Discussions:**
The City and the LRC have had a longstanding cooperation agreement addressing the functions of the LRC and providing for support and oversight by the City. Amendments to the cooperation agreement were discussed by the City Council and LRC on March 11, 2025, which were intended to streamline the LRC's ability to conduct its business, particularly with contracts and adoption of its annual budget.

A Fourth Amended and Restated Cooperation Agreement (Amended Agreement) was presented to LRC on April 9, 2025, for review and direction. The Amended Agreement then went to City Council on July 8, 2025, and was approved. However, after the meeting, and before it was adopted by LRC, there were concerns expressed by some Council members that the Amended Agreement did not align with Council direction provided at the March 11, 2025 joint meeting. The City Attorney then prepared a revised Amended Agreement that was presented to LRC on September 10, 2025. The LRC did not accept the revised Amended Agreement.

The City Council and LRC met again on February 25, 2026 to discuss revisions to the Cooperation Agreement. The proposed Fourth Amended and Restated Cooperation Agreement recommended for approval has been reviewed by staff from the City and LRC, and reflects the discussion at the February 2026 joint meeting.

**Development Proposal:**
N/A

**Analysis:**
The existing cooperation agreement represents a greater level of oversight by the City Council of LRC matters than is set forth in state statutes. The proposed LRC amendments are intended to more closely follow the structure and functionality of an urban renewal authority under state law.

**Council Work Plan:**
This agreement is not identified in the 2026 Council Work Plan, but the LRC plays a key role in many City programs and projects.

**Fiscal Impact:**
N/A

**Alternatives:**
1. Do not amend the Cooperation Agreement.
2. Provide direction to staff regarding proposed terms for an Amended Cooperation Agreement.

**Recommendation:**
Approve a Revised Fourth Amended and Restated Cooperation Agreement with the Louisville Revitalization Commission.

**Attachments:**
1. Resolution No. 37, Series 2026
2. Fourth Amended and Restated Cooperation Agr (updated redline)
3. Fourth Amended and Restated Cooperation Agr (revised clean)

**RESOLUTION NO. 37**
**SERIES 2026**

**A RESOLUTION APPROVING A REVISED FOURTH AMENDED AND RESTATED COOPERATION AGREEMENT WITH THE LOUISVILLE REVITALIZATION COMMISSION**

**WHEREAS,** by Resolution No. 42, Series 2025, adopted on July 8, 2025, the City Council approved a Fourth Amended and Restated Cooperation Agreement between the City and the Louisville Revitalization Commission ("LRC"); and

**WHEREAS,** the City and LRC have further negotiated the terms of the Fourth Amended and Restated Cooperation Agreement, as reflected in the version of such Agreement that accompanies this resolution; and

**WHEREAS,** the City Council desires by this resolution to approve the revised Fourth Amended and Restated Cooperation Agreement and repeal its approval of the prior version.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** The City Council hereby approves the revised Fourth Amended and Restated Cooperation Agreement between the City and the Louisville Revitalization Commission (the "Agreement") in substantially the same form as the copy of such Agreement accompanying this Resolution.

**Section 2.** The Mayor and City Clerk are hereby authorized to execute the Agreement on behalf of the City, and the Mayor is hereby further authorized to negotiate and approve such revisions to the Agreement as the Mayor determines are necessary or desirable for the protection of the City, so long as the essential terms and conditions of the Agreement are not altered.

**Section 3.** Resolution No. 42, Series 2025, is hereby repealed.

PASSED AND ADOPTED this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

**FOURTH AMENDED AND RESTATED COOPERATION AGREEMENT**

This Fourth Amended and Restated Cooperation Agreement (the Fourth Amended and Restated Cooperation Agreement) is made as of _____, ~~2023~~ 20265, by and between the CITY OF LOUISVILLE, COLORADO (the City) and the LOUISVILLE REVITALIZATION COMMISSION (the LRC). The City and the LRC are sometimes referred to herein individually as a Party and collectively as the Parties.

RECITALS

A. The City is a home-rule city and municipal corporation duly organized and existing under and pursuant to Article XX of the Colorado Constitution and Charter of the City (the Charter).

B. The LRC is a public body corporate and politic authorized to transact business and exercise its powers as an urban renewal authority under and pursuant to the Colorado Urban Renewal Law, Part 1 of Article 25 of Title 31, C.R.S. (the ~~Act~~ Urban Renewal Law).

C. The City and the LRC entered into that Cooperation Agreement dated December 5, 2006 (the "Original Cooperation Agreement").

D. The City and the LRC thereafter entered into that Amended and Restated Cooperation Agreement dated April 5, 2011 (the "First Amended and Restated Cooperation Agreement").

E. The City and the LRC subsequently entered into another Amended and Restated Cooperation Agreement dated November 17, 2015 (the "Second Amended and Restated Cooperation Agreement").

F. The City and the LRC subsequently entered into that Amended and Restated Cooperation Agreement dated May 16, 2023 (the "Third Amended and Restated Cooperation Agreement").

G. The City and the LRC now desire to enter into this Fourth Amended and Restated Cooperation Agreement (the "Fourth Amended and Restated Cooperation Agreement") to memorialize all updated aspects of the relationship between the City and the LRC.

~~C~~H. The Act and Section 18, Article XIV of the Colorado Constitution authorize the Parties to enter into cooperation agreements, and the Parties desire to enter into this Fourth Amended and Restated Cooperation Agreement respecting operating funds, support services, and general oversight of the LRC to be provided by the City to the LRC and related matters.

AGREEMENT

**Commented [CH1]:** Added previous Agreements for clarity as to effect of this Agreement, and in conjunction with Section 20, clarifies this is the only Cooperation Agreement between the City and the LRC moving forward.

NOW THEREFORE, in consideration of the foregoing and the following terms and conditions, the Parties agree as follows:

1. Advance of Operating Funds by the City. The City may annually advance to the LRC an amount of operating funds (Operating Funds) to be determined by appropriation by the City Council of the City. Operating Funds shall be used by the LRC for operating, administrative, consulting and other costs incurred by the LRC in accordance with the Act, including, without limitation, the costs and expenses of Support Services described in Section 2, below. Operating Funds shall be paid directly to the LRC to be used in accordance with the Act, this Fourth Amended and Restated Cooperation Agreement and the City-approved ~~City-approved~~ LRC budget.

2. Support Services. The City agrees to provide administrative and legal support services (Support Services) to the LRC in connection with its operations. The City Manager shall serve as Director of the LRC as provided in the Act and shall have discretion to employ those City staff members as may be required to carry out the duties and operations of the LRC. Support Services may include, without limitation, planning, financing and accounting, engineering, legal, and administrative and outside consulting services.

3. LRC Budget. By December 31 of each year, the LRC shall adopt a budget in accordance with the Local Government Budget Law of Colorado, C.R.S. § 29-1-101, *et seq.* (the LRC Budget) for the ensuing fiscal year (which shall be the calendar year), which LRC Budget shall be submitted to the City by no later than November 1 of each calendar year for review and approval ~~and approval~~ prior to LRC adoption. ~~, and no later than November 1 of each calendar year. The City shall provide any comments to the LRC by December 1 of each year to allow the LRC to timely adopt the LRC Budget in accordance with the Local Government Budget Law of Colorado, C.R.S. §§ 29-1-101, *et seq.*~~ The LRC Budget shall contain a statement of sources and uses of all funds that are available or that the LRC reasonably expects to become available to LRC to finance its activities, undertakings, and obligations for each budget year. It is the intention of the Parties that the LRC shall use its reasonable best efforts to use other sources of revenue available under the Act as the primary source of its Operating Funds and payment for Support Services as such revenue becomes available to the LRC. Such revenue shall include, without limitation, tax allocation or tax increment revenues that may become available pursuant to any urban renewal plan approved by the City Council of the City.

**Commented [CH2]:** Proposed language attempts to navigate the City's desire to have oversight over the LRC budget, while remaining consistent with the Local Government Budget Law, and provides specific timing to assure the budget gets timely adopted by the LRC

**Commented [KK3R2]:** City Council will still approve annual budget per direction at the Feb 25, 2026 joint meeting.

4. Reimbursement for Operating Funds and Support Services. The Parties shall establish a procedure for documenting the reasonable costs and expenses (the Costs and Expenses) related to the Operating Funds and Support Services provided by the City. The Costs and Expenses shall constitute an indebtedness of the LRC to be repaid to the City from sources of revenue available under the Act as such revenue becomes available to the LRC. Such revenue shall include, without limitation, tax allocation or tax increment revenues that may become available pursuant to an urban renewal plan approved by the City Council of the City.

~~a. It is agreed that the Costs and Expenses incurred by the City up to and including expenses on December 31, 2014 total $9.894.00 . At the election of the City, such amount may be evidenced by a note approved by the Parties and executed by LRC.~~

ab. Upon request of the LRC, the City agrees to give reasonable consideration to subordinating its right to repayment of Costs and Expenses to any bonds, loans, advances, indebtedness, or other obligation of the LRC.

cb. Notwithstanding the foregoing, the Parties agree that all Costs and Expenses related to the 550 S. McCaslin Urban Renewal Plan shall be paid by the City.

Commented [KK4]: No longer relevant, this Urban Renewal Plan was completed in 2015.

5. Approval of Certain Contracts; Bonds and Other Obligations of the LRC. The Parties agree that the City Council of the City shall provide direction to LRC and oversight of LRC activities as follows:

a. Any proposed expenditure by the LRC which has not been previously approved as part of the LRC budget shall be subject to the prior review and approval of the City Council.

ab. Except as provided in Section 6 hereunder, Pprior to issuing bonds or any other capital financial obligations or financial obligations extending beyond the end of the current fiscal year of the LRC, the LRC shall notify the City Council in writing of its intention to do so, and shall promptly furnish to the City Council such information and documents relating to such bonds or other capital or long-term financial obligations as the City Council may request. Such bonds shall be subject to the prior review and approval of the City Council The LRC shall not commit to or proceed with any such bonds or other capital or long-term financial obligations unless a majority of the City Council has adopted a resolution determining that the City's interests in connection with such bonds or other obligations are adequately protected.

bc. Allocation of any municipal sales tax increment shall occur only upon City Council approval. For any such requested approval, the LRC shall submit a financing plan outlining the proposed amounts and purpose for which the municipal sales tax increments are proposed to be used. City Council may approve or deny such request in its discretion.

d. Except as provided in subsection (e), the LRC shall provide to the City Council for review and approval any redevelopment agreement or other contract contemplated to carry to out the purposes of any urban renewal plan or to apply to property in any urban renewal area, prior to the LRC's final approval thereof. Any such approval shall be by City Council resolution.

e. The LRC shall submit to the City for review and approval any LRC Program. For purposes of this subsection, "LRC Program" means a comprehensive initiative, in furtherance of the purposes of the Act and the Highway 42 Revitalization Area Urban Renewal Plan, aimed at addressing one or more characteristics of blight within the Highway 42 Revitalization Area on a large scale (e.g., downtown business façade improvement), which is not specific to any particular piece of property or development, and is offered to multiple properties of a certain type or types within the Highway 42 Revitalization Area. The LRC's request for approval of an LRC Program shall be accompanied with: (i) a detailed description of the LRC

~~Program objectives and application process; (ii) a proposed LRC Program budget; (iii) a statement of the LRC Program's potential impacts on City staff departments, other City boards and commissions, and the City Council; (iv) a proposed application form; and (v) a proposed standard contract for execution between the LRC and LRC program awardees. Following Council approval of the LRC Program, the LRC shall not be required to seek further Council approval to: (1) utilize City staff, boards and commissions, and City Council time as necessary to carry out the objectives of the LRC Program; (2) approve LRC Program applications and enter into contracts with program awardees in substantially the same form as the standard contract; or (3) provide funds to program awardees, subject to the LRC Program budget. Each LRC Program budget shall be submitted annually for City Council approval.~~

~~f~~c. The LRC shall comply with applicable City codes, rules, and regulations related to any other urban renewal activities of the LRC. The City Council shall be informed of the activities, functions, operations, and financial condition of the LRC in the form of reports to the City Council not less than quarterly, and at any other time as requested by the City Council.

~~d~~g. The City agrees that it will make reasonable efforts to act within thirty days of a request for review of any document, agreement, obligation, or action required by this Fourth Amended and Restated Cooperation Agreement. Unless otherwise required by law or provided herein, any approval or other action of the City Council shall be by motion or resolution.

6. Independent Authority of the LRC. Consistent with the Urban Renewal Law, the LRC shall have the authority, without prior approval of the City Council, to enter into redevelopment agreements that implement the urban renewal plans of the City by allocating available property tax increment received by the LRC in the special fund of the LRC in accordance with C.R.S. § 31-25-107(9) to those undertakings and activities that are consistent with the urban renewal plans of the City. The Parties acknowledge and agree that such undertakings and activities are "other obligations" of the LRC within the meaning of C.R.S. § 31-25-103(3), but nothing in this Section 6 shall authorize the LRC to issue general or special obligation bonds (including refunding bonds) and temporary bonds pursuant to C.R.S. § 31-25-109 without City Council approval.

7. Other Powers of the LRC. The Parties acknowledge and agree that as an urban renewal authority created under the Urban Renewal Law, the LRC has the enumerated powers set forth in C.R.S. § 31-25-105. The City specifically directs through this Fourth Amended and Restated Cooperation Agreement that the LRC is empowered to advise the City Council on matters related to the Urban Renewal Law, specifically including advising the City Council regarding potential new urban renewal plan areas pursuant to C.R.S. § 31-25-105(1)(i).

**Commented [CH5]:** Amendments to Section 5 attempt to capture discussion from March 11 joint study session

**Commented [CH6]:** New Section 6 attempts to capture authority to enter into redevelopment agreements that allocate available or new property tax increment

**Commented [CH7]:** New Section 7 attempts to address the LRC being authorized as subject matter experts to recommend new plan areas to the City Council

8. Continuing Cooperation; Additional Agreements. The Parties shall cooperate to carry out and complete the urban renewal plans approved by the City Council. It is contemplated that additional agreements may be required to plan and carry out urban renewal projects in accordance with the provisions of any such urban renewal plan and the Act. The Parties agree to cooperate and give timely consideration to any additional agreements or amendments to this Fourth Amended and Restated Cooperation Agreement that may be necessary or convenient in connection with such activities and undertakings; provided, however, nothing in this Fourth Amended and Restated Cooperation Agreement shall preclude or require the commitment of additional revenue, financing, or services by either Party in connection with such activities and undertakings.

~~9~~7. Obligations Subject to Act, Charter, and Constitution. The covenants, duties and actions required of the Parties under this Fourth Amended and Restated Cooperation Agreement shall be subject to and performed in accordance with the provisions and procedures required and permitted by the Charter, the Act, any other applicable provision of law, and the Colorado Constitution.

~~8~~10. Enforced Delay. Neither Party shall be considered in breach of, or in default in, its obligations with respect to this Fourth Amended and Restated Cooperation Agreement in the event of delay in the performance of such obligations due to causes beyond its control and without its fault, it being the purpose and intent of this provision that if such delay occurs, the time or times for performance by either Party affected by such delay shall be extended for the period of the delay.

~~9~~11. No Third Party Beneficiaries. Neither the City nor the LRC shall be obligated or liable under the terms of this Fourth Amended and Restated Cooperation Agreement to any person or entity not a party hereto.

~~10~~12. Severability. In case any one or more of the provisions contained in this Fourth Amended and Restated Cooperation Agreement or any application thereof, shall be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this Fourth Amended and Restated Cooperation Agreement, or any other application thereof, shall not in any way be affected or impaired thereby.

~~11~~13. Binding Effect. Subject to compliance with Section ~~13~~ 15, below, this Fourth Amended and Restated Cooperation Agreement shall be binding upon and inure to the benefit of the Parties, their successors, legal representatives, and assigns.

~~12~~14. City and LRC Separate. Nothing in this Fourth Amended and Restated Cooperation Agreement shall be interpreted in any manner as constituting the City or its officials, representatives, consultants, or employees as the agents of the LRC, or the LRC or its officials, representatives, consultants, or employees as the agents of the City. Each entity shall remain a separate legal entity pursuant to applicable law. Neither of the Parties hereto shall be deemed to hereby assume the debts, obligations, or liabilities of the other. The LRC shall be responsible for carrying out its duties and functions in accordance with the Act and other applicable laws and

regulations, and nothing herein shall be construed to compel either Party to take any action in violation of law.

~~13~~15. Assignment. This Fourth Amended and Restated Cooperation Agreement shall not be assigned in whole or in part by either Party without the prior written approval of the other Party.

~~14~~16. Governing Law. This Fourth Amended and Restated Cooperation Agreement shall be governed by, and construed in accordance with, the laws of the State of Colorado.

~~15~~17. Headings. Section headings in this Fourth Amended and Restated Cooperation Agreement are for convenience of reference only and shall not constitute a part of this Fourth Amended and Restated Cooperation Agreement for any other purpose.

~~16~~18. Additional or Supplemental Agreements; Organizational Matters. The Parties mutually covenant and agree that they will execute, deliver and furnish such other instruments, documents, materials, and information as may be reasonably required to carry out the Fourth Amended and Restated Cooperation Agreement. The LRC's organizational documents shall provide, as permitted by C.R.S. § 31-25-104, that one City Councilmember shall be a member of the LRC. The LRC as an entity will not formally or legally oppose or object to any measure that may be proposed pursuant to C.R.S. § 31-25-115 to transfer the existing authority to the City Council. ~~The LRC as an entity will not formally or legally oppose or object to any measure that may be proposed pursuant to C.R.S. § 31-25-115 to transfer the existing authority to the City Council.~~

**Commented [KK8]:** Language in existing agreement restored.

~~17~~19. Entire Agreement; Amendment. This Fourth Amended and Restated Cooperation Agreement constitutes the entire agreement between the Parties pertaining to the subject matter hereof. No addition to or modification of the Fourth Amended and Restated Cooperation Agreement shall be effective, except by written agreement authorized and executed by the Parties.

~~18~~20. Supersede. This Fourth Amended and Restated Cooperation Agreement supersedes and replaces in its entirety ~~that~~ those prior ~~certain~~ Cooperation Agreements ~~Amended and Restated Cooperation Agreement, made as of November 17, 2015,~~ by and between the City and the LRC~~, as of the date of this Agreement.~~ dated December 5, 2006, April 5, 2011, November 17, 2015, and May 16, 2023.

IN WITNESS WHEREOF, the Parties have caused this Fourth Amended and Restated Cooperation Agreement to be duly executed and delivered by their respective officers as of the date first above written.

CITY OF LOUISVILLE,
a Colorado municipal corporation

Attest:

_____
Christopher M. Leh, Mayor

_____
Genny Kline, City Clerk

LOUISVILLE REVITALIZATION COMMISSION

Attest:

_____
Chair

_____
Secretary

**FOURTH AMENDED AND RESTATED COOPERATION AGREEMENT**

This Fourth Amended and Restated Cooperation Agreement (the Fourth Amended and Restated Cooperation Agreement) is made as of _____, 2026, by and between the CITY OF LOUISVILLE, COLORADO (the City) and the LOUISVILLE REVITALIZATION COMMISSION (the LRC). The City and the LRC are sometimes referred to herein individually as a Party and collectively as the Parties.

RECITALS

A. The City is a home-rule city and municipal corporation duly organized and existing under and pursuant to Article XX of the Colorado Constitution and Charter of the City (the Charter).

B. The LRC is a public body corporate and politic authorized to transact business and exercise its powers as an urban renewal authority under and pursuant to the Colorado Urban Renewal Law, Part 1 of Article 25 of Title 31, C.R.S. (the Urban Renewal Law).

C. The City and the LRC entered into that Cooperation Agreement dated December 5, 2006 (the "Original Cooperation Agreement").

D. The City and the LRC thereafter entered into that Amended and Restated Cooperation Agreement dated April 5, 2011 (the "First Amended and Restated Cooperation Agreement").

E. The City and the LRC subsequently entered into another Amended and Restated Cooperation Agreement dated November 17, 2015 (the "Second Amended and Restated Cooperation Agreement").

F. The City and the LRC subsequently entered into that Amended and Restated Cooperation Agreement dated May 16, 2023 (the "Third Amended and Restated Cooperation Agreement").

G. The City and the LRC now desire to enter into this Fourth Amended and Restated Cooperation Agreement (the "Fourth Amended and Restated Cooperation Agreement") to memorialize all updated aspects of the relationship between the City and the LRC.

H. The Act and Section 18, Article XIV of the Colorado Constitution authorize the Parties to enter into cooperation agreements, and the Parties desire to enter into this Fourth Amended and Restated Cooperation Agreement respecting operating funds, support services, and general oversight of the LRC to be provided by the City to the LRC and related matters.

AGREEMENT

NOW THEREFORE, in consideration of the foregoing and the following terms and conditions, the Parties agree as follows:

1. Advance of Operating Funds by the City. The City may annually advance to the LRC an amount of operating funds (Operating Funds) to be determined by appropriation by the City Council of the City. Operating Funds shall be used by the LRC for operating, administrative, consulting and other costs incurred by the LRC in accordance with the Act, including, without limitation, the costs and expenses of Support Services described in Section 2, below. Operating Funds shall be paid directly to the LRC to be used in accordance with the Act, this Fourth Amended and Restated Cooperation Agreement and the City-approved LRC budget.

2. Support Services. The City agrees to provide administrative and legal support services (Support Services) to the LRC in connection with its operations. The City Manager shall serve as Director of the LRC as provided in the Act and shall have discretion to employ those City staff members as may be required to carry out the duties and operations of the LRC. Support Services may include, without limitation, planning, financing and accounting, engineering, legal, and administrative and outside consulting services.

3. LRC Budget. By December 31 of each year, the LRC shall adopt a budget in accordance with the Local Government Budget Law of Colorado, C.R.S. § 29-1-101, *et seq.* (the LRC Budget) for the ensuing fiscal year (which shall be the calendar year), which LRC Budget shall be submitted to the City by no later than November 1 of each calendar year for review and approval prior to LRC adoption. The LRC Budget shall contain a statement of sources and uses of all funds that are available or that the LRC reasonably expects to become available to LRC to finance its activities, undertakings, and obligations for each budget year. It is the intention of the Parties that the LRC shall use its reasonable best efforts to use other sources of revenue available under the Act as the primary source of its Operating Funds and payment for Support Services as such revenue becomes available to the LRC. Such revenue shall include, without limitation, tax allocation or tax increment revenues that may become available pursuant to any urban renewal plan approved by the City Council of the City.

4. Reimbursement for Operating Funds and Support Services. The Parties shall establish a procedure for documenting the reasonable costs and expenses (the Costs and Expenses) related to the Operating Funds and Support Services provided by the City. The Costs and Expenses shall constitute an indebtedness of the LRC to be repaid to the City from sources of revenue available under the Act as such revenue becomes available to the LRC. Such revenue shall include, without limitation, tax allocation or tax increment revenues that may become available pursuant to an urban renewal plan approved by the City Council of the City.

. Upon request of the LRC, the City agrees to give reasonable consideration to subordinating its right to repayment of Costs and Expenses to any bonds, loans, advances, indebtedness, or other obligation of the LRC.

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5. Approval of Bonds and Other Obligations of the LRC. The Parties agree that the City Council of the City shall provide direction to LRC and oversight of LRC activities as follows:

a. Except as provided in Section 6 hereunder, prior to issuing bonds extending beyond the end of the current fiscal year of the LRC, the LRC shall notify the City Council in writing of its intention to do so, and shall promptly furnish to the City Council such information and documents relating to such bonds as the City Council may request. Such bonds shall be subject to the prior review and approval of the City Council

b. Allocation of any municipal sales tax increment shall occur only upon City Council approval. For any such requested approval, the LRC shall submit a financing plan outlining the proposed amounts and purpose for which the municipal sales tax increments are proposed to be used. City Council may approve or deny such request in its discretion.

c. The LRC shall comply with applicable City codes, rules, and regulations related to any other urban renewal activities of the LRC. The City Council shall be informed of the activities, functions, operations, and financial condition of the LRC in the form of reports to the City Council not less than quarterly, and at any other time as requested by the City Council.

d. The City agrees that it will make reasonable efforts to act within thirty days of a request for review of any document, agreement, obligation, or action required by this Fourth Amended and Restated Cooperation Agreement. Unless otherwise required by law or provided herein, any approval or other action of the City Council shall be by motion or resolution.

6. Independent Authority of the LRC. Consistent with the Urban Renewal Law, the LRC shall have the authority, without prior approval of the City Council, to enter into redevelopment agreements that implement the urban renewal plans of the City by allocating available property tax increment received by the LRC in the special fund of the LRC in accordance with C.R.S. § 31-25-107(9) to those undertakings and activities that are consistent with the urban renewal plans of the City. The Parties acknowledge and agree that such undertakings and activities are "other obligations" of the LRC within the meaning of C.R.S. § 31-25-103(3), but nothing in this Section 6 shall authorize the LRC to issue general or special obligation bonds (including refunding bonds) and temporary bonds pursuant to C.R.S. § 31-25-109 without City Council approval.

7. Other Powers of the LRC. The Parties acknowledge and agree that as an urban renewal authority created under the Urban Renewal Law, the LRC has the enumerated powers set forth in C.R.S. § 31-25-105. The City specifically directs through this Fourth Amended and Restated Cooperation Agreement that the LRC is empowered to advise the City Council on matters related to the Urban Renewal Law, specifically including advising the City Council regarding potential new urban renewal plan areas pursuant to C.R.S. § 31-25-105(1)(i).

8. Continuing Cooperation; Additional Agreements. The Parties shall cooperate to carry out and complete the urban renewal plans approved by the City Council. It is contemplated that additional agreements may be required to plan and carry out urban renewal projects in accordance with the provisions of any such urban renewal plan and the Act. The Parties agree to cooperate and give timely consideration to any additional agreements or amendments to this Fourth Amended and Restated Cooperation Agreement that may be necessary or convenient in connection with such activities and undertakings; provided, however, nothing in this Fourth Amended and Restated Cooperation Agreement shall preclude or require the commitment of additional revenue, financing, or services by either Party in connection with such activities and undertakings.

9. Obligations Subject to Act, Charter, and Constitution. The covenants, duties and actions required of the Parties under this Fourth Amended and Restated Cooperation Agreement shall be subject to and performed in accordance with the provisions and procedures required and permitted by the Charter, the Act, any other applicable provision of law, and the Colorado Constitution.

10. Enforced Delay. Neither Party shall be considered in breach of, or in default in, its obligations with respect to this Fourth Amended and Restated Cooperation Agreement in the event of delay in the performance of such obligations due to causes beyond its control and without its fault, it being the purpose and intent of this provision that if such delay occurs, the time or times for performance by either Party affected by such delay shall be extended for the period of the delay.

11. No Third Party Beneficiaries. Neither the City nor the LRC shall be obligated or liable under the terms of this Fourth Amended and Restated Cooperation Agreement to any person or entity not a party hereto.

12. Severability. In case any one or more of the provisions contained in this Fourth Amended and Restated Cooperation Agreement or any application thereof, shall be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this Fourth Amended and Restated Cooperation Agreement, or any other application thereof, shall not in any way be affected or impaired thereby.

13. Binding Effect. Subject to compliance with Section 15, below, this Fourth Amended and Restated Cooperation Agreement shall be binding upon and inure to the benefit of the Parties, their successors, legal representatives, and assigns.

14. City and LRC Separate. Nothing in this Fourth Amended and Restated Cooperation Agreement shall be interpreted in any manner as constituting the City or its officials, representatives, consultants, or employees as the agents of the LRC, or the LRC or its officials, representatives, consultants, or employees as the agents of the City. Each entity shall remain a separate legal entity pursuant to applicable law. Neither of the Parties hereto shall be deemed to hereby assume the debts, obligations, or liabilities of the other. The LRC shall be responsible for carrying out its duties and functions in accordance with the Act and other applicable laws and regulations, and nothing herein shall be construed to compel either Party to take any action in violation of law.

15. Assignment. This Fourth Amended and Restated Cooperation Agreement shall not be assigned in whole or in part by either Party without the prior written approval of the other Party.

16. Governing Law. This Fourth Amended and Restated Cooperation Agreement shall be governed by, and construed in accordance with, the laws of the State of Colorado.

17. Headings. Section headings in this Fourth Amended and Restated Cooperation Agreement are for convenience of reference only and shall not constitute a part of this Fourth Amended and Restated Cooperation Agreement for any other purpose.

18. Additional or Supplemental Agreements; Organizational Matters. The Parties mutually covenant and agree that they will execute, deliver and furnish such other instruments, documents, materials, and information as may be reasonably required to carry out the Fourth Amended and Restated Cooperation Agreement. The LRC's organizational documents shall provide, as permitted by C.R.S. § 31-25-104, that one City Councilmember shall be a member of the LRC. The LRC as an entity will not formally or legally oppose or object to any measure that may be proposed pursuant to C.R.S. § 31-25-115 to transfer the existing authority to the City Council.

19. Entire Agreement; Amendment. This Fourth Amended and Restated Cooperation Agreement constitutes the entire agreement between the Parties pertaining to the subject matter hereof. No addition to or modification of the Fourth Amended and Restated Cooperation Agreement shall be effective, except by written agreement authorized and executed by the Parties.

20. Supersede. This Fourth Amended and Restated Cooperation Agreement supersedes and replaces in its entirety those prior Cooperation Agreements by and between the City and the LRC dated December 5, 2006, April 5, 2011, November 17, 2015, and May 16, 2023.

IN WITNESS WHEREOF, the Parties have caused this Fourth Amended and Restated Cooperation Agreement to be duly executed and delivered by their respective officers as of the date first above written.

CITY OF LOUISVILLE,
a Colorado municipal corporation

Attest:

_____
Christopher M. Leh, Mayor

_____
Genny Kline, City Clerk

LOUISVILLE REVITALIZATION
COMMISSION

Attest:

_____
Chair

_____
Secretary

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 5.E.**

**Subject:** Resolution No. 40, Series 2026 — A Resolution Authorizing the Purchase of Three (3) Hybrid and Three (3) Electric Vehicles to Replace a Prior Purchase Authorization of Six (6) Electric Vehicles Due to Discontinued Production

**Date:** April 21, 2026

**Prepared By:** Ben Francisco, Operations Superintendent

**Presented By:** Kurt Kowar, Director

**Summary:**
Staff requests City Council approval regarding procurement of six (6) fleet vehicles originally authorized on June 3, 2025 as Ford F-150 Lightning electric trucks. Ford discontinued production of the F-150 Lightning, so the authorized vehicles are no longer available.

Staff evaluated currently available alternatives that meet operational requirements and recommends the purchase of three (3) Chevrolet Silverado electric vehicles and three (3) Ford Maverick hybrid vehicles.

**Background / Prior Discussions:**
On June 3, 2025, City Council authorized procurement of:

- Seven (7) Ford F-150 Lightning trucks
- Two (2) Chevy Blazer EVs

For a total authorized purchase amount of $444,785. These vehicles were included in the approved 2025 Budget and were intended to replace existing fleet units that had reached the end of their service life.

Since that authorization:

- One (1) Ford F-150 Lightning has been received
- Two (2) Chevy Blazer EVs have been received
- Ford has discontinued production of the F-150 Lightning

As a result, six (6) trucks originally authorized as Lightnings remain outstanding and must be replaced with alternative vehicle types.

**Development Proposal:**
N/A

**Analysis:**
Because the originally authorized Ford F-150 Lightnings are no longer available and comparable electric trucks have a higher purchase cost, staff evaluated multiple replacement options to balance operational needs, budget constraints, and the City's sustainability goals. The Chevrolet Silverado EV was identified as one of the only currently available full-size electric pickup trucks that meets the operational requirements of the City's fleet and represents the most cost-effective full-size electric replacement for the originally authorized vehicles.

It should also be noted that three of the vehicles included in this procurement were originally requested by staff as smaller hybrid trucks due to their size and operational suitability for the divisions using them. At the time the original vehicle authorization was prepared, fleet replacement recommendations emphasized transitioning to fully electric vehicles, which resulted in the request being revised to the Ford F-150 Lightning.

With the discontinuation of the Lightning and the transition to the Chevrolet Silverado EV, staff reevaluated the vehicle requirements. The Silverado EV is both larger and has a significantly higher cost than the originally authorized Lightning. As a result, staff recommends the Ford Maverick Hybrid as it better aligns with operational needs while also reducing overall procurement costs.

Staff evaluated three options to replace the six (6) approved Ford Lightning electric trucks. All vehicle pricing utilized in the following analysis is based on State of Colorado cooperative purchasing agreements and complies with the City's purchasing policies and procedures.

Procurement Options Comparison

| Options | Vehicles | Cost Impact | Budget Amendment Required |
|---|---|---|---|
| Option 1 – All Electric | 6 Chevrolet Silverado EV | $ 355,270.00 | Approximately $ 21,000.00 |
| Option 2 – Mixed Procurement (**Recommended**) | 3 Silverado EV, 3 Ford Maverick Hybrid | $ 267,085.00 | $ 0.00 |
| Option 3 – All Hybrid | 6 Ford Maverick Hybrid | $ 178,900.00 | $ 0.00 |

**Option 1 – All Electric (6 Silverado EV)**
This option would require budget amendments because, although the total project cost

remains within the overall approved budget, the higher cost of the Silverado EV would cause certain departmental vehicle line-item budgets to be exceeded.

| Department | Account | Purchase Price | Approved Budget | Remaining Funds |
|---|---|---|---|---|
| Information Technology (1 Silverado EV) | 301173-640000 | $ 61,295.00 | $ 50,900.00 | ($ 10,395.00) |
| Engineering (2 Silverado EV) | 501498-640000<br>502498-640000<br>503499-640000<br>603312-640000 | $ 117,590.00 | $ 106,865.00 | ($ 10,725.00) |
| Operations Locate Truck (1 Silverado EV) | 501498-640000<br>502498-640000 | $ 58,795.00 | $ 85,000.00 | $ 26,205.00 |
| Operations Sign Truck (1 Silverado EV) | 301312-640000 | $ 58,795.00 | $ 70,000.00 | $ 11,205.00 |
| Open Space (1 Silverado EV) | 210522-640000 | $ 58,795.00 | $ 68,056.00 | $ 9,261.00 |
| **TOTAL** | | **$ 355,270.00** | **$ 380,821.00** | **$ 25,551.00** |

**Option 2 – Mixed Procurement (3 Silverado EV / 3 Maverick Hybrid) – Recommended**
All vehicle purchases under this option can be completed within existing approved budgets, and no budget amendment would be required.

This option maintains progress toward fleet electrification while remaining fiscally responsible.

| Department | Account | Purchase Price | Approved Budget | Remaining Funds |
|---|---|---|---|---|
| Information Technology (1 Maverick) | 301173-640000 | $ 31,900.00 | $ 50,900.00 | $ 19,000.00 |
| Engineering (1 Maverick, 1 Silverado EV) | 501498-640000<br>502498-640000<br>503499-640000<br>603312-640000 | $ 88,195.00 | $ 106,865.00 | $ 18,670.00 |
| Operations | 501498-640000 | $ 58,795.00 | $ 85,000.00 | $ 26,205.00 |

| | | | | |
|---|---|---|---|---|
| Locate Truck (1 Silverado EV) | 502498-640000 | | | |
| Operations Sign Truck (1 Silverado EV) | 301312-640000 | $ 58,795.00 | $ 70,000.00 | $ 11,205.00 |
| Open Space (1 Maverick) | 210522-640000 | $ 29,400.00 | $ 68,056.00 | $ 38,656.00 |
| **TOTAL** | | **$ 267,085.00** | **$ 380,821.00** | **$ 113,736.00** |

**Option 3 – All Hybrid (6 Maverick Hybrid Trucks)**
This option would procure six (6) Ford Maverick Hybrid trucks.

Because the Maverick Hybrid trucks are significantly less expensive than the electric truck alternatives, this option would result in remaining funds within all vehicle replacement accounts, creating modest budget savings relative to the other options. All vehicle purchases would remain within existing approved budgets, and no budget amendment would be required.

Finally, this option, as well as any fully hybrid procurement approach, would not meaningfully advance the City's fleet electrification goals compared to options that include electric vehicles.

| Department | Account | Purchase Price | Approved Budget | Remaining Funds |
|---|---|---|---|---|
| Information Technology (1 Maverick) | 301173-640000 | $ 31,900.00 | $ 50,900.00 | $ 19,000.00 |
| Engineeringm (2 Mavericks) | 501498-640000<br>502498-640000<br>503499-640000<br>603312-640000 | $ 58,800.00 | $ 106,865.00 | $ 48,065.00 |
| Operations Locate Truck (1 Maverick) | 501498-640000<br>502498-640000 | $ 29,400.00 | $ 85,000.00 | $ 55,600.00 |
| Operations Sign Truck (1 Maverick) | 301312-640000 | $ 29,400.00 | $ 70,000.00 | $ 40,600.00 |
| Open Space (1 Maverick) | 210522-640000 | $ 29,400.00 | $ 68,056.00 | $ 38,656.00 |
| **TOTAL** | | **$ 178,900.00** | **$ 380,821.00** | **$ 201,921.00** |

Staff recommends Option 2, mixed procurement of three (3) Silverado EV's and three (3) Maverick Hybrids as the vehicles fit the department needs, are within budget, and still advance the City's sustainability goals.

**Council Work Plan:**
This item supports:

- Core Services
- Safety
- Sustainability and Climate Action

**Fiscal Impact:**
The procurement of three (3) Silverado EV's and three (3) Maverick Hybrids will cost approximately $267,085 and will result in approximately $113,736 in savings.

| Department | Account | Purchase Price | Approved Budget | Remaining Funds |
|---|---|---|---|---|
| Information Technology (1 Maverick) | 301173-640000 | $ 31,900.00 | $ 50,900.00 | $ 19,000.00 |
| Engineering (1 Maverick, 1 Silverado EV) | 501498-640000<br>502498-640000<br>503499-640000<br>603312-640000 | $ 88,195.00 | $ 106,865.00 | $ 18,670.00 |
| Operations Locate Truck (1 Silverado EV) | 501498-640000<br>502498-640000 | $ 58,795.00 | $ 85,000.00 | $ 26,205.00 |
| Operations Sign Truck (1 Silverado EV) | 301312-640000 | $ 58,795.00 | $ 70,000.00 | $ 11,205.00 |
| Open Space (1 Maverick) | 210522-640000 | $ 29,400.00 | $ 68,056.00 | $ 38,656.00 |
| **TOTAL** | | **$ 267,085.00** | **$ 380,821.00** | **$ 113,736.00** |

**Alternatives:**
**Delay Procurement Until Additional Electric Truck Models Become Available**
Staff considered delaying the remaining vehicle procurements until additional electric truck models become available or pricing becomes more competitive. Delaying procurement would extend the service life of aging fleet vehicles and could increase

maintenance costs and reliability risks. In addition, vehicle supply timelines remain uncertain.

**Procure Full-Size Hybrid Trucks**
Staff also evaluated replacing the vehicles with full-size hybrid trucks similar in size to the originally authorized Ford F-150 Lightning. Full-size hybrid trucks are significantly more expensive than the Ford Maverick Hybrid and exceed the operational needs of several divisions requesting vehicles. Additionally, the operational needs for three of the requested vehicles are better met with smaller, more efficient units, making a full-size platform unnecessary for those applications. In addition, this option would not meaningfully advance the City's fleet electrification goals compared to the mixed procurement option that includes electric vehicles.

**Recommendation:**
Staff recommends **Option 2** – Mixed Procurement of three (3) Chevrolet Silverado electric trucks and three (3) Ford Maverick hybrid trucks.
This approach:

- Advances fleet electrification where financially feasible
- Maintains fiscal responsibility
- Avoids the need for budget amendments
- Allows remaining fleet replacements to proceed without delay

Staff requests that City Council authorize the Fleet Manager to proceed with procurement of the selected vehicles in accordance with State of Colorado cooperative purchasing agreements and the pricing outlined above.

**Attachments:**
1. Resolution No. 40, Series 2026
2. June 3 City Council Action Summary
3. Daniels Long FE 2026 Silverado EV
4. Sill TerHar 2026 F1 PU Small 4x4 Ford Maverick

**RESOLUTION NO. 40**
**SERIES 2026**

**A RESOLUTION AUTHORIZING THE PURCHASE OF THREE (3) HYBRID AND THREE (3) ELECTRIC VEHICLES TO REPLACE A PRIOR PURCHASE AUTHORIZATION OF SIX (6) ELECTRIC VEHICLES DUE TO DISCONTINUED PRODUCTION**

**WHEREAS,** on June 3, 2025, the City Council authorized the purchase of certain fleet vehicles, including seven (7) Ford F-150 Lightning electric trucks; and

**WHEREAS,** the City procured one (1) Ford F-150 Lightning, but Ford has now discontinued production of the F-150 Lightning; and

**WHEREAS,** by this resolution the City Council desires to approve the purchase of six (6) alternative vehicles to replace the Lightnings.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** The City Council hereby approves the purchase of three (3) Chevrolet Silverado EVs and three (3) Ford Maverick Hybrids in an amount not to exceed $267,085.00 to replace the six (6) F-150 Lightning previously authorized.

**Section 2.** The City's Fleet Manager is hereby authorized to execute purchase orders and other necessary agreements on behalf of the City in connection with the purchase.

PASSED AND ADOPTED this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

# City Council Meeting Action Summary

## June 3, 2025 Regular Meeting

Councilmembers in Attendance: Mayor Chris Leh, Mayor Pro Tem Caleb Dickinson (remote), Josh Cooperman, Deborah Fahey, Barbara Hamlington, Dietrich Hoefner (remote), Judi Kern

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**CONSENT AGENDA**

1. Recreation & Senior Center Indoor Batting Cage Sole Source Request
2. Resolution No. 35, Series 2025 - A Resolution Approving an Intergovernmental Agreement for Youth Corps Program Services
3. Approval of Flatbed Truck Purchase
4. Approval of 2025 Vehicle Purchases from Ken Garff Ford (7) and Daniels Long Automotive (2)
5. Award Master Service Agreement Contracts for Engineering On-Call Services
6. Resolution No. 36, Series 2025 - A Resolution Approving a Management Agreement with the City of Boulder Concerning the Davidson Mesa Trail

Approved unanimously.

**A. ORDINANCE NO. 1896, SERIES 2025 - AN ORDINANCE AMENDING LOUISVILLE MUNICIPAL CODE SECTION 17.72.190 REGARDING YARD AND BULK REQUIREMENTS FOR GENERAL DEVELOPMENT PLANS - 1ST READING, SET PUBLIC HEARING**

The motion to approve the ordinance on first reading and set the public hearing for July 8, 2025 was approved unanimously.

**B. RESOLUTION NO. 37, SERIES 2025 - A RESOLUTION APPROVING A PLANNED UNIT DEVELOPMENT AMENDMENT TO REPLACE EXISTING FREESTANDING SIGNS AND ADD A NEW WALL SIGN ON THE AVISTA ADVENTISTS HOSPITAL CAMPUS**

Approved unanimously.

*(Mayor Pro Tem Dickinson left the meeting)*

**C. RESOLUTION NO. 38, SERIES 2025 - A RESOLUTION APPROVING A PLANNED UNIT DEVELOPMENT AGREEMENT TO ALLOW CONSTRUCTION OF A 7,150 SQUARE-FOOT INDUSTRIAL BUILDING AND A 7,000 SQUARE-FOOT INDUSTRIAL BUILDING AT 380 S TAYLOR AVENUE**

Approved unanimously.

**D. ORDINANCE NO. 1897, SERIES 2025 - AN ORDINANCE AMENDING TITLE 17 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING PARKING MINIMUMS FOR MULTIFAMILY AND ADAPTIVE REUSE DEVELOPMENT - 1ST READING, SET PUBLIC HEARING**

The motion to approve the ordinance on first reading and set the public hearing for July 8, 2025 was approved unanimously.

**E. LOUISVILLE CENTER FOR THE ARTS DIGITAL SIGN**

The concept of an Arts Center digital sign and direction to staff to conduct a survey of residents passed 4-2 (with Councilmembers Hamlington and Hoefner voting no and Mayor Pro Tem Dickinson absent)

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**City Council adjourned at 9:33 p.m.**

The City of Louisville records and posts all regular City Council meetings. Meeting videos are posted on our website within 48 hours of City Council meeting adjournment. You can watch recordings on our website or Youtube channel.




**City of Louisville, Colorado**
749 Main St, Louisville, CO 80027
Website | (303) 666-6565

Keep In Touch

**Colorado State Fleet Management**
**2026 VEHICLE SPECIFICATIONS**
**Dealers Invitation to Bid**

6/4/2024

Class: ELECTRIC PICKUP **Body Code: FE** **PU BEV 1/2 ton 4x4**

Representative Models: 1: FORD F150 LIGHTNING
2: CHEVROLET SILVERADO EV
3: RIVIAN RIVIAN EV
4: RAM 1500 REV

**MAKE:** CHEVROLET **MODEL:** SILVERADO EV **OEM MODEL #:** CT35843 **TRIM LEVEL:** EV **OEM CODE:** 5WT - 1FL

| STANDARD SPECIFICATIONS: | | OEM CODE | INDICATE ACTUAL DEALER SPECIFICATIONS |
|---|---|---|---|
| 097 | CREW CAB (4 DOORS): SPECIFY CA | STD | CREW CAB |
| 140 | TIRES: ALL SEAS M&S RADIAL | STD | LT265/70R18, ALL SEASON BLACKWALL |
| 146 | FULL SIZE SPARE TIRE MOUNTED | STD | LT225/65R18, ALL SEASON BLACKWALL |
| 183 | WHEELBASE: 131.0 IN. MIN | STD | 144.7 IN |
| 298 | CRUISE CONTROL/TILT | STD | ADAPTIVE CRUISE CONTROL/TILT STEERING COLUMN |
| 300 | AIR CONDITIONING | STD | DUAL ZONE/ AUTOMATIC CLIMATE CONTROL |
| 302 | RADIO: AM/FM | STD | AM/FM WITH SIRIUS XM RADIO AS WELL |
| 307 | POWER BRAKES & POWER STEERING | STD | POWER BRAKES & STEERING |
| 308 | ABS BRAKES | STD | FOUR WHEEL ABS |
| 310 | SEATS: CLOTH SEATS | H9F | NEW CHEVROLET EVOTEX SEAT TRIM |
| 321 | FLOORING: RUBBER | STD | ALL WEATHER VINYL COVERING |
| 340 | AIR BAG - DRIVER SIDE | STD | FRONTAL FOR DRIVER & FRONT PASSENGER |
| 400 | MIRRORS: RIGHT AND LEFT | STD | OUTSIDE HEATED POWER ADJUSTABLE |
| 404 | INTERMITTENT WIPERS | STD | INTERMITTENT WIPERS |
| 415 | FOUR-WHEEL DRIVE | STD | FOUR WHEEL DRIVE |
| 430 | PCKG:TOWING/RCVR HITCH(Atchmt) | STD | TOW/HAUL MODE W HITCH |
| 459 | STEP BMPR-500#TONGUE,5000#TRLR | STD | STEP BUMBER 500/5000 |
| 478 | BATTERY RANGE: MIN 300 | STD | APPROX 424 RANGE |
| 752 | AXLE RATIO: SPECIFY | STD | NOT YET PUBLISHED |
| 863 | BACKUP CAMERA | STD | BACK UP CAMERA |
| 887 | BEV (BATTER/ELECTRIC) | STD | BATTERY/ELECTRIC |
| 915 | LEVEL 3 DC FAST CHARGING: SPECIFY | STD | DC FAST CHARGING 800 VOLT UP TO 350 KW |
| 983 | BATTERY - 8YR/100,000 | STD | BATTERY 8 YEARS/100,000 MILES |
| 991 | STD MIN WRNTY - BUMPER TO BUMPER 3/36 | STD | BUMPER TO BUMPER 3 YEARS/36K MILES |

STANDARD VEHICLE BASE PRICE $ 58795

| AVAILABLE OPTIONS: | | OEM CODE | ACTUAL / COMMENTS | PRICE |
|---|---|---|---|---|
| 095 | REG CAB 2 DOOR 8' BED | NA | NOT AVAILABLE | 0 |
| 098 | EXT CAB LONG BED 4 DOOR | NA | NOT AVAILABLE | 0 |
| 099 | EXT CAB SHORT BED (6') 4 DOOR | NA | NOT AVAILABLE | 0 |
| 122 | SHORT BED | STD | BED LENGTH 5'11" | 0 |
| 133 | BACK UP ALARM | AFM | AFTERMARKET BACKUP ALARM | 450 |

Class: ELECTRIC PICKUP **Body Code: FE** **PU BEV 1/2 ton 4x4**

Representative Models: 1: FORD F150 LIGHTNING
2: CHEVROLET SILVERADO EV
3: RIVIAN RIVIAN EV
4: RAM 1500 REV

**MAKE:** CHEVROLET **MODEL:** SILVERADO EV **OEM MODEL #:** CT35843 **TRIM LEVEL:** EV **OEM CODE:** 5WT- 1FL

| | AVAILABLE OPTIONS: | OEM CODE | ACTUAL / COMMENTS | PRICE |
|---|---|---|---|---|
| 141 | TIRES: ALL-TERRAIN, LIST SIZE: | NA | NOT AVAILABLE (STANDARD) LT265/70R18 ALL SEASON | 0 |
| 143 | TIRES: OPTION #1, LIST SIZE: | QMN | LT275/50R22 -- INC & REQUIRES SEU 22" WHEELS | 2250 |
| 152 | SPILT BENCH 40/20/40 FULL CONSOLE | NA | BUCKETS ONLY | 0 |
| 243 | AXLE RATIO (MIN.) 3.73 | NA | INFORMATION NOT AVAILBLE AT THIS TIME | 0 |
| 249 | AXLE RATIO OPTION: SPECIFY | NA | INFORMATION NOT AVAILBLE AT THIS TIME | 0 |
| 262 | DARKEST LEGAL TINT AVAIL | AFM | DARKEST LEGAL TINT | 360 |
| 266 | CUSTOM CLOTH SEAT W/CNTR CNSOLE STRG | NA | NOT AVAILABLE/ BUCKET SEATS ONLY | 0 |
| 284 | REMOTE KEYLESS ENTRY | STD | REMOTE KEYLESS ENTRY | 0 |
| 311 | SEATS: VINYL SEATS | H9F | EVOTEX SEAT MATERIAL | 0 |
| 320 | FLOORING: CARPET | NA | NOT AVAILABLE | 0 |
| 408 | REAR AXLE - ANTI SPIN | NA | NOT AVAILABLE E 4WD TORQUE VECTORING | 0 |
| 414 | TWO-WHEEL DRIVE: REAR | NA | NOT AVAILABLE | 0 |
| 423 | TOOL BOX - ACROSS BED BOX(attachment) | NA | NOT AVAILABLE WITH THIS BED CONFIGURATION | 0 |
| 424 | TOOL BOX - SIDE BED BOX(attachment) | AFM | SIDE BED BOX (ONE PER SIDE) 48" ONLY | 782 |
| 429 | TRAILER BRAKE CONTROL-ELECTRIC | STD | STANDARD | 0 |
| 432 | TOW HOOKS | NA | NOT AVAILABLE | 0 |
| 436 | HEAVY DUTY COOLING | NA | NOT AVAILABLE | 0 |
| 443 | PKG: STROBE LIGHT (Attachment) | AFM | STROBE LIGHT | 845 |
| 444 | PRE-HEATER | NA | BLOCK HEATER NOT AVAILABLE | 0 |
| 450 | SKID PLATE-FUEL TNK,TRFR CS/DI | NA | NOT AVAILABLE | 0 |
| 468 | SPRAY IN BEDLINER | CGN | SPRAY-IN BEDLINER | 545 |
| 472 | EPACT AFV CREDIT: Specify | NA | NOT AVAILABLE | 0 |
| 482 | ALT BATTERY RANGE: SPECIFY | 8WT | 8WT APX 493 MILE RANGE | 8000 |
| 516 | LEFT DOOR POST SPOTLIGHT (50W) | AFM | LEFT DOOR SPOTLIGHT | 890 |
| 520 | POWER LOCKS | STD | POWER LOCKS | 0 |
| 526 | POWER MIRRORS | STD | POWER MIRRORS | 0 |
| 530 | POWER WINDOWS | STD | POWER WINDOWS | 0 |
| 541 | DELETE DAYTIME/AUTO HEADLIGHTS | NA | NOT AVAILABLE | 0 |
| 599 | AUDIO UPGRADE | NA | NOT AVAILABLE | 0 |
| 620 | UPPER TRIM LEVEL PKG: SPECIFY | 8WT | 8WT PACKAGE | 8000 |
| 643 | ADD DAYTIME RUNNING LIGHTS | STD | DAYTIME RUNNING LIGHTS | 0 |
| 658 | EXTRA KEYS & REMOTES | 658 | 1 EXTRA KEY & REMOTE | 395 |
| 780 | UPFITTER SWITCHES | NA | NOT AVAILABLE | 0 |
| 791 | TOPPER FIBERGLASS 3 WINDOW (Attachment) | AFM | TOPPER- CALL DEALER ONLY 1 AVAILABLE AT THIS TIME | 3963 |
| 845 | BLIND SPOT NOTIFICATION | STD | BLIND SPOT & STEERING ASSIST | 0 |

**Colorado State Fleet Management**
**2026 VEHICLE SPECIFICATIONS**
**Dealers Invitation to Bid**

6/4/2024

Class: ELECTRIC PICKUP **Body Code: FE** **PU BEV 1/2 ton 4x4**

Representative Models: 1: FORD F150 LIGHTNING 2: CHEVROLET SILVERADO EV
3: RIVIAN RIVIAN EV 4: RAM 1500 REV

**MAKE:** CHEVROLET **MODEL:** SILVERADO EV **OEM MODEL #:** CT35843 **TRIM LEVEL:** EV **OEM CODE:** 5WT-1FL

AVAILABLE COLORS: Please attach manufacturer color chart

OTHER VEHICLE SPECIFICATIONS / OPTIONS (Please attach separate sheet if necessary) PRICE

ALL OPTIONS & COLOR ATTACHED

STANDARD FACTORY WARRANTY (Attach detailed description):

| | MILES | MONTHS |
|---|---|---|
| Bumper to Bumper | 36000 | 36 |
| Drive Train | 100000 | 96 |
| Other | | |

OPTIONAL FACTORY WARRANTY (Attach detailed description):

| | MILES | MONTHS | PRICE |
|---|---|---|---|
| MULTIPLE OPTIONS AVAILABLE | CALL | DEALER | |

EPA FUEL RATING: EV M.P.G CITY, M.P.G HIGHWAY

OEM MINIMUM FUEL RATED OCTANE: NA

DELIVERY: 90-120 DAYS FROM DEALER RECEIPT OF ORDER FROM STATE (E.G. 90 DAYS)

IDENTIFY ANY EXCEPTIONS TO SPECIFICATIONS:

DEALER NAME: DANIELS LONG CHEVROLET BIDDER'S NAME: MITCH MALTRY

DEALER PHONE: 719.228.3520 SIGNATURE:

## #423 - PACKAGE: TOOLBOX - ACROSS BED BOX

Attach one copy of this form to each body code specification sheet that has an Available Option #423 including the following body codes:

**F1, F2, F3, F4, F6, F8, FE, FH**

An installed **TOOLBOX - ACROSS BED BOX** PACKAGE should include the following:

- Delta, Dee Zee, Weatherguard brand or equivalent
- Either a gull-wing, double lid or chest-style, full-hinged, single lid crossover toolbox
- 11.3 min cu in
- Painted white with **all steel** construction
- Torsion bar lift on lid(s)
- Removable tray
- Weather stripping around lid(s)
- A lock on each lid with key
- Price to include complete installation.

Total Price for **TOOL BOX - ACROSS BED BOX** PACKAGE: – NOT AVAILABLE DUE TO BED CONFIGURATION

- A gull-wing, double lid, tool box:

  $ 0

- a chest-style, full-hinged, single lid crossover toolbox:

  $ 0

For Body Code: FE

## #424 - PACKAGE: TOOL BOX - SIDE BED

Attach one copy of this form to each body code specification sheet that has an Available Option #424 including the following body codes:

**F1, F2, F3, F4, F6, F8, FE, FH**

An installed **TOOLBOX - SIDE BED (Rail Mount)** PACKAGE should include the following:

- Delta, Dee Zee brand Rail Mount Box or equivalent
- A quantity of one, side-bed, rail mount, utility, tool box
- Toolbox must sit on top of the truck bed side rail
- Painted white with **all steel** construction
- A lock on the lid with key
- Removable tray
- Weather stripping around lid
- Price to include complete installation, rearward of an optional across bed box.

Total Price for **48" TOOLBOX - SIDE BED** PACKAGE: $ 782 – AVAILABLE

Total Price for **60" TOOLBOX - SIDE BED** PACKAGE: – N/A $ 0 – NOT AVAILABLE DUE TO BED CONFIGURATION

For Body Code: FE

## #443 - STROBE LIGHT

Attach one copy of this form to each body code specification sheet that has an Available Option #443 including the following body codes:

**All C's, D's, F's, G's, H's & K's, P4, PE**

The **STROBE LIGHT PACKAGE** must include the following:

- Roof mounted, LED Warning Beacon
- Class 3 light, SAE certified spec: Whelen L53 Series Super LED Warning Beacon spec or equivalent.
- Minimum of 75 flashes per minute
- Polycarbonate Black base & twist-off dome
- 12V
- 0.4 Amp (peak), 0.016 Amp Average
- Switch in cab
- Warranty: 1-year parts and labor
- Complete installation with **locations** as follows:
- **Location for strobe light on pickups:**
- On the roof of the pickup cab
- The light must be centered between the front of the roof and the rear of the roof.
- The light must be also centered from one side to the other side of the roof.
- **Location for strobe light on vans and sport utilities:**
- On the roof of the van or sport utility
- The light must be centered from one side to the other side of the roof
- The light must also be two feet from the rear of the roof.

List the make and model of strobe that is bid:

Make WHELEN Model L53 SERIES LED

List any additions and/or deletions of your bid from the STROBE LIGHT PACKAGE specs listed above:

Total Price for STROBE LIGHT PACKAGE: $ 845

For Body Code: FE

## #791 – TOPPER FIBERGLASS 3 WINDOW

Attach one copy of this form to each body code specification sheet that has an Available Option #791 including the following body codes:

**F1, F2, F3, F4, F8, FE, FH**

The **TOPPER FIBERGLASS 3 WINDOW** PACKAGE must include the following:

- A.R.E. V Series Topper or Approved Equals
- Construction shall be cab height, fiberglass topper
- Front shall be solid with full width, non-tinted front glass window
- Sides shall be solid with tinted glass windows on each side, sixty (60) inches to seventy (70) inches length (plus or minus one (1) inch and fourteen (14) inches height (plus or minus one half (1/2 inch). Side windows must be centered from front to back of topper with locks and flip up and stay up with one hand operation
- Rear shall be locking, flip up, full width and full height with tinted glass door in the rear. Door must open, remain up and close with one hand operation, to include gas props.
- Keys shall be the same key which must flip side and rear flip up windows. Two keys shall be provided for each truck topper
- Topper shall include 3rd brake light
- Topper color must match truck color
- Warranty min. 3 years on structure, paint and lock cylinder, 5 years on gas props part and labor

List any additions and/or deletions on your bid from the specs listed above:

PLEASE CALL DEALER - ONLY 1 TOPPER AVAILABLE FOR THIS EV AT THIS TIME, LEER 20" DCC TOPPER

Total Price for TOPPER FIBERGLASS W/3 WINDOWS: 3963

For Body Code: FE

Vehicle: [Fleet] 2026 Chevrolet Silverado EV (CT35843) e4WD Crew Cab Extended Range Work Truck ( ✔ Complete )

Quote: STATE OF COLORADO 2026 SILV EV 5WT QUOTE FE 6-5-25

## Optional Equipment

### NOTE

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| ** | ** FEATURE AVAILABILITY WILL CHANGE THROUGHOUT THE MODEL YEAR. SEE THE WINDOW LABEL OF A SPECIFIC VEHICLE TO DETERMINE ITS CONTENT. ** | $0.00 |

### EMISSIONS

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| FE9 | Emissions, Federal requirements (Not available with FDR/FBC/FLS/FNR/FRC/FGO/TSC/TSR/TSM order types. You must order (YF5) California state requirement emissions or (NE1) Emissions with (NC7) Override emissions.) | $0.00 |
| NB8 | Emissions override, California (allows a dealer in states that require California emissions - California, Colorado, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont or Washington - to order Federal emissions for a vehicle that will be registered in a state that has Federal emission requirements). Do not use for vehicles that will be registered in California, Colorado, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont or Washington | $0.00 |
| NB9 | Emissions override, state-specific (for dealers ordering vehicles in (YF5) or (NE1) emission states - California, Colorado, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont, Washington and District of Columbia) (Not available for Delaware or District of Columbia.) | $0.00 |
| NC7 | Emissions override, Federal (for vehicles ordered by dealers in Federal emission states with (YF5) or (NE1) emissions - Not required for vehicles being shipped to California, Colorado, Connecticut, Delaware, Maine, Maryland, Massachusetts, Minnesota, Nevada, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia or Washington) (Only available in the following states AZ/CT/ID/KS/NE/NV/OK/NH/PA/UT/VA/WV/WY.) | $0.00 |
| NE1 | Emissions, Colorado, Delaware, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont, Washington state and District of Columbia. (Not available for Delaware or District of Columbia.) | $500.00 |
| YF5 | Emissions, California state requirements | $500.00 |

### ENGINE

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| EN0 | Engine, none (STD) | $0.00 |

### CHARGING CORD

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| PSC | Dual Level Charge Cord, dual-mode portable, 120-volt (1.4 kW) and 240-volt (7.7 kW) capability, swappable NEMA 5-15 and NEMA 14-50 plugs with SAE J1772 vehicle connection | $0.00 |

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Data Version: 25635. Data Updated: Jun 4, 2025 6:45:00 PM PDT.

Vehicle: [Fleet] 2026 Chevrolet Silverado EV (CT35843) e4WD Crew Cab Extended Range Work Truck ( Complete )

Quote: STATE OF COLORADO 2026 SILV EV 5WT QUOTE FE 6-5-25

| TRANSMISSION | | |
|---|---|---|
| **CODE** | **DESCRIPTION** | **MSRP** |
| MF1 | Transmission, none (STD) | $0.00 |
| **PREFERRED EQUIPMENT GROUP** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| 5WT | Work Truck Preferred Equipment Group includes standard equipment | $0.00 |
| **WHEELS** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| PJ6 | Wheels, transit (Included and only available with 22" LPO wheels.) | $0.00 |
| RIP | Wheels, 18" X 8.5" (45.7 cm x 21.6 cm) high gloss Black painted aluminum (STD) | $0.00 |
| **TIRES** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| QMN | Tires, LT275/50R22, all-season blackwall (Included and only available with 22" LPO wheels.) | $0.00 |
| QWJ | Tires, LT265/70R18, all-season blackwall | $0.00 |
| **PAINT** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| GAZ | Summit White | $0.00 |
| GBA | Black | $0.00 |
| GNO | Slate Gray Metallic | $0.00 |
| **SEAT TYPE** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| AR9 | Seats, front bucket (STD) | $0.00 |
| **SEAT TRIM** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| H9F | Black, Evotex seat trim | $0.00 |
| **ADDITIONAL EQUIPMENT - MECHANICAL** | | |
| **CODE** | **DESCRIPTION** | **MSRP** |
| 9B9 | Governor, electronic speed sensor set to 70 MPH, (112.7 KPH) Provides electronic software to limit maximum road speed to 70-MPH, (112.7 KPH). Cruise control limited to 65 MPH, (104.6 KPH). | $50.00 |

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## ADDITIONAL EQUIPMENT - MECHANICAL

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| 9C2 | Governor, electronic speed sensor set to 65 MPH, (104.6 KPH) Provides electronic software to limit maximum road speed to 65-MPH, (104.6 KPH). Cruise control limited to 60 MPH, (96.6 KPH) | $50.00 |
| 9D7 | Governor, electronic speed sensor set to 75 MPH, (120.7 KPH) Provides electronic software to limit maximum road speed to 75-MPH, (120.7 KPH). Cruise control limited to 70 MPH, (112.7 KPH). | $50.00 |
| PCZ | (DISCONTINUED) Standard EV Charging Installation (Requires Fleet or Government order type.) | $2,500.00 |

## ADDITIONAL EQUIPMENT - EXTERIOR

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| CGN | Chevytec spray-on bedliner, Black (does not include spray-on liner on tailgate due to Black composite inner panel) | $545.00 |
| SFW | Back-up alarm calibration This calibration will allow installation of an aftermarket back-up alarm by disabling rear perimeter lighting | $50.00 |
| VGC | Protector film, paint | $0.00 |
| VK3 | License plate bracket, front, front mounting package (Will be forced on orders with ship-to states that require a front license plate.) | $40.00 |

## ADDITIONAL EQUIPMENT - SAFETY-INTERIOR

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| R9L | Removes OnStar Basics (OnStar Fleet Basics for Fleet) (Included and only available on vehicles being shipped to Puerto Rico, the Virgin Islands, or Guam. *CREDIT* | ($1,330.00 ) |
| R9V | Mobile Service Plus. MobileService+ is a suite of service conveniences for 3 years - Mobile Service, Pick-up & Delivery, and Loaner with Drop off. MobileService+ van will come to your home to perform select services or pick up your vehicle and return it once the service is completed at the dealership. Cost of part and labor are not included (Required and only available for dealers who have a BFU of 284, except for orders with (R9W) Deleted Mobile Service Plus. Requires TRE, SRE or Fleet order types. Not available with (R9Y) Mobile Service Plus for 1 year.) | $599.00 |
| R9W | Deleted Mobile Service Plus Delete MobileService+ service conveniences - Mobile Service, Pick-up & Delivery, and Loaner with Drop Off. By selecting R9W, you acknowledge that you are forgoing the margin and the ability to receive MobileService+ allowances (Requires a dealer with a BFU of 284. Requires TRE, SRE or Fleet order types.) | $0.00 |

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Data Version: 25635. Data Updated: Jun 4, 2025 6:45:00 PM PDT.

Vehicle: [Fleet] 2026 Chevrolet Silverado EV (CT35843) e4WD Crew Cab Extended Range Work Truck ( Complete )

Quote: STATE OF COLORADO 2026 SILV EV 5WT QUOTE FE 6-5-25

## ADDITIONAL EQUIPMENT - SAFETY-INTERIOR

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| R9Y | Mobile Service Plus. MobileService+ is a suite of service conveniences for 1 year - Mobile Service, Pick-up & Delivery, and Loaner with Drop off. MobileService+ van will come to your home to perform select services or pick up your vehicle and return it once the service is completed at the dealership. Cost of part and labor are not included. (Required and only available for dealers who have a BFU of 284, except for orders with (R9W) Deleted Mobile Service Plus. Requires TRE, SRE, FBC, FNR or Fleet order types. Not available with (R9V) Mobile Service Plus for 3 years.) | $199.00 |

## ADDITIONAL EQUIPMENT - LPO

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| 5AV | LPO, GM Energy PowerShift Charger, Residential bidirectional EV charger; up to 19.2kW of charging, 80-amp, requiring a hardwired connection, with 25' length cord included (installation not included, professional install required for warranty) (Not available with (5CH) GM PowerUp2 Charger, LPO.) | $1,699.00 |
| 5CH | LPO, GM PowerUp2 Charger, Residential EV charger; up to 11.5kW of charging, 40-amp (48-amp max), requiring a hardwired connection, with 25' length cord included, (installation not included, professional install required for warranty) (Not available with (5AV) GM Energy PowerShift Charger, LPO.) | $699.00 |
| 5WI | LPO, Utility Wall Latch Kit (2-pack) (dealer-installed) (Included and only available with (PCR) Utility Wall Package, LPO.) | $0.00 |
| PCK | LPO, Cargo Security Package (dealer-installed), includes (S1O) Console-Mounted Safe, LPO and (VBJ) Underseat storage, LPO | $575.00 |
| PCR | LPO, Utility Wall Package (dealer-installed), includes (S4K) Utility Wall Strap Kit, LPO, (RVY) Bedside Utility Wall, LPO and (5WI) Utility Wall Latch Kit (2-Pack), LPO | $1,075.00 |
| PDE | LPO, Bed Utility Package (dealer-installed), includes (VMK) Cargo Management System Rails, LPO and (RSI) Truck Bed Organizer, LPO (Not available with (PDI) Stow and Go Package, LPO.) | $1,095.00 |
| PDI | LPO, Stow and Go Package (dealer-installed), includes (VMK) Cargo Management System Rails, LPO, (VBJ) Underseat storage, LPO and (WH9) Cargo Area Divider-Vertical, LPO (Not available with (PDE) Bed Utility Package, LPO or (PCK) Cargo Security Package, LPO.) | $1,295.00 |
| RIA | LPO, All-weather floor liners first and second rows, (dealer-installed) (WT customers with vinyl floor will only receive first row.) | $165.00 |
| RIK | LPO, Black nameplates (dealer-installed) (Included with (ST0) Custom Package, LPO.) | $225.00 |
| RSI | LPO, Truck Bed Organizer, collapsible (dealer-installed) (Included with (PDE) Bed Utility Package, LPO.) | $295.00 |
| RVY | LPO, Bedside Utility Wall (dealer-installed) (Included and only available with (PCR) Utility Wall Package, LPO.) | $0.00 |

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Quote: STATE OF COLORADO 2026 SILV EV 5WT QUOTE FE 6-5-25

## ADDITIONAL EQUIPMENT - LPO

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| RWU | LPO, eTrunk Collapsible Cargo Organizer (dealer-installed) (Not available to order at this time.) | $195.00 |
| RWV | LPO, eTrunk sliding tray (Not available with (WH6) eTrunk Vertical Cargo Net, LPO, (RWU) eTrunk Collapsible Cargo Organizer, LPO, (SA2) eTrunk foldable organizer, LPO, (WH9) eTrunk Vertical Cargo Area Divider, LPO, (RYC) All-Weather eTrunk Mat, LPO or (PDI) Stow and Go Package, LPO.) *PRICE TO FOLLOW* | W/A |
| RYC | LPO, All-Weather eTrunk Mat (dealer-installed) | $150.00 |
| RYU | LPO, NACS DC Adapter, DCFC adapter for public use on NACS fast charging stations including Tesla Supercharger, IONNA, EVgo and others. Intended for CCS native inlet vehicle. | $255.00 |
| S1H | LPO, Off-Road Recovery Kit (dealer-installed) | $550.00 |
| S1O | LPO, Console-Mounted Safe (dealer-installed) (Included and only available with (PCK) Cargo Security Package, LPO.) | $0.00 |
| S4K | LPO, Utility Wall Strap Kit (dealer-installed) (Included and only available with (PCR) Utility Wall Package, LPO.) | $0.00 |
| SA2 | LPO, eTrunk foldable organizer (dealer-installed) (Not available with (RYC) All-Weather eTrunk Mat, LPO, (RWU) eTrunk Collapsible Cargo Organizer, LPO or (WH9) Cargo Area Divider-Vertical, LPO.) | $195.00 |
| SDT | LPO, Utility Wall Trailer Hitch Holder (dealer-installed) (Requires (PCR) Utility Wall Package, LPO.) | $175.00 |
| SEU | LPO, 22" (55.9 cm) Gloss black wheels with machine face (dealer-installed) (Includes (PJ6) transit wheels.) | $2,250.00 |
| SFE | LPO, Wheel locks, set of 4 (dealer-installed) | $125.00 |
| SFZ | LPO, Black Bowtie, emblems, front and rear (dealer-installed) (Not available to order at this time.) | $195.00 |
| SL7 | LPO, Utility Rack by Advantage (dealer-installed) | $1,250.00 |
| VBJ | LPO, Underseat storage (dealer-installed) (Included and only available with (PCK) Cargo Security Package, LPO or (PDI) Stow and Go Package, LPO.) | $0.00 |
| VMK | LPO, Cargo Management System Rails (dealer-installed) (Included with (PDE) Bed Utility Package, LPO or (PDI) Stow and Go Package, LPO.) | $950.00 |
| VOZ | LPO, Hard Folding Truck Bed cover by RealTruck Advantage, (dealer-installed) | $1,950.00 |
| VPB | LPO, Soft rolling Truck Bed Cover premium soft roll-up, (dealer-installed) | $895.00 |
| VQK | LPO, Splash guards, molded, Black, front and rear (dealer-installed) | $325.00 |
| WH6 | LPO, eTrunk Vertical Cargo Net (dealer-installed) | $95.00 |

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Quote: STATE OF COLORADO 2026 SILV EV 5WT QUOTE FE 6-5-25

## ADDITIONAL EQUIPMENT - LPO

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| WH9 | LPO, eTrunk Vertical Cargo Area Divider (dealer-installed) (Included with (PDI) Stow and Go Package, LPO. Not available with (RYC) All-Weather eTrunk Mat, LPO, (RWU) eTrunk Collapsible Cargo Organizer, LPO, (SA2) LPO, eTrunk foldable organizer or (WH6) eTrunk Vertical Cargo Net, LPO.) | $250.00 |

## ADDITIONAL EQUIPMENT - OTHER

| CODE | DESCRIPTION | MSRP |
|---|---|---|
| P0H | 12 Months OnStar Connect Plus (Requires (UE1) OnStar and (VV4) Wi-Fi Hotspot capable. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0I, PQG, PQH, PQI, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) | $199.00 |
| P0I | 24 Months OnStar Connect Plus (Requires (UE1) OnStar and (VV4) Wi-Fi Hotspot capable. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0H, PQG, PQH, PQI, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) | $399.00 |
| P0J | 24 Months OnStar Protect (Requires (UE1) OnStar. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0U, P0K, P0L, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) *PRICE TO FOLLOW* | W/A |
| P0K | 36 Months OnStar Protect (Requires (UE1) OnStar. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0U, P0J, P0L, P0Q, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) *PRICE TO FOLLOW* | W/A |
| P0L | 48 Months OnStar Protect (Requires (UE1) OnStar. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0U, P0J, P0K, P0Q, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) *PRICE TO FOLLOW* | W/A |
| P0Q | 60 Months OnStar Protect (Requires (UE1) OnStar. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0K, P0L, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) *PRICE TO FOLLOW* | W/A |
| P0U | 12 Months OnStar Protect (Requires (UE1) OnStar. Requires one of the following Fleet or Government order types: FLS, FNR, FRC, FBC, FGO or FEF. Not available with P0J, P0K, P0L, R8G, RFH, R8P, R8Z or R8W. Not available with a ship-to of Guam, Puerto Rico or the Virgin Islands.) *PRICE TO FOLLOW* | W/A |

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**Colorado State Fleet Management**
**2025 VEHICLE SPECIFICATIONS**
**Dealers Invitation to Bid**

6/3/2024

Class: P/U - 4x4 **Body Code: F1** **PU SMALL, 4X4**

Representative Models: 1: FORD RANGER 2: TOYOTA TACOMA
3: CHEVROLET COLORADO 4: NISSAN FRONTIER

**MAKE:** FORD **MODEL:** MAVERICK **OEM MODEL #:** W8B **TRIM LEVEL:** XL **OEM CODE:** 100A

| STANDARD SPECIFICATIONS: | | OEM CODE | INDICATE ACTUAL DEALER SPECIFICATIONS |
|---|---|---|---|
| 100 | PASS: 2 PERSONS MIN. | STD | 4 PERSON CREWCAB |
| 110 | DOORS: 2 SIDE DOORS | STD | 4 DOORS |
| 123 | STANDARD BED MIN:70 INCHES | STD | 4.5FT BED |
| 140 | TIRES: ALL SEAS M&S RADIAL | STD | P255/70R16 A/S BSW |
| 146 | FULL SIZE SPARE TIRE MOUNTED | 51D | INCLUDED |
| 173 | WHEELBASE: 103.0 IN. MIN | STD | 121 WHEELBASE |
| 232 | GVW RATING: 5000 MIN | STD | 5205 GVWR |
| 298 | CRUISE CONTROL/TILT | STD | |
| 300 | AIR CONDITIONING | STD | |
| 302 | RADIO: AM/FM | STD | |
| 307 | POWER BRAKES & POWER STEERING | STD | |
| 308 | ABS BRAKES | STD | |
| 310 | SEATS: CLOTH SEATS | 9W | |
| 321 | FLOORING: RUBBER | STD | |
| 340 | AIR BAG - DRIVER SIDE | STD | |
| 350 | STD ENG: SPECIFY | 999 | 2.0L ECOBOOST |
| 400 | MIRRORS: RIGHT AND LEFT | STD | |
| 404 | INTERMITTENT WIPERS | STD | |
| 410 | TRANSMISSION: AUTOMATIC | STD | |
| 415 | FOUR-WHEEL DRIVE | STD | ALL WHEEL DRIVE |
| 418 | AUTOMATIC LOCKING FRONT HUBS | STD | |
| 430 | PCKG:TOWING/RCVR HITCH(Atchmt) | 53Q | INCLUDED |
| 459 | STEP BMPR-500#TONGUE,5000#TRLR | STD | |
| 752 | AXLE RATIO: SPECIFY | STD | 3.63 |
| 863 | BACKUP CAMERA | STD | |
| 910 | PRIMARY FUEL: UNLEADED | STD | |
| 991 | STD MIN WRNTY - BUMPER TO BUMPER 3/36 | STD | |

STANDARD VEHICLE BASE PRICE $ 29,400

| AVAILABLE OPTIONS: | | OEM CODE | ACTUAL / COMMENTS | PRICE |
|---|---|---|---|---|
| 097 | CREW CAB (4 DOORS): SPECIFY CA | STD | | STD |
| 098 | EXT CAB LONG BED 4 DOOR | NA | | NA |

Class: P/U - 4x4 **Body Code: F1** **PU SMALL, 4X4**

Representative Models: 1: FORD RANGER 2: TOYOTA TACOMA
3: CHEVROLET COLORADO 4: NISSAN FRONTIER

**MAKE:** FORD **MODEL:** MAVERICK **OEM MODEL #:** W8F **TRIM LEVEL:** XL **OEM CODE:** 100A

| | AVAILABLE OPTIONS: | OEM CODE | ACTUAL / COMMENTS | PRICE |
|---|---|---|---|---|
| 099 | EXT CAB SHORT BED (6') 4 DOOR | NA | | NA |
| 121 | LONG BED | NA | | NA |
| 122 | SHORT BED | NA | | NA |
| 133 | BACK UP ALARM | NA | | NA |
| 141 | TIRES: ALL-TERRAIN, LIST SIZE: | NA | | NA |
| 143 | TIRES: OPTION #1, LIST SIZE: | NA | | NA |
| 216 | NON-STD ENGINE OPTION A: | W8B | HYBRID AWD | 1,300 |
| 217 | ENG OPTION: DIESEL | NA | | NA |
| 218 | NON-STD ENGINE OPTION B: | NA | | NA |
| 239 | GVW OPTION: SPECIFY | NA | | NA |
| 249 | AXLE RATIO OPTION: SPECIFY | NA | | NA |
| 252 | CNG PREP PACKAGE | NA | | NA |
| 254 | ALT FUEL - OEM BI FUEL SPECIFY TANK LOC | NA | | NA |
| 255 | ALT FUEL - OEM DEDICATED SPEC TANK LOC | NA | | NA |
| 256 | E85 - OEM BI FUEL | NA | | NA |
| 262 | DARKEST LEGAL TINT AVAIL | 262 | UP TO 5 WINDOWS | 500 |
| 311 | SEATS: VINYL SEATS | NA | | NA |
| 320 | FLOORING: CARPET | STD | | STD |
| 408 | REAR AXLE - ANTI SPIN | NA | | NA |
| 414 | TWO-WHEEL DRIVE: REAR | NA | | NA |
| 423 | TOOL BOX - ACROSS BED BOX(attachment) | 423 | | 1,585 |
| 424 | TOOL BOX - SIDE BED BOX(attachment) | 424 | | 1,625 |
| 432 | TOW HOOKS | NA | | NA |
| 443 | PKG: STROBE LIGHT (Attachment) | 443 | CAB MOUNTED | 1,310 |
| 444 | PRE-HEATER | 41H | ENGINE BLOCK HEATER GAS ONLY | 100 |
| 450 | SKID PLATE-FUEL TNK,TRFR CS/DI | NA | | NA |
| 468 | SPRAY IN BEDLINER | 468 | SPRAY IN BEDLINER | 595 |
| 472 | EPACT AFV CREDIT: Specify | NA | | NA |
| 520 | POWER LOCKS | STD | | STD |
| 526 | POWER MIRRORS | STD | | STD |
| 530 | POWER WINDOWS | STD | | STD |
| 541 | DELETE DAYTIME/AUTO HEADLIGHTS | NA | | NA |
| 599 | AUDIO UPGRADE | NA | | NA |
| 608 | HYBRID GAS/ELECTRIC | --- | SEE LINE 216 | --- |
| 620 | UPPER TRIM LEVEL PKG: SPECIFY | 620 | XLT UPGRADE | 2,800 |

Class: P/U - 4x4 **Body Code: F1** **PU SMALL, 4X4**

Representative Models: 1: FORD RANGER 2: TOYOTA TACOMA
3: CHEVROLET COLORADO 4: NISSAN FRONTIER

**MAKE:** FORD **MODEL:** MAVERICK **OEM MODEL #:** W8F **TRIM LEVEL:** XL **OEM CODE:** 100A

| | AVAILABLE OPTIONS: | OEM CODE | ACTUAL / COMMENTS | PRICE |
|---|---|---|---|---|
| 643 | ADD DAYTIME RUNNING LIGHTS | NA | | NA |
| 763 | PHEV (PLUG IN HYBRID ELEC VEH) | NA | | NA |
| 791 | TOPPER FIBERGLASS 3 WINDOW (Attachment) | 791 | | 2,495 |
| 845 | BLIND SPOT NOTIFICATION | STD | | STD |
| 887 | BEV (BATTER/ELECTRIC) | NA | | NA |
| 982 | EXT WARRANTY - POWER TRAIN 5/100,000 | ESP | ESPPT 5YR/100K POWERTRAIN GAS ENGINE | 3,000 |

**Colorado State Fleet Management**
**2025 VEHICLE SPECIFICATIONS**
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6/3/2024

Class: P/U - 4x4 **Body Code: F1** **PU SMALL, 4X4**

Representative Models: 1: FORD RANGER 2: TOYOTA TACOMA
3: CHEVROLET COLORADO 4: NISSAN FRONTIER

**MAKE:** FORD **MODEL:** MAVERICK **OEM MODEL #:** W8F **TRIM LEVEL:** XL **OEM CODE:** 100A

AVAILABLE COLORS: Please attach manufacturer color chart

OTHER VEHICLE SPECIFICATIONS / OPTIONS (Please attach separate sheet if necessary) PRICE

STANDARD FACTORY WARRANTY (Attach detailed description):

| | MILES | MONTHS |
|---|---|---|
| Bumper to Bumper | 36000 | 36 |
| Drive Train | 60000 | 60 |
| Other | | |

OPTIONAL FACTORY WARRANTY (Attach detailed description):

| | MILES | MONTHS | PRICE |
|---|---|---|---|
| ESP PREMIUMCARE | 100K | 60 | 3,995 |

EPA FUEL RATING: 24 M.P.G CITY, 28 M.P.G HIGHWAY

OEM MINIMUM FUEL RATED OCTANE: 85

DELIVERY: 180-300+ DAYS FROM DEALER RECEIPT OF ORDER FROM STATE (E.G. 90 DAYS)

IDENTIFY ANY EXCEPTIONS TO SPECIFICATIONS:

DEALER NAME: SILL-TERHAR MOTORS BIDDER'S NAME: JON HANSEN

DEALER PHONE: 303-588-3052 SIGNATURE:

## #423 - PACKAGE: TOOLBOX - ACROSS BED BOX

Attach one copy of this form to each body code specification sheet that has an Available Option #423 including the following body codes:

**F1, F2, F3, F4, F6, F8, FE, FH**

An installed **TOOLBOX - ACROSS BED BOX** PACKAGE should include the following:

- Delta, Dee Zee, Weatherguard brand or equivalent
- Either a gull-wing, double lid or chest-style, full-hinged, single lid crossover toolbox
- 11.3 min cu in
- Painted white with **all steel** construction
- Torsion bar lift on lid(s)
- Removable tray
- Weather stripping around lid(s)
- A lock on each lid with key
- Price to include complete installation.

Total Price for **TOOL BOX - ACROSS BED BOX** PACKAGE:

- A gull-wing, double lid, tool box:

  $ 1,585

- a chest-style, full-hinged, single lid crossover toolbox:

  $ 1,485

For Body Code: F1

## #424 - PACKAGE: TOOL BOX - SIDE BED

Attach one copy of this form to each body code specification sheet that has an Available Option #424 including the following body codes:

**F1, F2, F3, F4, F6, F8, FE, FH**

An installed **TOOLBOX - SIDE BED (Rail Mount)** PACKAGE should include the following:

- Delta, Dee Zee brand Rail Mount Box or equivalent
- A quantity of one, side-bed, rail mount, utility, tool box
- Toolbox must sit on top of the truck bed side rail
- Painted white with **all steel** construction
- A lock on the lid with key
- Removable tray
- Weather stripping around lid
- Price to include complete installation, rearward of an optional across bed box.

Total Price for **48" TOOLBOX - SIDE BED** PACKAGE: $ 1,625

Total Price for **60" TOOLBOX - SIDE BED** PACKAGE: $ 1,825

For Body Code: F1

## #443 - STROBE LIGHT

Attach one copy of this form to each body code specification sheet that has an Available Option #443 including the following body codes:

**All C's, D's, F's, G's, H's & K's, P4, PE**

The **STROBE LIGHT PACKAGE** must include the following:

- Roof mounted, LED Warning Beacon
- Class 3 light, SAE certified spec: Whelen L53 Series Super LED Warning Beacon spec or equivalent.
- Minimum of 75 flashes per minute
- Polycarbonate Black base & twist-off dome
- 12V
- 0.4 Amp (peak), 0.016 Amp Average
- Switch in cab
- Warranty: 1-year parts and labor
- Complete installation with **locations** as follows:
- **Location for strobe light on pickups:**
- On the roof of the pickup cab
- The light must be centered between the front of the roof and the rear of the roof.
- The light must be also centered from one side to the other side of the roof.
- **Location for strobe light on vans and sport utilities:**
- On the roof of the van or sport utility
- The light must be centered from one side to the other side of the roof
- The light must also be two feet from the rear of the roof.

List the make and model of strobe that is bid:
Make North American Model Arrow

List any additions and/or deletions of your bid from the STROBE LIGHT PACKAGE specs listed above:

Total Price for STROBE LIGHT PACKAGE: $ 1,310

For Body Code: F1

## #791 – TOPPER FIBERGLASS 3 WINDOW

Attach one copy of this form to each body code specification sheet that has an Available Option #791 including the following body codes:

**F1, F2, F3, F4, F8, FE, FH**

The **TOPPER FIBERGLASS 3 WINDOW** PACKAGE must include the following:

- A.R.E. V Series Topper or Approved Equals
- Construction shall be cab height, fiberglass topper
- Front shall be solid with full width, non-tinted front glass window
- Sides shall be solid with tinted glass windows on each side, sixty (60) inches to seventy (70) inches length (plus or minus one (1) inch and fourteen (14) inches height (plus or minus one half (1/2 inch). Side windows must be centered from front to back of topper with locks and flip up and stay up with one hand operation
- Rear shall be locking, flip up, full width and full height with tinted glass door in the rear. Door must open, remain up and close with one hand operation, to include gas props.
- Keys shall be the same key which must flip side and rear flip up windows. Two keys shall be provided for each truck topper
- Topper shall include 3rd brake light
- Topper color must match truck color
- Warranty min. 3 years on structure, paint and lock cylinder, 5 years on gas props part and labor

List any additions and/or deletions on your bid from the specs listed above:

Total Price for TOPPER FIBERGLASS W/3 WINDOWS: 2,495

For Body Code: F1

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 8.A.**

**Subject:** Ordinance No. 1920, Series 2026 — An Ordinance Removing Lot 1, Block 3, Jefferson Place Subdivision from the Old Town Overlay and Adding to the Boundaries of Downtown Louisville — 2nd Reading, Public Hearing (advertised City of Louisville Website 04/08/2026)

The Public Hearing will be held and 2 rounds of public comment will be taken, along with Council questions and discussion. Final action may be taken on this item.

**Date:** April 21, 2026

**Prepared By:** Emily Cline-Gibson, Planner II

**Presented By:** Emily Cline-Gibson, Planner II

**Summary:**

This proposal includes updating the Louisville Municipal Code to remove Lot 1, Block 3, Jefferson Place (811 Walnut Street) from the Old Town Overlay and add it to the boundaries of Downtown Louisville. This follows the rezoning of the property from Residential Medium Density (RM) to Commercial Community (CC), which was approved by City Council in October 2025. Since the property is adjacent to and now in the same commercial zone district as Downtown Louisville, the new designation will result in changing the applicable development standards from the Old Town Overlay zoning standards that apply to residential development to the Design Handbook for Downtown Louisville (the “Handbook”).

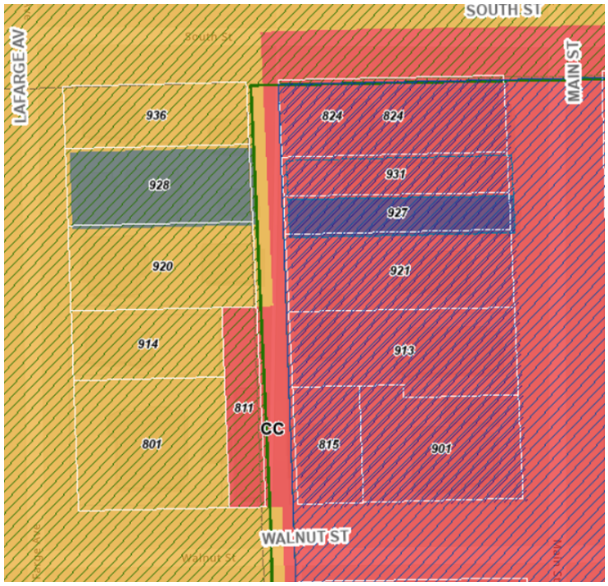
**Background / Prior Discussions:**

The subject property consists of Lot 1, Block 3 of the Jefferson Place Subdivision, which was platted in 1880. The building located on the subject property was constructed around 1954 by the Mountain States Telephone & Telegraph Company for office space and was zoned residential until 2025, when the property was rezoned to CC after City Council found the rezoning request to be consistent with the criteria found in LMC Sec. 17.44.050 (Meeting packet linked here). The rezoning did not include any modifications to the Old Town Overlay or the Downtown Louisville boundaries, and the property remains in the Old Town Overlay, where it has been located since the overlay was established. Following approval of the rezoning request, the building opened operations as a retail shop.



*Image of subject property.*

An existing alley is located along the eastern property line and historically acted as a division between the CC zone, which includes the Downtown Louisville boundaries and the RM zone, which includes the Old Town Overlay boundaries. The Downtown Louisville area represents the predominantly commercial area and the Old Town Overlay represents the predominantly residential area surrounding downtown.




*Current zoning which shows the Old Town Overlay (green stripes) and Downtown Louisville (blue stripes).*

The Old Town Overlay ordinance was established in 1995 and provides zoning standards intended to maintain the residential character of Old Town. The ordinance also provides a description of the overlay boundaries, which includes the subject property. The Old Town Overlay zoning district regulations provide baseline zoning information for residential structures, such as garage access from alleys, minimum setbacks, maximum floor area ratios, and maximum building heights. The overlay encompasses RM and Residential Low Density (RL) zone districts.

The definition of Downtown Louisville was established in 1998 and provides a

description of the downtown boundaries. The Westerly Portion of Downtown Louisville was approved as a separate definition in 1999, establishing site boundaries specific to the western downtown area for the purpose of providing maximum floor areas. The CC zone district and the Commercial Business (CB) zone district are incorporated into both definitions as applicable zone districts for Downtown Louisville.

The Design Handbook for Downtown Louisville was approved in 1998 and provides commercial design standards specifically for Louisville's historic downtown area. The Handbook includes design considerations such as architectural details, building mass, and design standards for historic buildings. The Handbook provides specific standards for the Core Area of Downtown, which contain traditional commercial storefronts, and the Transition Area of Downtown, which buffers the commercial core from the surrounding residential neighborhoods. A map on Page viii of the Handbook specifies which areas are designated as Core or Transition areas.

At the March 12, 2026 regular Planning Commission meeting, the Commissioners unanimously approved Resolution No. 5, Series 2026, recommending approval of the draft ordinance following a public hearing.

**Development Proposal:**
The proposal includes amending two definitions in LMC Sec. 17.08 to include 811 Walnut Street within the boundaries of downtown. The following amendments are proposed (words to be added are underlined):

**Sec. 17.08.113 – Downtown Louisville.**

*Downtown Louisville* means and includes (1) that certain Commercial Community (C-C) zone district set forth on the official zoning district map of the city and bounded on the north by South Street; on the south by the south line of the Town of Louisville Subdivision and south line of the Pine Street Plaza Subdivision; on the west by the alley between Main Street and LaFarge Avenue, and also includes the property identified as Lot 1, Block 3, Jefferson Place, which lies west of said alley; and on the east by the south and west boundary of East Louisville Subdivision and the east line of Colorado State Highway 42; and (2) that certain Commercial Business (C-B) zone district set forth on the official zoning district map of the City and bounded on the north by the south line of the Town of Louisville Subdivision; on the south by the north line of the Mansour-Engel Subdivision; on the west by the right-of-way for County Road/Front Street; and on the east by the Burlington Northern Santa Fe Railroad Tracks.

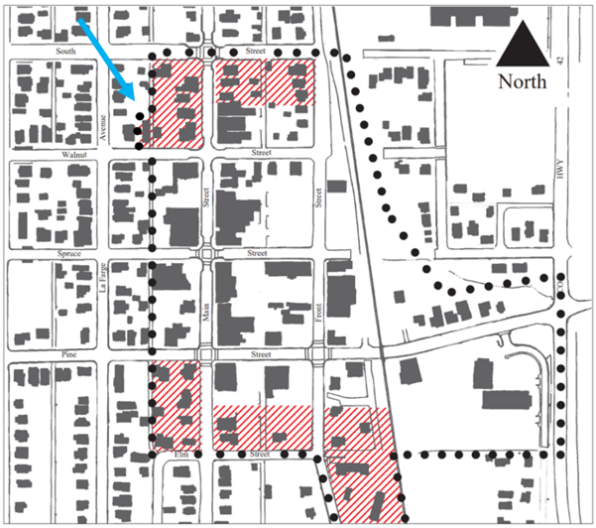
**Sec. 17.08.591 – Westerly portion of Downtown Louisville.**

*Westerly portion of Downtown Louisville* means and includes (1) that portion of the Downtown Louisville commercial community (c-c) zone district which is bounded on the north by south street; on the south by the south line of the Town of Louisville subdivision; on the west by the alley between Main Street and Lafarge Avenue, and

also includes the property identified as Lot 1, Block 3, Jefferson Place, which lies west of said alley; and on the east by the Burlington Northern Santa Fe railroad tracks; and (2) all of that certain commercial business (c-b) zone district set forth on the official zoning district map of the city and bounded on the north by the south line of the Town of Louisville subdivision; on the south by the north line of the Mansour-Engel subdivision; on the west by the right-of-way for County Road/Front Street; and on the east by the Burlington Northern Santa Fe railroad tracks.

An amendment to the boundaries of the Old Town Overlay is also proposed, which will remove the subject property from the overlay (see Attachment 1).

In addition to the proposed text amendments, an amendment to the maps located on Page viii and Page xii in the Handbook is proposed, which provides a visual of the Downtown Louisville boundaries and incorporates the subject property within the shaded area that represents the Transition Area of downtown.




*Proposed amended map on P. viii to include 811 Walnut in the Transition Area (shaded).*



*Proposed amended map on P. xii to include 811 Walnut in Downtown Louisville.*

**Analysis:**
Staff find that the proposal provides consistency with the adopted policies that govern the historic Old Town residential areas and downtown commercial areas in Louisville. The Old Town Overlay zoning regulations are primarily intended for residential structures located in the RM or RL zone districts within the historic Old Town. In contrast, the definition of Downtown Louisville was established to implement the Design Handbook for Downtown Louisville and identifies properties that are zoned CC and CB as subject to its commercial design standards.

The rezoning of 811 Walnut Street from RM to CC in 2025 aligned the property with the appropriate commercial zone district for its historically commercial building but left it within the residential-focused Old Town Overlay, creating an inconsistency. Removing the property from the Old Town Overlay and incorporating it into Downtown Louisville resolves this inconsistency and ensures the site is governed by the appropriate standards based on the property use and zone district.

By including 811 Walnut Street in Downtown Louisville, the property would be subject to the general design standards and the Transition Area design standards in the Handbook. These standards would apply to future exterior modifications or redevelopment and would be reviewed in accordance with the City's development review procedures.

Since the subject property also falls within the Westerly Portion of Downtown Louisville, the building would be counted towards the 475,000 square foot maximum cumulative floor area, as provided in LMC Sec. 17.12.060. The intent of this floor area limit is to appropriately regulate the scale and intensity of development in this portion of downtown. The existing single-story building is approximately 1,349 square feet, and there is no redevelopment proposed at this time. The inclusion of this property does not significantly alter the maximum developable floor area for the area.

**Council Work Plan:**
This code amendment supports the 2026 City Council Work Plan' Economic Vitality initiatives.

**Fiscal Impact:**
Not applicable. There is no fiscal / budget impact for this item.

**Alternatives:**
The City Council may approve, approve with amendments, or deny the ordinance.

**Recommendation:**
Staff recommend approval of Ordinance 1920, Series 2026.

**Attachments:**

1. Ordinance No. 1920, Series 2026
2. Resolution 5, Series 2026
3. Owner Authorization
4. CC 2nd reading presentation

**ORDINANCE NO. 1920**
**SERIES 2026**

**AN ORDINANCE REMOVING LOT 1, BLOCK 3, JEFFERSON PLACE SUBDIVISION FROM THE OLD TOWN OVERLAY AND ADDING TO THE BOUNDARIES OF DOWNTOWN LOUISVILLE**

**WHEREAS**, certain real property, the street address of which is 811 Walnut Street and the legal description of which is Lot 1, Block 3, Jefferson Place subdivision (the "Property"), was rezoned from the Residential Medium Density (R-M) to Commercial Community (C-C) zone district; and

**WHEREAS**, the Louisville Municipal Code (LMC) Title 17, Zoning, establishes definitions that are used throughout Title 17; and

**WHEREAS,** the Old Town Overlay zoning district was established to maintain the existing character of residential Old Town by maintaining an appropriate scale and character of development; and

**WHEREAS,** the definitions of Downtown Louisville and the Westerly Portion of Downtown Louisville establish the boundaries of Downtown Louisville; and

**WHEREAS**, the Design Handbook for Downtown Louisville (the "Handbook") provides policies on design in Downtown Louisville; and

**WHEREAS,** the City desires to modify said definitions so that the Property is included within the boundaries of Downtown Louisville and removed from the boundaries of the Old Town Overlay zoning district; and

**WHEREAS**, after a duly noticed public hearing held March 12, 2026, where evidence and testimony were entered into the record, including the Louisville Planning Commission Staff Report dated March 12, 2026, the Louisville Planning Commission has recommended the City Council adopt the amendments to the LMC set forth in this ordinance; and

**WHEREAS**, City Council has provided notice of a public hearing on said ordinance by publication as provided by law and held a public hearing as provided in said notice.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** Louisville Municipal Code Chapter 17.08 (Definitions), Section 17.08.113 and Section 17.08.591, are hereby amended to read as follows (words to be added are underlined):

**Sec. 17.08.113 – Downtown Louisville.**

*Downtown Louisville* means and includes (1) that certain Commercial Community (C-C) zone district set forth on the official zoning district map of the city and bounded on the north by South Street; on the south by the south line of the Town of Louisville Subdivision and south line of the Pine Street Plaza Subdivision; on the west by the alley between Main Street and LaFarge Avenue, and also includes the property identified as Lot 1, Block 3, Jefferson Place, which lies west of said alley; and on the east by the south and west boundary of East Louisville Subdivision and the east line of Colorado State Highway 42; and (2) that certain Commercial Business (C-B) zone district set forth on the official zoning district map of the City and bounded on the north by the south line of the Town of Louisville Subdivision; on the south by the north line of the Mansour-Engel Subdivision; on the west by the right-of-way for County Road/Front Street; and on the east by the Burlington Northern Santa Fe Railroad Tracks.

**Sec. 17.08.591 – Westerly portion of Downtown Louisville.**

*Westerly portion of Downtown Louisville* means and includes (1) that portion of the Downtown Louisville commercial community (c-c) zone district which is bounded on the north by south street; on the south by the south line of the Town of Louisville subdivision; on the west by the alley between Main Street and Lafarge Avenue, and also includes the property identified as Lot 1, Block 3, Jefferson Place, which lies west of said alley; and on the east by the Burlington Northern Santa Fe railroad tracks; and (2) all of that certain commercial business (c-b) zone district set forth on the official zoning district map of the city and bounded on the north by the south line of the Town of Louisville subdivision; on the south by the north line of the Mansour-Engel subdivision; on the west by the right-of-way for County Road/Front Street; and on the east by the Burlington Northern Santa Fe railroad tracks.

**Section 2.** The maps on Page viii and Page xii of the Design Handbook for Downtown Louisville, referenced in Section 17.16.280 and as Appendix B to Chapter 17.28 of the Louisville Municipal Code, are hereby amended as set forth in Exhibit A to this ordinance, attached hereto and incorporated herein by this reference.

**Section 3.** The legal description for the property designated as the Old Town Overlay District is hereby amended to read as follows (words to be added are underlined):

Beginning at the northeast corner of Block 15, Caledonia Place Subdivision, thence west along Lafayette Street to Jefferson Avenue; thence north on Jefferson avenue to Griffith Street; thence west on Griffith Street to the west boundary of the Fischer Subdivision; thence south along the west boundary of the Fischer Subdivision, the west boundary of the Nicola DiGiacomo

Subdivision, and the west boundary of the Capitol Hill subdivision to South Street; thence west along the north boundary of the Louisville Heights subdivision to the northwest corner of said Louisville Heights subdivision; thence south along the west boundary of the Louisville Heights subdivision to Pine Street; thence west along Pine Street to the west boundary of the Corrigan subdivision; thence south along the west boundary of the Corrigan subdivision to the southwest corner of said subdivision; thence east along the south boundary of the Louisville Heights subdivision to the west boundary of the Acme Place Subdivision; thence south along said west boundary of the Acme Place Subdivision to Hutchinson Street; thence east along Hutchinson Street to the northeast corner of the Windsong Subdivision; thence south along the east boundary of the Windsong Subdivision to the north boundary of Johnson's Addition to the west boundary of Johnson's Addition; thence west along the north boundary of Johnson's addition to the west boundary of Johnson's Addition; thence south along the west boundary of Johnson's Addition to the south boundary of Johnson's addition; thence east along the south boundary of Johnson's Addition to Roosevelt Avenue; thence north along Roosevelt Avenue to the south boundary of Murphy Place subdivision to County Road; thence north along County Road to Elm Street; thence west along Elm Street to the alley lying between Main Street and Lafarge Avenue; thence north along said alley to the property identified as Lot 1, Block 3, Jefferson Place subdivision; thence west along Lot 1, Block 3, Jefferson Place subdivision; thence north along Lot 1, Block 3, Jefferson Place subdivision; thence east along Lot 1, Block 3, Jefferson Place subdivision to the alley between Main Street and Lafarge Avenue; thence north along said alley to South Street; thence east along South Street to the Colorado and Southern Railroad tracks; thence north along said railroad tracks to Lafayette Street and the point of beginning;

and

All of East Louisville Subdivision;

and

Beginning at the northeast corner of the R. DiGiacomo Subdivision; thence west along the north boundary of the R. DiGiacomo Subdivision; thence south along the west boundary of the R. DiGiacomo Subdivision to Harper Street; Thence west along the Harper Street right of way to the Colorado and Southern Railroad tracks; thence south along the Colorado and Southern Railroad tracks to Griffith Street; thence east along Griffith Street to Colorado State Highway 42; thence north along Colorado State Highway 42 to the northeast corner of the R. DiGiacomo Subdivision and the point of beginning.

**Section 4.** The Old Town Overlay Zoning Map is hereby amended as set forth in Exhibit B, attached hereto and incorporated herein by reference.

**Section 5.** If any portion of this ordinance is held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part hereof irrespective of the fact that any one part be declared invalid.

**Section 6.** All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

**Section 7.** A copy of this ordinance shall be recorded in the Offices of the Boulder County Clerk and Recorder.

**INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED** this _____ day of _____, 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

**PUBLIC HEARING AND SECOND READING WILL BE THE ____ DAY OF _____, 2026, AT 6:00 P.M. AT LOUISVILLE CITY HALL, 749 MAIN STREET, LOUISVILLE, CO 80027.**

**PASSED AND ADOPTED ON SECOND AND FINAL READING,** this ____ day of _____, 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

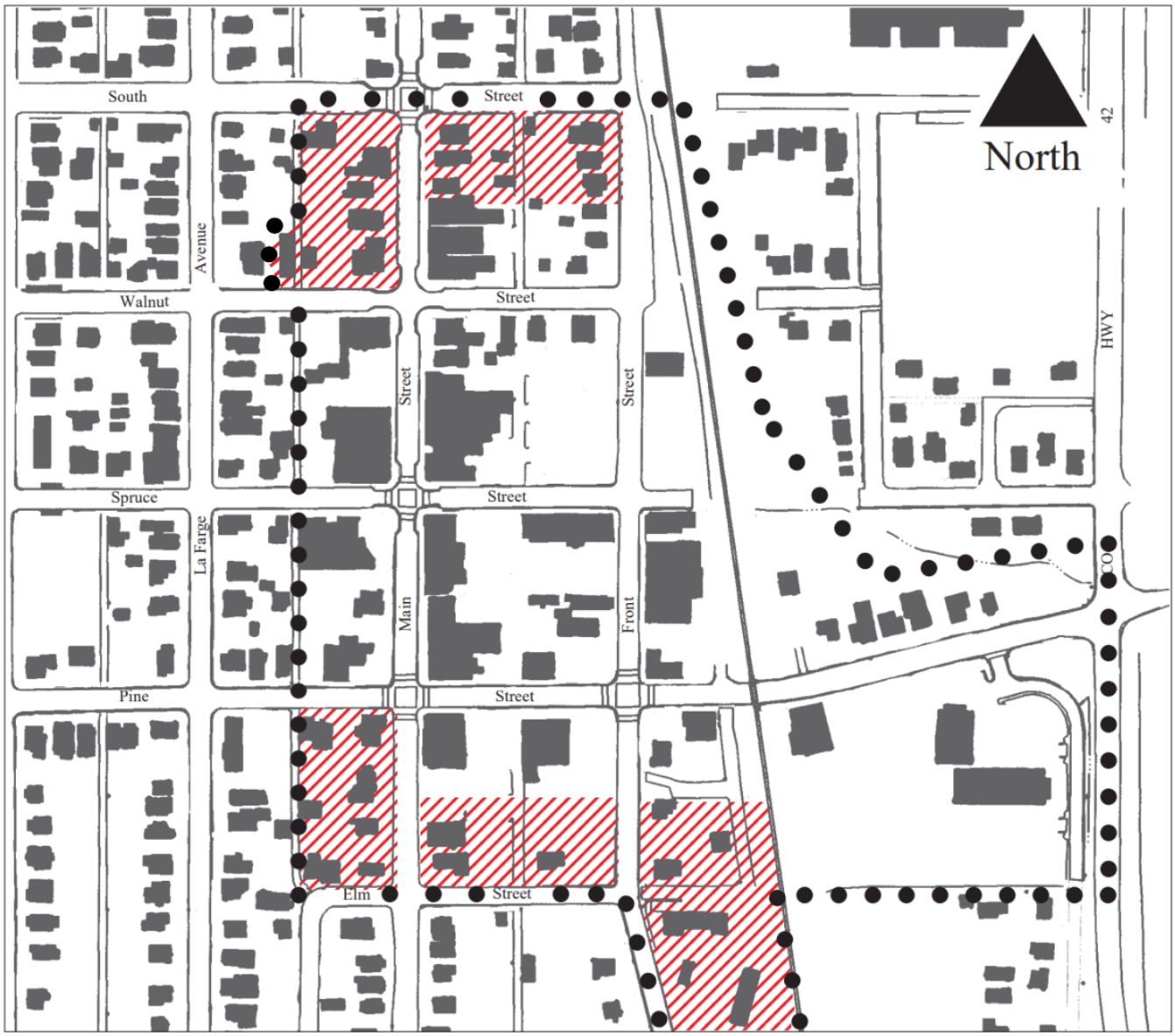
_____

Genny Kline, City Clerk

APPROVED AS TO FORM:
Kelly PC

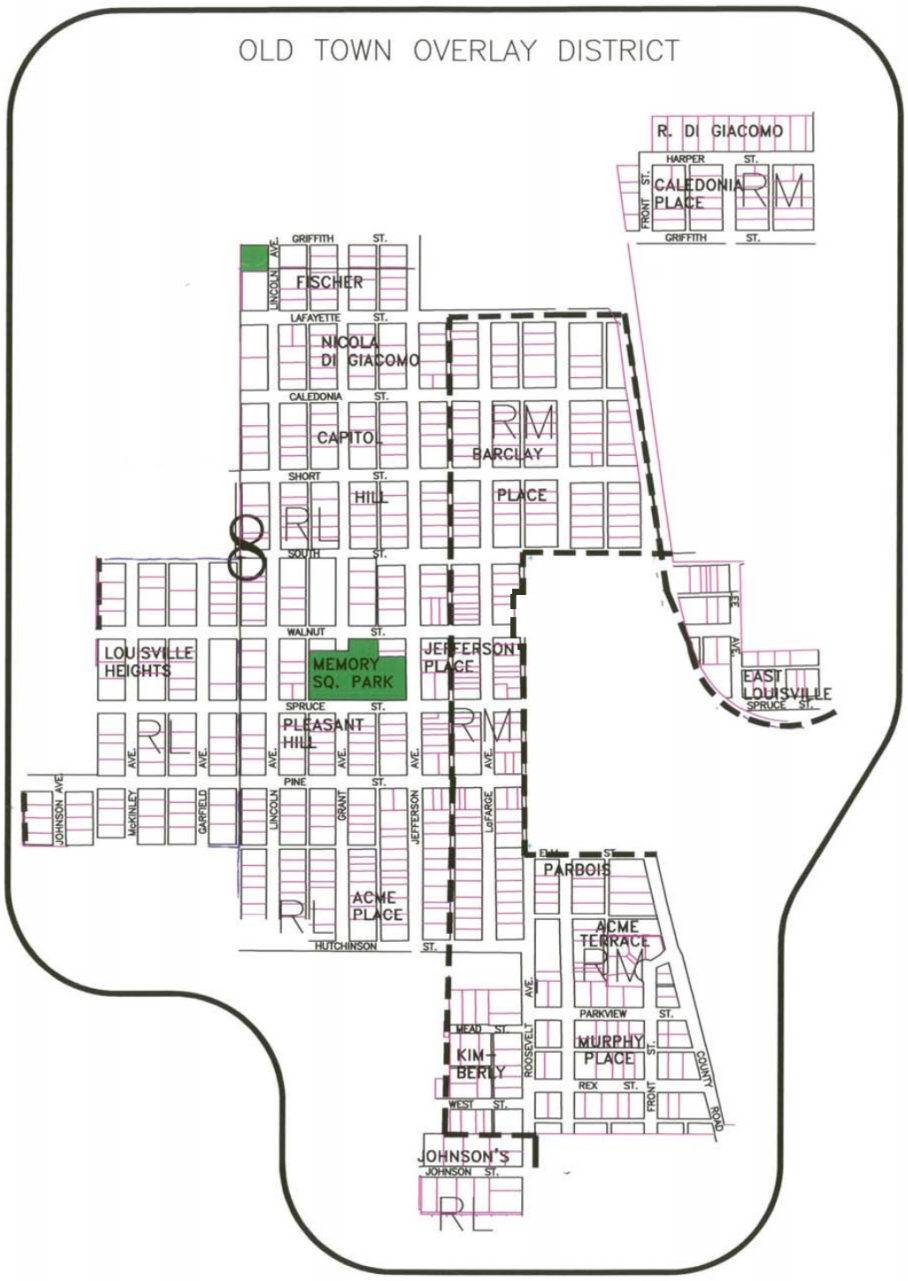
_____
Melinda Culley, Deputy City Attorney

**Exhibit A**
**Design Handbook for Downtown Louisville Amended Maps**




South Street
North
42
HWY
CO
Walnut Street
Avenue
Street
Street
Spruce Street
La Farge
Main
Front
Pine Street
Elm Street

**Exhibit B**
**Old Town Overlay Zoning Map**




* The Old Town Overlay District includes all properties located within the marked boundaries and excludes Lot 1, Block 3, Jefferson Place, as shown above.

**RESOLUTION NO. 5**
**SERIES 2026**

**A RESOLUTION RECOMMENDING APPROVAL OF A DRAFT ORDINANCE APPROVING A REQUEST TO AMEND LOUISVILLE MUNICIPAL CODE TITLE 17 TO INCORPORATE THE PROPERTY AT 811 WALNUT STREET INTO DOWNTOWN LOUISVILLE AND REMOVE IT FROM THE OLD TOWN OVERLAY.**

**WHEREAS**, A certain real property, the street address of which is 811 Walnut Street and the legal description of which is Lot 1, Block 3, Jefferson Place subdivision (the "Property"), was rezoned from the Residential Medium Density (R-M) to Commercial Community (C-C) zone district; and

**WHEREAS,** the City desires to modify the definitions of *Downtown Louisville* and the *Westerly Portion of Downtown Louisville* so that the subject property is included within the boundaries of Downtown Louisville and removed from the boundaries of the Old Town Overlay zoning district; and

**WHEREAS**, City staff has reviewed the information submitted and found that the application complies with the Louisville zoning regulations and other applicable sections of the Louisville Municipal Code; and

**WHEREAS**, the Planning Commission has considered the application at a duly noticed public hearing on March 12, 2026, where evidence and testimony were entered into the record, including the findings in the Louisville Planning Commission staff report dated March 12, 2026; and

**NOW THEREFORE, BE IT RESOLVED** that the Planning Commission of the City of Louisville, Colorado does hereby recommend approval of a draft ordinance approving a request to amend Louisville Municipal Code Title 17 to incorporate the property at 811 Walnut Street into Downtown Louisville and remove it from the Old Town Overlay.

**PASSED AND ADOPTED** this 12th day of March, 2026.

By: Steve Brauneis
Steve Brauneis, Chair
Planning Commission

Attest: Cullen Choi
Cullen Choi, Secretary
Planning Commission

City of Louisville

749 Main Street

Louisville, CO 80027

RE: Downtown Louisville Overlay Text Amendment for 811 Walnut Street (LMCA-000590-2026)

To Whom it May Concern:

I, ____J.D. Greene_____, owner of the property
(Name)
located at 811 Walnut Street, Louisville, CO, hereby authorize the City of Louisville to complete a text amendment application to remove the subject property from the Old Town Overlay and place it in the Downtown Louisville Overlay.

J.D. Greene

Property Owner's Name

Property Owner's Signature

2/23/26

Date

City of Louisville
COLORADO • SINCE 1878

# City Council

*Public Hearing - April 21, 2026*

ORDINANCE NO. 1920, SERIES 2026; AN ORDINANCE REMOVING 811 WALNUT STREET FROM THE OLD TOWN OVERLAY AND INCLUDING IT IN DOWNTOWN LOUISVILLE

# Background

- Lot 1, Block 3, Jefferson Place Subdivision
- Historically commercial building, rezoned from RM to CC in 2025
- Rezoning did not include modifications to overlay boundaries
- Included in Old Town Overlay boundaries
- Definitions to Downtown Louisville provide specific boundary lines
- Design Handbook for Downtown Louisville provides site design standards for commercial properties in downtown



*Image of subject property.*

City of Louisville

# Proposal

## Sec. 17.08.113 – Downtown Louisville

*Downtown Louisville* means and includes (1) that certain Commercial Community (C-C) zone district set forth on the official zoning district map of the city and bounded on the north by South Street; on the south by the south line of the Town of Louisville Subdivision and south line of the Pine Street Plaza Subdivision; on the west by the alley between Main Street and LaFarge Avenue**, and also includes the property identified as Lot 1, Block 3, Jefferson Place, which lies west of said alley;** and on the east by the south and west boundary of East Louisville Subdivision and the east line of Colorado State Highway 42; and (2) that certain Commercial Business (C-B) zone district set forth on the official zoning district map of the City and bounded on the north by the south line of the Town of Louisville Subdivision; on the south by the north line of the Mansour-Engel Subdivision; on the west by the right-of-way for County Road/Front Street; and on the east by the Burlington Northern Santa Fe Railroad Tracks.

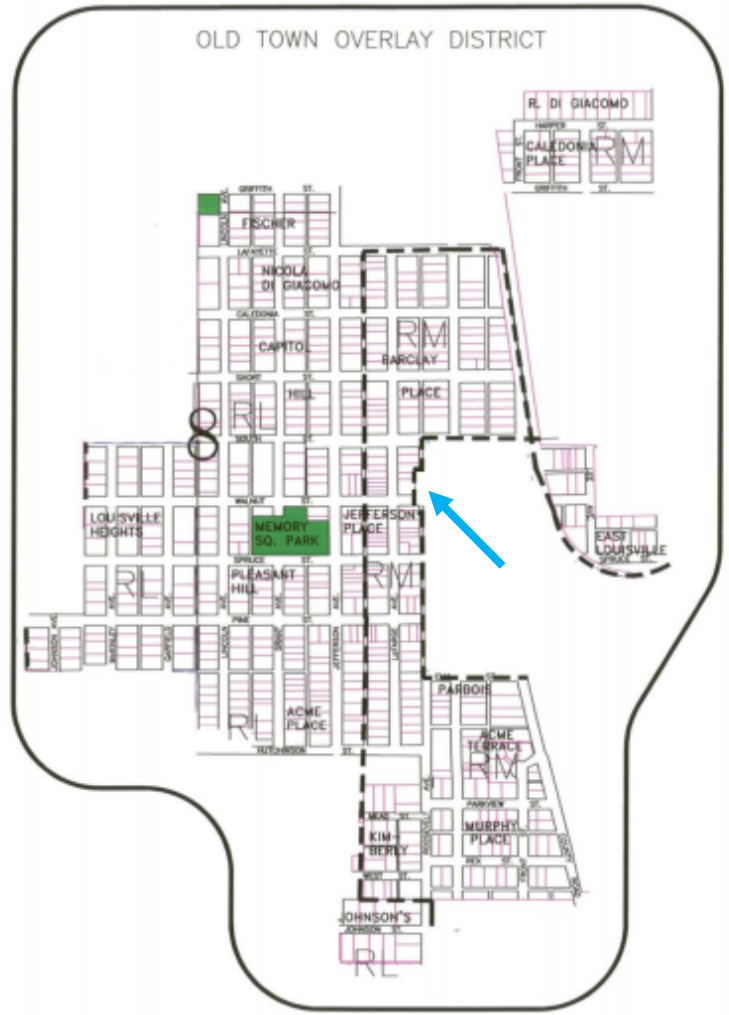
## Sec 17.08.591 – Westerly Portion of Downtown Louisville

*Westerly portion of Downtown Louisville* means and includes (1) that portion of the Downtown Louisville commercial community (c-c) zone district which is bounded on the north by south street; on the south by the south line of the Town of Louisville subdivision; on the west by the alley between Main Street and Lafarge Avenue**, and also includes the property identified as Lot 1, Block 3, Jefferson Place, which lies west of said alley;** and on the east by the Burlington Northern Santa Fe railroad tracks; and (2) all of that certain commercial business (c-b) zone district set forth on the official zoning district map of the city and bounded on the north by the south line of the Town of Louisville subdivision; on the south by the north line of the Mansour-Engel subdivision; on the west by the right-of-way for County Road/Front Street; and on the east by the Burlington Northern Santa Fe railroad tracks.

# Proposal




*Updated maps found in the Design Handbook for Downtown Louisville.*




* The Old Town Overlay District includes all properties located within the marked boundaries and excludes Lot 1, Block 3, Jefferson Place, as shown above.

*Updated map for the Old Town Overlay.*

City of Louisville

# Analysis

- Consistent with adopted policies
- Old Town Overlay is intended for residential properties
  - Provides basic zoning standards for smaller residential lots in Old Town
- Design Handbook for Downtown Louisville intended for commercial properties
  - Provides detailed design standards for commercial lots in downtown
- No significant impact to floor area totals for Westerly Portion of Downtown
  - Maximum combined floor area of 475,000 allowed
  - 811 Walnut Street is 1,349 square feet

# Recommendation

## Planning Commission

Planning Commission unanimously recommended approval as presented at a public hearing on March 12, 2026.

## Staff

Staff recommend approval of Ordinance No. 1920, Series 2026.

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 8.B.**

**Subject:** Ordinance No. 1922, Series 2026 — An Ordinance Amending Title 3 of the Louisville Municipal Code to Establish a Business Assistance Program for Small Businesses and to Change Approval Thresholds for BAP Agreements - 1st Reading, Set Public Hearing

1st Reading includes the Staff Presentation and questions from Council. There is no opportunity for public comment. The Public Hearing (2nd Reading) will be set on this item for a later date. The Public Hearing will allow 2 rounds of public comment.

**Date:** April 21, 2026

**Prepared By:** Vanessa Zarate, Economic Vitality Manager

**Presented By:** Vanessa Zarate, Economic Vitality Manager

**Summary:**
The City of Louisville provides new and expanding businesses incentive assistance through the Business Assistance Program (BAP). This program allows for rebates of building permit fees, consumer use tax and sales tax. Previous amendments to the program have also allowed for vacancy bonuses or enhanced assistance for qualifying businesses.

This BAP program amendment would allow for administrative approval for retail and restaurant businesses locating into Louisville that are less than 3,000 SF. In addition, the administrative approval would provide a 5-year tiered rebate of 90-70-50-30-10% to effectively provide a 50% rebate over 5 years but allow for a greater rebate in the early years as businesses are expending greater capital and working to open and operate.

In addition, this amendment would authorize administrative approval of BAP agreements of $100,000 or less. This administrative approval would be completed by the City Manager and would increase from $50,000 to $100,000 to align with the City's Purchasing Policy.

**Background / Prior Discussions:**
The Economic Vitality division, through City Council, provides the business community with various incentives through the Business Assistance Program. In addition, the Louisville Revitalization Commission provides various incentives to businesses and property owners within the Highway 42 Urban Renewal Area boundaries. Incentives provided by the City of Louisville are performance and rebate-based, providing positive direct and indirect impacts to the City of Louisville.

The Economic Vitality division also works with partners across the state to gain designations for Louisville corridors and businesses. These designations typically allow

businesses to gain access to tax credits or other incentives through state and/or federal partners.

At the March 6, 2025 EVC Meeting, Staff provided an array of potential new incentives the City could explore. At this meeting, the members of the EVC expressed interest in a BAP amendment for small retail and restaurant businesses, with original review of a draft updated incentive policy held at the May 8, 2025 EVC meeting. At the December 11, 2025 EVC meeting, EVC voted in favor of bringing forward these amendments to the full City Council for review.

The BAP program already allows for administrative approvals of individual BAPs less than $50,000. This allows the City Manager to approve BAPs that meet the requirements and goals of the program, and are under the designated threshold. Any BAPs above the administrative approval go to the City Council for discussion and approval.

**Development Proposal:**
N/A

**Analysis:**
Staff is proposing the following parameters for the amended **Business Assistance Program for Small Businesses.**

Eligibility:

- New and expanding businesses in the City of Louisville.
- The total square footage of the business has to be 3,000 square feet or below and
- Have no more than 5 locations.

These eligibility parameters will encourage local businesses to enter into our market and fill vacancies, and emphasize a local business presence in Louisville. Should a business have more than five locations, Council approval will be needed.

Proposed Incentive: a 5-year agreement with a tiered rebate. This tiered rebate approach will provide these small retail and restaurant businesses a higher rebate upon opening, when costs tend to be the highest. The effective incentive rate at the end of the 5-year term would be a 50% rebate.

- Year 1- 90%
- Year 2- 70%
- Year 3- 50%
- Year 4- 30%
- Year 5- 10%.

Administrative Approval: This BAP amendment would allow for administrative approval of the agreements by the City Manager. This would support quick timeframes and eliminate the step of taking the incentive to City Council for approval, also limiting the risk to the business.

This proposed BAP amendment would provide administrative incentive approvals for retail and restaurant businesses. This amendment is intended to incentivize small, local businesses that generate sales tax to locate or expand in our commercial corridors. At the end of the 5-year term, the incentive would terminate and the City would retain all sales tax moving forward.

This program amendment will also change the administrative approval threshold for all BAP types to $100,000 or less. This change is intended to align the BAP program administrative approvals with the City's existing and adopted purchasing policy.

**Council Work Plan:**
This amendment supports the Council's Economic Vitality goals.

**Fiscal Impact:**
The BAP incentives are rebates based on new revenues, and therefore, do not impact the current budget. Incentivizing new businesses to locate and expand within the City will increase overall tax revenues for the City.

**Alternatives:**

- Approve the Business Assistance Program ordinance as proposed on first reading.
- Approve the Business Assistance Program ordinance on first reading and direct any desired changes for second reading.
- Do not approve the Business Assistance Program ordinance amendments.

**Recommendation:**
Staff recommends the City Council approve of Ordinance No. 1922, Series 2026 on first reading and set the public hearing.

**Attachments:**
1. Ordinance No. 1922, Series 2026

**ORDINANCE NO. 1922**
**SERIES 2026**

**AN ORDINANCE AMENDING TITLE 3 OF THE LOUISVILLE MUNICIPAL CODE TO ESTABLISH A BUSINESS ASSISTANCE PROGRAM FOR SMALL BUSINESSES AND TO CHANGE APPROVAL THRESHOLDS FOR BAP AGREEMENTS**

**WHEREAS,** small retail businesses and restaurants play a vital role in the economic health and overall character of Louisville by providing employment for residents and others, allowing residents to shop and dine locally, and increasing sales taxes and fees collected by the City; and

**WHEREAS,** the City previously adopted Chapter 3.24 of the Louisville Municipal Code, which established a Tax and Fee Business Assistance Program ("BAP") that provides assistance to businesses in the form of enhanced sales tax and fee rebates; and

**WHEREAS,** the City finds that it is appropriate to establish a new BAP specifically targeted at small food, beverage, and retail businesses in order to attract such businesses to the City and to encourage existing small businesses to expand; and

**WHEREAS,** the City Council finds that the creation of a BAP for small businesses is consistent with the City's powers as a home rule municipal corporation and that the exercise of such powers in the manner provided in this Ordinance is in the furtherance of the public health, safety and welfare; and

WHEREAS, Chapters 3.24 and 3.25 of the Louisville Municipal Code currently allow the City Manager to approve BAP and Enhanced Assistance Program (EAP) incentives totaling less than $50,000; and

WHEREAS, in order to streamline the application process, the City Council desires to increase the thresholds for City Manager approval to $100,000.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** Title 3 of the Louisville Municipal Code is hereby amended by the addition of a new Chapter 3.26 to read as follows:

**CHAPTER 3.26**
**BUSINESS ASSISTANCE PROGRAM FOR SMALL BUSINESSES**

Sec. 3.26.010. Established.
Sec. 3.26.020. Findings, intent, and purpose.
Sec. 3.26.030. Definitions.
Sec. 3.26.040. Eligibility for participation; application.
Sec. 3.26.050. Rebates available to small businesses.

Sec. 3.25.060. Permitted use of funds.
Sec. 3.25.070. Approval; criteria.
Sec. 3.26.080. Agreement with City; required contents.

**Sec. 3.26.010. Established.**

There is established a Business Assistance Program (BAP) for Small Businesses within the City.

**Sec. 3.26.020. Findings, intent, and purpose.**

The purpose of the BAP for Small Businesses is to create, retain, stabilize, and expand local small businesses within the City in order to stimulate the City economy, provide employment opportunities for City residents and others, and to expand the goods available within the City.

**Sec. 3.26.030. Definitions.**

As used in this Chapter, the following terms and phrases shall have the following meanings:

*Applicant* means the owner(s) of a small business located or proposed to be located within the City.

*City Manager* shall mean the City Manager or the Manager's designee.

*Small business* means a food, beverage, or retail establishment that: (i) has five (5) or fewer locations in Colorado; and (ii) occupies 3,000 square feet or less.

**Sec. 3.26.040. Eligibility for participation; application.**

A. Businesses eligible to participate in the BAP for Small Businesses are: (i) small businesses proposing to open in or relocate to the City; and (ii) small businesses already located in the City that are proposing to expand substantially.

B. Application for inclusion in the BAP for Small Businesses must be made on a form provided by the City prior to the proposed opening or expansion.

**Sec. 3.26.050. Rebates available to small businesses.**

A. Small businesses in the BAP for Small Businesses are eligible to receive the following rebates:

1. A rebate of up to fifty percent (50%) of the building permit fees, sign permit fees, and construction use taxes collected by the City during the construction permitting process.

2. A rebate of City sales tax in amounts not to exceed: (i) ninety percent (90%) in the first year; (ii) seventy percent (70%) in the second year; (iii) fifty percent (50%) in the third year; (iv) thirty percent (30%) in the fourth year; and (v) ten percent (10%) in the fifth year.

B. The rebates provided to small businesses shall exclude revenues derived from: (i) the City's temporary 0.375 percent sales and use tax for open space and parks; (ii) the temporary 0.125 percent sales tax for historic preservation; (iii) the temporary 0.125 percent sales and use tax for open space; (iv) the 0.15 percent sales and use tax for the Louisville Recreation and Senior Center; and (v) any future special sales or use taxes imposed following the effective date of the agreement between the City and the applicant.

**Sec. 3.26.060. Permitted use of funds.**

A. The uses to which the rebates may be put by an applicant shall be strictly limited to obligations and/or improvements which are public or public-related in nature, and which are specifically identified as eligible for BAP funding as part of the agreement required by Section 3.26.080.

B. By way of example and not limitation, eligible obligations and improvements which are public or public-related in nature include: redevelopment of existing properties; occupancy of an existing vacant space; expansion or creation of jobs in the City; streets, sidewalks, curbs, gutters, street lights, drainage facilities, landscaping, decorative structures, public art, fountains, identification and other signs, traffic safety devices, bicycle paths, off-street parking facilities, benches, restrooms, information booths, public meeting facilities; building facades, architectural enhancements, and appurtenant structures and improvements; the relocation, extension, undergrounding or improvement of existing utility lines; and any other improvements of a similar nature which are specifically approved by the City.

**Sec. 3.25.070. Approval; criteria.**

A. The City Manager shall be responsible for reviewing and approving applications for incentives totaling less than $100,000.00. Applications for incentives totaling $100,000.00 or more shall require the affirmative vote of four members of the City Council.

B. The decision to approve an application shall be based on consideration of the following criteria:

1. The amount of sales taxes which are reasonably to be anticipated to be derived by the City – whether by retention of taxes,

creation of new taxes, or a combination thereof – through the expanded or new small business;

2. The public benefits which are provided by the applicant through public or public-related improvements, additional and/or retained jobs and employment opportunities for City residents and others;

3. The quality of the proposed development;

4. Whether the proposal utilizes an existing building or represents redevelopment to an area or building in the City;

5. Whether the proposal complements existing Louisville businesses;

6. The proposal's contribution to the diversity of retail and dining options in the City or to the diversity of jobs or employment opportunities within the City;

7. Whether the proposal enhances the quality of life for residents;

8. The conformance of the applicant's property or project with the comprehensive plan and zoning ordinances of the City; and

9. Whether the agreement required by Section 3.26.080 has been reached.

**Sec. 3.26.080. Agreement with City; required contents.**

Small businesses receiving rebates pursuant to Section 3.26.050 shall be required to enter into an agreement with the City, which shall include the following terms:

A. The maximum amount of rebates to be provided and the maximum time during which the agreement shall continue. Any such agreement shall expire and be of no further force and effect upon the occurrence of the earlier to be reached of the maximum time of the agreement (whether or not the maximum amount of rebates has been reached) or the maximum amount of rebates (whether or not the maximum time set forth has expired);

B. The timing of the rebate payments, which shall be made no more than yearly, as the City and applicant shall agree;

C. A statement that the agreement is a personal agreement that does not run with the land;

D. A statement that no interest shall be paid on the amounts subject to rebate under the agreement;

E. A statement that the agreement shall not constitute a multi-year fiscal obligation, debt, or other obligation of the City within the meaning of any constitutional or statutory provision;

F. A provision that, in the event the applicant, and/or its successors, and assigns, ceases business operations in the City within five (5) years of opening or expanding, the applicant, or its permitted successors and assigns, shall pay to the City ten percent (10%) of the incentives provided by the City under the agreement for each full year that the applicant, and/or its successors and assigns, cease operations at the project location;

G. A statement that the agreement may not be assigned in whole or in any part without the express written authorization of the City and that no third party shall be entitled to rely upon or enforce any provision of the agreement;

H. A statement that the agreement shall be subject to annual appropriation of sufficient funds pursuant to section 20, article X of the Colorado Constitution;

I. A statement that the rights of the applicant are, and at all times shall be, subordinate and inferior to the rights, claims, and liens of the holders of any and all existing or future issued sales and use tax revenue bonds, notes, certificates, or debentures, payable from or secured by any City sales or use taxes; and

J. Any other provisions agreed upon by the parties and approved by the City.

**Section 2.** Section 3.24.090 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

**Sec. 3.24.090. Criteria for approval.**

Approval of an application for inclusion in the BAP for incentives totaling $100,000.00 ~~$50,000.00~~ or more shall require the affirmative vote of four members of the City Council. Incentives totaling less than $100,000.00 ~~$50,000.00~~ may be approved, and the agreement required by section 3.24.100 may be executed, by the City Manager. Whether approved by the City Council or the City Manager, the decision to approve a BAP application shall be based upon consideration of the following criteria: *[Remainder of section unchanged]*

**Section 3.** Section 3.25.070 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

**Sec. 3.25.070. Criteria for approval.**

Approval of an application for EAP incentives totaling $100,000.00 ~~$50,000.00~~ or more shall require the affirmative vote of four members of the City Council. Incentives totaling less than $100,000.00 ~~$50,000.00~~ may be approved, and the agreement required by section 3.25.080 may be executed, by the City Manager. Whether approved by City Council or the City Manager, the decision to approve an EAP application shall be based upon consideration of the following criteria: *[Remainder of section unchanged]*

**Section 4.** If any portion of this ordinance is held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares it would have passed and approved this ordinance and each part hereof irrespective of the fact that any one part be declared invalid.

**Section 5.** The repeal or modification of any provision of the Municipal Code of the City of Louisville by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture, or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining any and all proper actions, suits, proceedings, and prosecutions for the enforcement of the penalty, forfeiture, or liability, as well as for the purpose of sustaining any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

**Section 6.** All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

**INTRODUCED, READ, PASSED ON FIRST READING AND ORDERED PUBLISHED THIS 21st DAY OF APRIL 2026.**

**PUBLIC HEARING AND SECOND READING WILL BE THE _____DAY OF _____, 2026, AT 6:00 P.M. AT LOUISVILLE CITY HALL, 749 MAIN STREET, LOUISVILLE, CO 80027.**

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

**PASSED AND ADOPTED ON SECOND AND FINAL READING, THIS ___ DAY OF ___, 2026.**

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

APPROVED AS TO FORM:

KELLY PC

By: _____
Melinda Culley, Deputy City Attorney

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 8.C.**

**Subject:** Discussion / Direction / Action: Purchase of 101 South Taylor Avenue — Financial Analysis

Discussion / Direction / Action provides Council with the opportunity to learn about an item, ask questions, and take action. There will be one round of public comment. Final decisions may be made on this item.

**Date:** April 21, 2026

**Prepared By:** Diana Langley, City Manager
Ryder Bailey, CPA, Finance Director

**Presented By:** Diana Langley, City Manager
Ryder Bailey, CPA, Finance Director

**Summary:**
Present a financial analysis related to the potential purchase of 101 South Taylor Avenue and get direction from City Council as to if Council would like to continue with the public engagement process or terminate the Contract to Buy and Sell Real Estate.

**Background / Prior Discussions:**
In January 2026, 101 South Taylor Avenue, located in the Colorado Technology Center, was placed on the real estate market for $14,013,500. The property consists of a 56,054-square foot building on 7.96-acres, with the potential for an 11,000-square foot addition. The building was constructed in 2014 for Pearl Izumi and was most recently the home of Specialized Bicycle Components, Inc. The building was constructed to meet high levels of architecture and sustainability principles, utilizing upcycle materials and energy-efficient systems. The site also includes 85+ on-site parking spaces. The property is adjacent and connected to the Coal Creek trail system and has onsite outdoor amenities such as a small amphitheater space.

Once staff became aware of the availability of the site, tours were coordinated to evaluate the potential for the site to be utilized for City purposes. The building layout provides for versatility of floor plans to accommodate a variety of uses, which could include utilizing a portion of the building for City offices. The City maintains several facilities throughout the City to house staffing and operational needs. Currently, City offices are at or over capacity and the City is leasing space to address some of the overflow. Over the last few years, options to provide additional office space have been explored, though none of those options have been pursued due to impracticality and/or cost.

On March 3, 2026, the City Council adopted Resolution No. 20, Series 2026, which approved a Contract to Buy and Sell Real Estate for the Property Located at 101 S

Taylor Ave.  This Contract provides a long due diligence period for the City Council to receive input and feedback from residents and taxpayers to determine the suitability of the Property for the City's purposes.  It is important to Council that before any earnest money is forfeited, robust outreach be performed.

The Contract contains the following terms:

- Purchase Price - $13,250,000
- Earnest Money - $150,000
- Miscellaneous items completed within 30-60 days - appraisal, inspection, ALTA survey, and title work
- 90-day public process period, which the City will use to collect community input through a poll, survey, and two (2) open houses
- 120-day COP financing period with a 150-day closing period
- 30-day optional extension period with deposit of an additional $50,000 in earnest money
- Inclusion of existing furniture and fixtures
- Earnest money is refundable if the City terminates the Contract under the inspection objection, public process, or COP financing provisions.

There are deadlines identified in the Contract where the City has the right to object to or terminate the Contract without forfeiting the earnest money. Key deadlines are noted below:

1. Inspection Termination (as extended by the Buyer and Seller) - On or before April 24th, the City may notify the Seller that the Contract is terminated due to any unsatisfactory condition, provided the City has followed the contract requirements related to submitting an Inspection Objection.
2. Public Process Deadline - On or before June 3rd, the City may notify the Seller that the Contract is terminated because the property is not desired for public purposes, at the City's sole subjective discretion.
3. Certificate of Participation (COP) Financing Deadline - On or before July 3rd, the City may notify the Seller that the Contract is terminated if the financing is not completed and the funds received by the City.

On April 7, 2026, an Executive Session was held by the City Council for the purpose of discussing a potential real property disposition. Upon conclusion of the Executive Session, City Attorney Kelly reported that Council had such a discussion and recommended that Council discuss the matter and determine whether there is a motion. Mayor Leh stated the discussion was related to 101 South Taylor. Mayor Leh moved to direct the City Manager to terminate the contract, which was seconded by Council member Kern. There was a brief discussion regarding public engagement; fiscal responsibility; and the process of Executive Session, including clarification and comment from City Attorney Kelly about the requirements and procedures for executive

sessions. The motion to terminate the contract failed on a split 3-3 vote, and therefore the contract was not terminated.

**Development Proposal:**
N/A

**Analysis:**
Upon execution of the Contract, Staff obtained an appraisal, property condition report, and a Phase 1 Environmental Site Assessment. While those materials are confidential and cannot be shared with the public, the property condition report indicated that maintenance work is recommended and provided estimates for the work. Staff reviewed the estimates and prepared a revised financial analysis which is presented in the Fiscal Impact section. The resulting Fiscal Impact is higher than originally considered by Staff and Council.

**Council Work Plan:**
As this purchase opportunity was not anticipated, this item is not included in the City Council's Work Plan. However, the site has the potential to support a variety of services provided to the community.

**Fiscal Impact:**
Financing Mechanism
Certificates of Participation (COPs), a form of lease-purchase financing, would be used to finance the purchase. The COP process consists of the City entering into a lease agreement with a third-party trustee, the trustee holds legal title to the asset during the financing period, investors buy "certificates" which provide upfront funding for the project, the City "leases" the asset back from the trustee with annual appropriation payments, and title transfers back to the City after final payment is made. The annual appropriation requirement makes COPs unique and legally permissible without a vote.

Capital Fund
Staff obtained estimates for the annual appropriation required to finance between $16M and $19M over a 20-year term through the COP process, with the expectation that the financed amount would cover the property purchase, upfront maintenance repairs, and modifications to make the property suitable for public use. The annual COP lease payment and annual capital maintenance costs are estimated to range between $1.75 - $2M.

The annual payments amount to roughly 20% of the capital fund's annual revenues and will likely impact many existing capital projects, as well as the City's ability to fund future capital projects. The City's capital fund is the primary source of funding for the City's Primary Governmental Capital needs, including Public Safety, Transportation, Facilities, Parks, Cultural Services, and Administration (IT, Finance, etc). At this time, it is not possible to determine, or predict over the 20-year term of the financing, which specific projects would be deferred or canceled. However, City Council will address the

prioritization and balancing of the 6-Year Capital Improvement Program (CIP) during the upcoming 2027-2028 Biennial Budget Development Process this Summer through Fall.

Figures 1 and 2 represent modeling of the Capital Fund with and without the inclusion of 101 South Taylor Avenue.

**Figure 1:** Capital Fund Model (Currently Programmed CIP Projects / Pre 2027/2028 Budget Development Process)

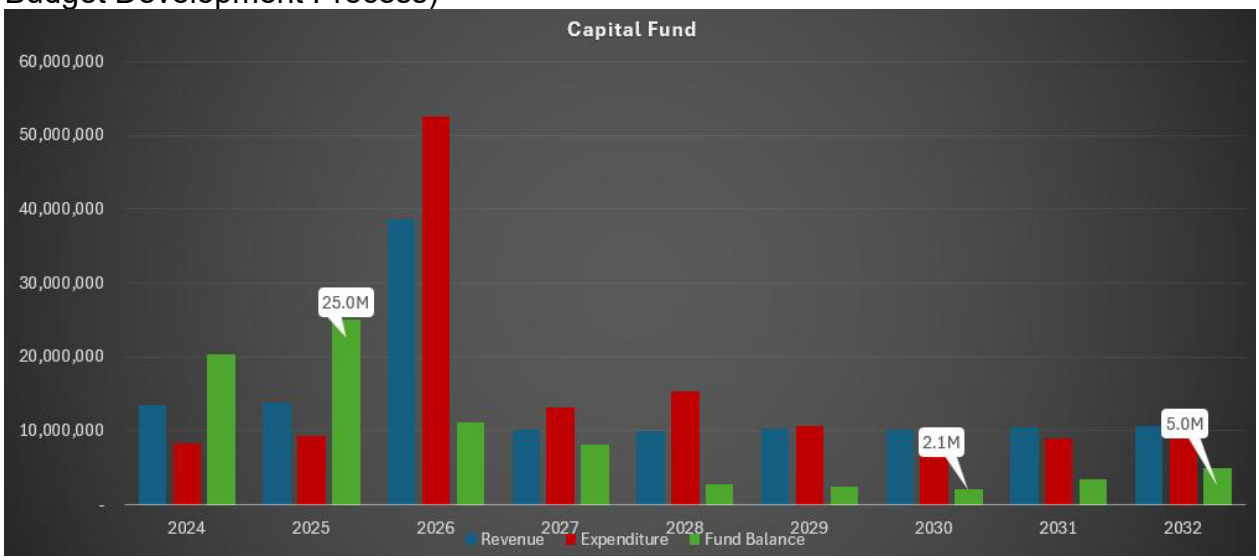
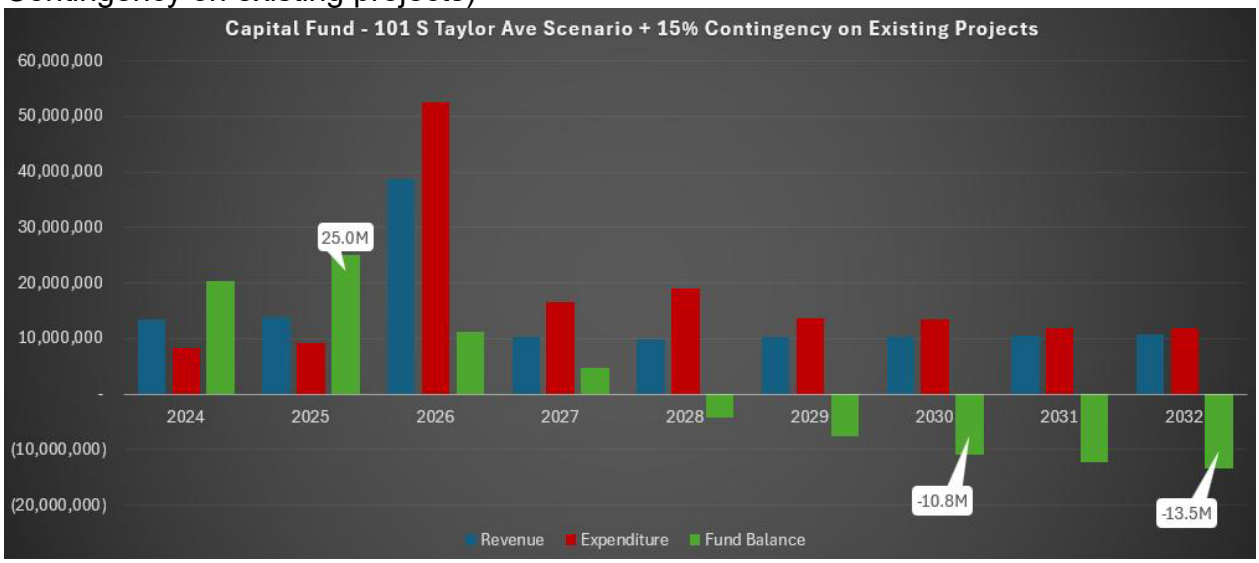



**Figure 2:** Capital Fund Model (Inclusive of 101 S Taylor Acquisition and 15% Contingency on existing projects)




Under the scenario provided in Figure 2, approximately $2.5M in capital projects would need to be removed in future years to keep the Capital Fund from being in a deficit position, and no new projects could be added unless additional projects were removed.

Financial Policy 7.3 requires that the Six-Year Capital Improvement Plan be balanced. Financial Policy 7.4 - Asset Maintenance and Replacement - states it is the City's intent to maintain its existing assets at a level that protects the initial capital investment and minimizes future maintenance and replacement costs. It is the City's intent to ensure that adequate resources are allocated to preserve the City's existing infrastructure to the best of its ability before allocating resources to other capital projects.

Operating Fund

Separate from the capital costs, without the addition of any programming or staff, the anticipated operational cost to occupy and provide services from the property is estimated at approximately $500,000 per year. This covers items such as insurance, utilities, janitorial services, etc. Currently, the operating budget has no capacity to absorb these costs without making adjustments/cuts elsewhere.

**Alternatives:**

1. Prior to April 24th, submit an Inspection Termination to the Seller.
2. Continue with the public engagement process, and reconsider the purchase prior to the June 3rd Public Process Deadline.

**Recommendation:**

Receive the Financial Analysis and direct staff to submit an Inspection Termination or continue with the public engagement process.

**Attachments:**

1. 101 Taylor Avenue Louisville CONTRACT TO BUY AND SELL REAL ESTATE - Commercial
2. 101 South Taylor Avenue - Addendum to PurchaseAgreement

Kentwood Commercial
Solveig T. Lawrence
Ph: 303.601.9285

*This form is the property of the Colorado Real Estate Commission. The printed portions of this form, except differentiated additions, have been approved and promulgated by the Commission for public use. All users are prohibited from modifying this form except as permitted by the Rules Regarding Real Estate Brokers, 4 CCR 725-1-7.2.*

**CBS3 Contract to Buy and Sell Real Estate (Commercial)**
**Adoption Date: August 5, 2025**
**Mandatory Use Date: January 1, 2026**

**THIS FORM HAS IMPORTANT LEGAL CONSEQUENCES AND THE PARTIES SHOULD CONSULT LEGAL AND TAX OR OTHER COUNSEL BEFORE SIGNING.**

# CONTRACT TO BUY AND SELL REAL ESTATE (COMMERCIAL)
# (☒ Property with No Residences)
# (☐ Property with Residences-Residential Addendum Attached)

Date: ***2/26/2026***

## AGREEMENT

**1. AGREEMENT.** Buyer agrees to buy and Seller agrees to sell the Property described below on the terms and conditions set forth in this contract (Contract).

**2. PARTIES AND PROPERTY.**

**2.1. Buyer.** ***City of Louisville*** (Buyer) will take title to the Property described below as ☐ **Joint Tenants** ☐ **Tenants In Common** ☒ **Other** .

**2.2. No Assignability.** This Contract **IS NOT** assignable by Buyer unless otherwise specified in **Additional Provisions**.

**2.3. Seller.** ***SPECIALIZED BICYCLE COMPONENTS INC*** (Seller) is the current owner of the Property described below.

**2.4. Property.** The Property is the following legally described real estate in the County of ***Boulder***, Colorado (insert legal description):

***LOTS 15-17 BLK 1 BUSINESS CENTER AT CTC R0067694 & R0143120-1 COMBINED HERE***

known as: ***101 S Taylor Avenue, Louisville, CO 80027***

together with the interests, easements, rights, benefits, improvements and attached fixtures appurtenant thereto and all interest of Seller in vacated streets and alleys adjacent thereto, except as herein excluded (Property).

**2.5. Inclusions.** The Purchase Price includes the following items (Inclusions):

**2.5.1. Inclusions – Attached.** If attached to the Property on the date of this Contract, the following items are included unless excluded under **Exclusions**: lighting, heating, plumbing, ventilating and air conditioning units, TV antennas, inside telephone, network and coaxial (cable) wiring and connecting blocks/jacks, plants, mirrors, floor coverings, intercom systems, built-in kitchen appliances, sprinkler systems and controls, built-in vacuum systems (including accessories) and garage door openers (including remote



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controls). If checked, the following are owned by the Seller and included: ☐ **Solar Panels** ☐ **Water Softeners** ☐ **Security Systems** ☐ **Satellite Systems** (including satellite dishes). Leased items should be listed under § 2.5.8. (Leased Items). If any additional items are attached to the Property after the date of this Contract, such additional items are also included in the Purchase Price.

**2.5.2. Inclusions – Additional.** If on the Property on the date of this Contract, whether attached or not, the following items are included unless excluded under **Exclusions**: storm windows, storm doors, window and porch shades, awnings, blinds, screens, window coverings and treatments, curtain rods, drapery rods, fireplace inserts, fireplace screens, fireplace grates, heating stoves, storage sheds, carbon monoxide alarms, smoke/fire detectors and all keys.

**2.5.3. Other Inclusions.** The following items, whether fixtures or personal property, are also included in the Purchase Price:
***The Purchase Price includes all furniture currently in the Property as of January 31, 2026, subject to the items specified in the Exclusion List per Section 2.6, including, but not limited to the lobby furniture. Seller agrees to execute a Bill of Sale at Closing.***

**2.5.4. Inclusions-Encumbered.** Any Inclusions owned by Seller (e.g., owned solar panels) must be conveyed at Closing by Seller free and clear of all taxes (except personal property and general real estate taxes for the year of Closing), liens and encumbrances, except:
Buyer ☐ **Will** ☒ **Will Not** assume the debt and obligations on the Encumbered Inclusions subject to Buyer's review under §10.6. (Encumbered Inclusion Documents) and Buyer's receipt of written approval by such lessor before Closing. If Buyer does not receive such approval this Contract terminates.

**2.5.5. Personal Property Conveyance.** Conveyance of all personal property will be by bill of sale or other applicable legal instrument.

**2.5.6. Parking and Storage Facilities.** The use or ownership of the following parking facilities: ***Per Property Deed***; and the use or ownership of the following storage facilities:
Note to Buyer: If exact rights to the parking and storage facilities is a concern to Buyer, Buyer should investigate.

**2.5.7. Trade Fixtures.** With respect to trade fixtures, Seller and Buyer agree as follows:
The trade fixtures to be conveyed at Closing will be conveyed by Seller free and clear of all taxes (except personal property taxes for the year of Closing), liens and encumbrances, except . Conveyance will be by bill of sale or other applicable legal instrument.

**2.5.8. Leased Items.** The following personal property is currently leased to Seller which will be transferred to Buyer at Closing (Leased Items):
Buyer ☐ **Will** ☒ **Will Not** assume Seller's debt and obligations under such leases for the Leased Items subject to Buyer's review under §10.6. (Leased Items Documents) and Buyer's receipt of written approval by such lessor before Closing. If Buyer does not receive such approval this Contract terminates.

☐ **2.5.9. Solar Power Plan.** If the box is checked, Seller has entered into a solar power purchase agreement, regardless of the name or title, to authorize a third-party to operate and maintain a photovoltaic system on the Property and provide electricity (Solar Power Plan) that will remain in effect after Closing.
Buyer ☐ **Will** ☐ **Will Not** assume Seller's obligations under such Solar Power Plan subject to Buyer's review under §10.6. (Solar Power Plan) and Buyer's receipt of written approval by the third party before Closing. If Buyer does not receive such approval this Contract terminates.

**2.6. Exclusions.** The following items are excluded (Exclusions):
***Seller will provide a list of exclusions on or before the Due Diligence Documents Delivery Deadline.***

**2.7. Water Rights/Well Rights.**

☐ **2.7.1. Deeded Water Rights.** The following legally described water rights:
Any deeded water rights will be conveyed by a good and sufficient deed at Closing.

☐ **2.7.2. Other Rights Relating to Water.** The following rights relating to water not included in §§ 2.7.1., 2.7.3. and 2.7.4., will be transferred to Buyer at Closing:

☐ **2.7.3. Well Rights.** Seller agrees to supply required information to Buyer about the well. Buyer understands that if the well to be transferred is a "Small Capacity Well" or a "Domestic Exempt Water Well"



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used for ordinary household purposes, Buyer must, prior to or at Closing, complete a Change in Ownership form for the well. If an existing well has not been registered with the Colorado Division of Water Resources in the Department of Natural Resources (Division), Buyer must complete a registration of existing well form for the well and pay the cost of registration. If no person will be providing a closing service in connection with the transaction, Buyer must file the form with the Division within sixty days after Closing. The Well Permit # is .

☐ **2.7.4. Water Stock.** The water stock to be transferred at Closing are as follows:

**2.7.5. Conveyance.** If Buyer is to receive any rights to water pursuant to § 2.7.2. (Other Rights Relating to Water), § 2.7.3. (Well Rights), or § 2.7.4. (Water Stock Certificates), Seller agrees to convey such rights to Buyer by executing the applicable legal instrument at Closing.

**2.7.6. Water Rights Review.** Buyer has a Right to Terminate if examination of the Water Rights is unsatisfactory to Buyer on or before the **Water Rights Examination Deadline**.

## 3. DATES, DEADLINES AND APPLICABILITY.

### 3.1. Dates and Deadlines.

| Item No. | Reference | Event | Date or Deadline |
|---|---|---|---|
| 1 | § 3 | Time of Day Deadline | ***9:00pm MST*** |
| 2 | § 4 | Alternative Earnest Money Deadline | ***5 Business Days After MEC*** |
| | | **Title** | |
| 3 | § 8 | Record Title Deadline (and Tax Certificate) | ***10 Days After MEC*** |
| 4 | § 8 | Record Title Objection Deadline | ***60 Days After MEC*** |
| 5 | § 8 | Off-Record Title Deadline | ***10 Days After MEC*** |
| 6 | § 8 | Off-Record Title Objection Deadline | ***60 Days After MEC*** |
| 7 | § 8 | Title Resolution Deadline | ***65 Days After MEC*** |
| 8 | § 8 | Third Party Right to Purchase/Approve Deadline | |
| | | **Owners' Association** | |
| 9 | § 7 | Association Documents Deadline | ***10 Days After MEC*** |
| 10 | § 7 | Association Documents Termination Deadline | ***60 Days After MEC*** |
| | | **Seller's Disclosures** | |
| 11 | § 10 | Seller’s Property Disclosure Deadline | ***10 Days After MEC*** |
| 12 | § 10 | Lead-Based Paint Disclosure Deadline (if Residential Addendum attached) | |
| | | **Loan and Credit** | |
| 13 | § 5 | New Loan Application Deadline | |
| 14 | § 5 | New Loan Terms Deadline | |
| 15 | § 5 | New Loan Availability Deadline | |
| 16 | § 5 | Buyer’s Credit Information Deadline | |
| 17 | § 5 | Disapproval of Buyer’s Credit Information Deadline | |
| 18 | § 5 | Existing Loan Deadline | |
| 19 | § 5 | Existing Loan Termination Deadline | |
| 20 | § 5 | Loan Transfer Approval Deadline | |



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| | | | |
|---|---|---|---|
| 21 | § 4 | Seller or Private Financing Deadline | |
| | | **Appraisal** | |
| 22 | § 6 | Appraisal Deadline | ***90 Days After MEC*** |
| 23 | § 6 | Appraisal Objection Deadline | ***92 Days After MEC*** |
| 24 | § 6 | Appraisal Resolution Deadline | ***94 Days After MEC*** |
| | | **Survey** | |
| 25 | § 9 | New ILC or New Survey Deadline | ***55 Days After MEC*** |
| 26 | § 9 | New ILC or New Survey Objection Deadline | ***60 Days After MEC*** |
| 27 | § 9 | New ILC or New Survey Resolution Deadline | ***65 Days After MEC*** |
| | | **Inspection and Due diligence** | |
| 28 | § 2 | Water Rights Examination Deadline | |
| 29 | § 8 | Mineral Rights Examination Deadline | |
| 30 | § 10 | Inspection Termination Deadline | ***40 Days After MEC*** |
| 31 | § 10 | Inspection Objection Deadline | ***30 Days After MEC*** |
| 32 | § 10 | Inspection Resolution Deadline | ***40 Days After MEC*** |
| 33 | § 10 | Property Insurance Termination Deadline | ***60 Days After MEC*** |
| 34 | § 10 | Due Diligence Documents Delivery Deadline | ***10 Days After MEC*** |
| 35 | § 10 | Due Diligence Documents Objection Deadline | ***60 Days After MEC*** |
| 36 | § 10 | Due Diligence Documents Resolution Deadline | ***65 Days After mEC*** |
| 37 | § 10 | Environmental Inspection Termination Deadline | ***60 Days After MEC*** |
| 38 | § 10 | ADA Evaluation Termination Deadline | ***60 Days After MEC*** |
| 39 | § 10 | Conditional Sale Deadline | |
| 40 | § 10 | Lead-Based Paint Termination Deadline (if Residential Addendum attached) | |
| 41 | § 11 | Estoppel Statements Deadline | |
| 42 | § 11 | Estoppel Statements Termination Deadline | |
| | | **Closing and Possession** | |
| 43 | § 12 | Closing Date | ***150 Days After MEC*** |
| 44 | § 17 | Possession Date | ***Day of Closing*** |
| 45 | § 17 | Possession Time | ***Upon Delivery of Deed and Funding*** |
| 46 | § 27 | **Acceptance Deadline Date** | ***3/6/2026*** Friday |
| 47 | § 27 | **Acceptance Deadline Time** | ***4:00pm MST*** |
| 48 | | | |
| 49 | | | |

**3.2. Applicability of Terms.** If any deadline in § 3.1. (Dates and Deadlines) is left blank or completed with "N/A", or the word "Deleted," such deadline is not applicable and the corresponding provision containing the deadline is deleted. Any box checked in this Contract means the corresponding provision applies. If no box is checked in a provision that contains a selection of "None", such provision means that "None" applies.



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The abbreviation "MEC" (mutual execution of this Contract) means the date upon which both parties have signed this Contract. The abbreviation "N/A" as used in this Contract means not applicable.

**3.3. Day; Computation of Period of Days; Deadlines.**

**3.3.1. Day.** As used in this Contract, the term "day" means the entire day ending at 11:59 p.m., United States Mountain Time (Standard or Daylight Savings, as applicable). Except however, if a **Time of Day Deadline** is specified in § 3.1. (Dates and Deadlines), all Objection Deadlines, Resolution Deadlines, Examination Deadlines and Termination Deadlines will end on the specified deadline date at the time of day specified in the **Time of Day Deadline**, United States Mountain Time. If **Time of Day Deadline** is left blank or "N/A" the deadlines will expire at 11:59 p.m., United States Mountain Time.

**3.3.2. Computation of Period of Days.** In computing a period of days (e.g., three days after MEC), when the ending date is not specified, the first day is excluded and the last day is included.

**3.3.3. Deadlines.** If any deadline falls on a Saturday, Sunday or federal or Colorado state holiday (Holiday), such deadline ☒ **Will** ☐ **Will Not** be extended to the next day that is not a Saturday, Sunday or Holiday. Should neither box be checked, the deadline will not be extended.

## 4. PURCHASE PRICE AND TERMS.

**4.1. Price and Terms.** The Purchase Price set forth below is payable in U.S. Dollars by Buyer as follows:

| Item No. | Reference | Item | Amount | Amount |
|---|---|---|---|---|
| 1 | § 4.1. | Purchase Price | $ ***13,250,000.00*** | |
| 2 | § 4.3. | Earnest Money | | $ ***150,000.00*** |
| 3 | § 4.5. | New Loan | | $ ***9,100,000.00*** |
| 4 | § 4.6. | Assumption Balance | | $ |
| 5 | § 4.7. | Private Financing | | $ |
| 6 | § 4.7. | Seller Financing | | $ |
| 7 | | | | $ |
| 8 | | | | $ |
| 9 | § 4.4. | Cash at Closing | | $ ***4,000,000.00*** |
| 10 | | **Total** | $ ***13,250,000.00*** | $ ***13,250,000.00*** |

**4.2. Seller Concession.** At Closing, Seller will credit to Buyer $ (Seller Concession). The Seller Concession may be used for any Buyer fee, cost, charge or expenditure to the extent the amount is allowed by the Buyer's lender and is included in the Closing Statement or Closing Disclosure at Closing. Examples of allowable items to be paid for by the Seller Concession include, but are not limited to: Buyer's closing costs, loan discount points, loan origination fees, prepaid items and any other fee, cost, charge, expense or expenditure. Seller Concession is in addition to any sum Seller has agreed to pay or credit Buyer elsewhere in this Contract.

**4.3. Earnest Money.** The Earnest Money set forth in this Section, in the form of a ***Wire Transfer***, will be payable to and held by ***Land Title Guarantee Company*** (Earnest Money Holder), in its trust account, on behalf of both Seller and Buyer. The Earnest Money must be tendered, by Buyer, with this Contract unless the parties mutually agree to an **Alternative Earnest Money Deadline** for its payment. The parties authorize delivery of the Earnest Money to the company conducting the Closing (Closing Company), if any, at or before Closing. In the event Earnest Money Holder has agreed to have interest on Earnest Money transferred to a fund established for the purpose of providing affordable housing to Colorado residents, Seller and Buyer acknowledge and agree that any interest accruing on the Earnest Money deposited with the Earnest Money Holder in this transaction will be transferred to such fund.

**4.3.1. Alternative Earnest Money Deadline.** The deadline for delivering the Earnest Money, if other than at the time of tender of this Contract, is as set forth as the **Alternative Earnest Money Deadline**.

**4.3.2. Disposition of Earnest Money.** If Buyer has a Right to Terminate and timely terminates,



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Buyer is entitled to the return of Earnest Money as provided in this Contract. If this Contract is terminated as set forth in § 24 and, except as provided in § 23 (Earnest Money Dispute), if the Earnest Money has not already been returned following receipt of a Notice to Terminate, Seller agrees to execute and deliver to Buyer or Broker working with Buyer, written mutual instructions (e.g., Earnest Money Release form), within three days of Seller's receipt of such form. If Seller is entitled to the Earnest Money, and, except as provided in § 23 (Earnest Money Dispute), if the Earnest Money has not already been paid to Seller, following receipt of an Earnest Money Release form, Buyer agrees to execute and return to Seller or Broker working with Seller, written mutual instructions (e.g., Earnest Money Release form), within three days of Buyer's receipt.

**4.3.2.1. Seller Failure to Timely Return Earnest Money.** If Seller fails to timely execute and return the Earnest Money Release Form, or other written mutual instructions, Seller is in default and liable to Buyer as set forth in **"If Seller is in Default", § 20.2. and § 21,** unless Seller is entitled to the Earnest Money due to a Buyer default.

**4.3.2.2. Buyer Failure to Timely Release Earnest Money.** If Buyer fails to timely execute and return the Earnest Money Release Form, or other written mutual instructions, Buyer is in default and liable to Seller as set forth in "**If Buyer is in Default, § 20.1. and § 21**, unless Buyer is entitled to the Earnest Money due to a Seller Default.

**4.4. Form of Funds; Time of Payment; Available Funds.**

**4.4.1. Good Funds.** All amounts payable by the parties at Closing, including any loan proceeds, Cash at Closing and closing costs, must be in funds that comply with all applicable Colorado laws, including wire transfers, certified check, teller's check, cashier's check, and real-time or instant payment (Good Funds).

**4.4.2. Time of Payment.** All funds, including the Purchase Price to be paid by Buyer, must be paid before or at Closing or as otherwise agreed in writing between the parties to allow disbursement by Closing Company at Closing **OR SUCH NONPAYING PARTY WILL BE IN DEFAULT**.

**4.4.3. Available Funds.** Buyer represents that Buyer, as of the date of this Contract, ☒ **Does** ☐ **Does Not** have funds that are immediately verifiable and available in an amount not less than the amount stated as Cash at Closing in § 4.1.

**4.5. New Loan.**

**4.5.1. Buyer to Pay Loan Costs.** Buyer, except as otherwise permitted in § 4.2. (Seller Concession), if applicable, must timely pay Buyer's loan costs, loan discount points, prepaid items and loan origination fees as required by lender.

**4.5.2. Buyer May Select Financing.** Buyer may pay in cash or select financing appropriate and acceptable to Buyer, including a different loan than initially sought, except as restricted in § 4.5.3. (Loan Limitations) or § 30 (Additional Provisions).

**4.5.3. Loan Limitations.** Buyer may purchase the Property using any of the following types of loans: ☐ **Conventional** ☒ **Other** ***Private Financing.***.

**4.6. Assumption.** (Omitted as inapplicable)

**4.7. Seller or Private Financing.** (Omitted as inapplicable)

## TRANSACTION PROVISIONS

**5. FINANCING CONDITIONS AND OBLIGATIONS.** (Omitted as inapplicable)

**5.3. Credit Information.** (Omitted as inapplicable)

**5.4. Existing Loan Review.** (Omitted as inapplicable)

**6. APPRAISAL PROVISIONS.**

**6.1. Appraisal Definition.** An "Appraisal" is an opinion of value prepared by a licensed or certified appraiser, engaged on behalf of Buyer or Buyer's lender, to determine the Property's market value (Appraised Value). The Appraisal may also set forth certain lender requirements, replacements, removals or repairs necessary on or to the Property as a condition for the Property to be valued at the Appraised Value.

**6.2. Appraised Value.** The applicable appraisal provision set forth below applies to the respective



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loan type set forth in § 4.5.3., or if a cash transaction (i.e., no financing), § 6.2.1. applies.

**6.2.1. Conventional/Other.** Buyer has the right to obtain an Appraisal. If the Appraised Value is less than the Purchase Price, or if the Appraisal is not received by Buyer on or before **Appraisal Deadline** Buyer may, on or before **Appraisal Objection Deadline**:

**6.2.1.1. Notice to Terminate.** Notify Seller in writing, pursuant to § 24.1., that this Contract is terminated; or

**6.2.1.2. Appraisal Objection.** Deliver to Seller a written objection accompanied by either a copy of the Appraisal or written notice from lender that confirms the Appraised Value is less than the Purchase Price (Lender Verification).

**6.2.1.3. Appraisal Resolution.** If an Appraisal Objection is received by Seller, on or before **Appraisal Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **Appraisal Resolution Deadline**, this Contract will terminate on the **Appraisal Resolution Deadline**, unless Seller receives Buyer's written withdrawal of the Appraisal Objection before such termination, (i.e., on or before expiration of **Appraisal Resolution Deadline**).

**6.3. Lender Property Requirements.** If the lender imposes any written requirements, replacements, removals or repairs, including any specified in the Appraisal (Lender Property Requirements) to be made to the Property (e.g., roof repair, repainting), beyond those matters already agreed to by Seller in this Contract, this Contract terminates on the earlier of three days following Seller's receipt of the Lender Property Requirements, or Closing, unless prior to termination: (1) the parties enter into a written agreement to satisfy the Lender Property Requirements; (2) the Lender Property Requirements have been completed; or (3) the satisfaction of the Lender Property Requirements is waived in writing by Buyer.

**6.4. Cost of Appraisal.** Cost of the Appraisal to be obtained after the date of this Contract must be timely paid by ☒ **Buyer** ☐ **Seller**. The cost of the Appraisal may include any and all fees paid to the appraiser, appraisal management company, lender's agent or all three.

**7. OWNERS' ASSOCIATIONS.** This Section is applicable if the Property is located within one or more Common Interest Communities and subject to one or more declarations (Association).

**7.1. Common Interest Community Disclosure. THE PROPERTY IS LOCATED WITHIN A COMMON INTEREST COMMUNITY AND IS SUBJECT TO THE DECLARATION FOR THE COMMUNITY. THE OWNER OF THE PROPERTY WILL BE REQUIRED TO BE A MEMBER OF THE OWNERS' ASSOCIATION FOR THE COMMUNITY AND WILL BE SUBJECT TO THE BYLAWS AND RULES AND REGULATIONS OF THE ASSOCIATION. THE DECLARATION, BYLAWS AND RULES AND REGULATIONS WILL IMPOSE FINANCIAL OBLIGATIONS UPON THE OWNER OF THE PROPERTY, INCLUDING AN OBLIGATION TO PAY ASSESSMENTS OF THE ASSOCIATION. IF THE OWNER DOES NOT PAY THESE ASSESSMENTS, THE ASSOCIATION COULD PLACE A LIEN ON THE PROPERTY AND POSSIBLY SELL IT TO PAY THE DEBT. THE DECLARATION, BYLAWS AND RULES AND REGULATIONS OF THE COMMUNITY MAY PROHIBIT THE OWNER FROM MAKING CHANGES TO THE PROPERTY WITHOUT AN ARCHITECTURAL REVIEW BY THE ASSOCIATION (OR A COMMITTEE OF THE ASSOCIATION) AND THE APPROVAL OF THE ASSOCIATION. PURCHASERS OF PROPERTY WITHIN THE COMMON INTEREST COMMUNITY SHOULD INVESTIGATE THE FINANCIAL OBLIGATIONS OF MEMBERS OF THE ASSOCIATION. PURCHASERS SHOULD CAREFULLY READ THE DECLARATION FOR THE COMMUNITY AND THE BYLAWS AND RULES AND REGULATIONS OF THE ASSOCIATION.**

**7.2. Association Documents to Buyer.** Seller is obligated to provide to Buyer the Association Documents (defined below), at Seller's expense, on or before **Association Documents Deadline**. Seller authorizes the Association to provide the Association Documents to Buyer, at Seller's expense. Seller's obligation to provide the Association Documents is fulfilled upon Buyer's receipt of the Association Documents, regardless of who provides such documents.

**7.3. Association Documents.** Association documents (Association Documents) consist of the following:

**7.3.1.** All Association declarations, articles of incorporation, bylaws, articles of organization, operating agreements, rules and regulations, party wall agreements and the Association's responsible



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governance policies adopted under § 38-33.3-209.5, C.R.S.;

**7.3.2.** Minutes of: (1) the annual owners' or members' meeting and (2) any executive boards' or managers' meetings; such minutes include those provided under the most current annual disclosure required under § 38-33.3-209.4, C.R.S. (Annual Disclosure) and minutes of meetings, if any, subsequent to the minutes disclosed in the Annual Disclosure. If none of the preceding minutes exist, then the most recent minutes, if any (§§ 7.3.1. and 7.3.2., collectively, Governing Documents); and

**7.3.3.** List of all Association insurance policies as provided in the Association's last Annual Disclosure, including, but not limited to, property, general liability, association director and officer professional liability and fidelity policies. The list must include the company names, policy limits, policy deductibles, additional named insureds and expiration dates of the policies listed (Association Insurance Documents);

**7.3.4.** A list by unit type of the Association's assessments, including both regular and special assessments as disclosed in the Association's last Annual Disclosure;

**7.3.5.** The Association's most recent financial documents which consist of: (1) the Association's operating budget for the current fiscal year, (2) the Association's most recent annual financial statements, including any amounts held in reserve for the fiscal year immediately preceding the Association's last Annual Disclosure, (3) the results of the Association's most recent available financial audit or review, (4) list of the fees and charges (regardless of name or title of such fees or charges) that the Association's community association manager or Association will charge in connection with the Closing including, but not limited to, any fee incident to the issuance of the Association's statement of assessments (Status Letter), any rush or update fee charged for the Status Letter, any record change fee or ownership record transfer fees (Record Change Fee), fees to access documents, (5) list of all assessments required to be paid in advance, reserves or working capital due at Closing and (6) reserve study, if any (§§ 7.3.4. and 7.3.5., collectively, Financial Documents);

**7.3.6.** Any written notice from the Association to Seller of a "construction defect action" under § 38-33.3-303.5, C.R.S. within the past six months and the result of whether the Association approved or disapproved such action (Construction Defect Documents). Nothing in this Section limits the Seller's obligation to disclose adverse material facts as required under § 10.2. (Disclosure of Adverse Material Facts; Subsequent Disclosure; Present Condition) including any problems or defects in the common elements or limited common elements of the Association property.

**7.4. Conditional on Buyer's Review.** Buyer has the right to review the Association Documents. Buyer has the Right to Terminate under § 24.1., on or before **Association Documents Termination Deadline**, based on any unsatisfactory provision in any of the Association Documents, in Buyer's sole subjective discretion. Should Buyer receive the Association Documents after **Association Documents Deadline**, Buyer, at Buyer's option, has the Right to Terminate under § 24.1. by Buyer's Notice to Terminate received by Seller on or before ten days after Buyer's receipt of the Association Documents. If Buyer does not receive the Association Documents, or if Buyer's Notice to Terminate would otherwise be required to be received by Seller after **Closing Date**, Buyer's Notice to Terminate must be received by Seller on or before Closing. If Seller does not receive Buyer's Notice to Terminate within such time, Buyer accepts the provisions of the Association Documents as satisfactory and Buyer waives any Right to Terminate under this provision, notwithstanding the provisions of § 8.6. (Third Party Right to Purchase/Approve).

## 8. TITLE INSURANCE, RECORD TITLE AND OFF-RECORD TITLE.

### 8.1. Evidence of Record Title.

☒ **8.1.1. Seller Selects Title Insurance Company.** If this box is checked, Seller will select the title insurance company to furnish the owner's title insurance policy at Seller's expense. On or before **Record Title Deadline**, Seller must furnish to Buyer a current commitment for an owner's title insurance policy (Title Commitment), in an amount equal to the Purchase Price, or if this box is checked, ☐ an **Abstract of Title** certified to a current date. Seller will cause the title insurance policy to be issued and delivered to Buyer as soon as practicable at or after Closing.

☐ **8.1.2. Buyer Selects Title Insurance Company.** If this box is checked, Buyer will select the title insurance company to furnish the owner's title insurance policy at Buyer's expense. On or before **Record Title Deadline**, Buyer must furnish to Seller a current commitment for owner's title insurance policy (Title



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Commitment), in an amount equal to the Purchase Price.
If neither box in § 8.1.1. or § 8.1.2. is checked, § 8.1.1. applies.

**8.1.3. Owner's Extended Coverage (OEC).** The Title Commitment ☒ **Will** ☐ **Will Not** contain Owner's Extended Coverage (OEC). If the Title Commitment is to contain OEC, it will commit to delete or insure over the standard exceptions which relate to: (1) parties in possession, (2) unrecorded easements, (3) survey matters, (4) unrecorded mechanics' liens, (5) gap period (period between the effective date and time of commitment to the date and time the deed is recorded) and (6) unpaid taxes, assessments and unredeemed tax sales prior to the year of Closing. Any additional premium expense to obtain OEC will be paid by ☐ **Buyer** ☐ **Seller** ☒ **One-Half by Buyer and One-Half by Seller** ☐ **Other** .
Regardless of whether the Contract requires OEC, the Title Insurance Commitment may not provide OEC or delete or insure over any or all of the standard exceptions for OEC. The Title Insurance Company may require a New Survey or New ILC, defined below, among other requirements for OEC. If the Title Insurance Commitment is not satisfactory to Buyer, Buyer has a right to object under § 8.7. (Right to Object to Title, Resolution).

**8.1.4. Title Documents.** Title Documents consist of the following: (1) copies of any plats, declarations, covenants, conditions and restrictions burdening the Property and (2) copies of any other documents (or, if illegible, summaries of such documents) listed in the schedule of exceptions (Exceptions) in the Title Commitment furnished to Buyer (collectively, Title Documents).

**8.1.5. Copies of Title Documents.** Buyer must receive, on or before **Record Title Deadline**, copies of all Title Documents. This requirement pertains only to documents as shown of record in the office of the clerk and recorder in the county where the Property is located. The cost of furnishing copies of the documents required in this Section will be at the expense of the party or parties obligated to pay for the owner's title insurance policy.

**8.1.6. Existing Abstracts of Title.** Seller must deliver to Buyer copies of any abstracts of title covering all or any portion of the Property (Abstract of Title) in Seller's possession on or before **Record Title Deadline**.

**8.2. Record Title.** Buyer has the right to review and object to the Abstract of Title or Title Commitment and any of the Title Documents as set forth in § 8.7. (Right to Object to Title, Resolution) on or before **Record Title Objection Deadline**. Buyer's objection may be based on any unsatisfactory form or content of Title Commitment or Abstract of Title, notwithstanding § 13, or any other unsatisfactory title condition, in Buyer's sole subjective discretion. If the Abstract of Title, Title Commitment or Title Documents are not received by Buyer on or before the **Record Title Deadline**, or if there is an endorsement to the Title Commitment that adds a new Exception to title, a copy of the new Exception to title and the modified Title Commitment will be delivered to Buyer. Buyer has until the earlier of Closing or ten days after receipt of such documents by Buyer to review and object to: (1) any required Title Document not timely received by Buyer, (2) any change to the Abstract of Title, Title Commitment or Title Documents, or (3) any endorsement to the Title Commitment. If Seller receives Buyer's Notice to Terminate or Notice of Title Objection, pursuant to this § 8.2. (Record Title), any title objection by Buyer is governed by the provisions set forth in § 8.7. (Right to Object to Title, Resolution). If Seller has fulfilled all Seller's obligations, if any, to deliver to Buyer all documents required by § 8.1. (Evidence of Record Title) and Seller does not receive Buyer's Notice to Terminate or Notice of Title Objection by the applicable deadline specified above, Buyer accepts the condition of title as disclosed by the Abstract of Title, Title Commitment and Title Documents as satisfactory.

**8.3. Off-Record Title.** Seller must deliver to Buyer, on or before **Off-Record Title Deadline**, true copies of all existing surveys in Seller's possession pertaining to the Property and must disclose to Buyer all easements, liens (including, without limitation, governmental improvements approved, but not yet installed) or other title matters not shown by public records, of which Seller has actual knowledge (Off-Record Matters). This Section excludes any **New ILC** or **New Survey** governed under § 9 (New ILC, New Survey). Buyer has the right to inspect the Property to investigate if any third party has any right in the Property not shown by public records (e.g., unrecorded easement, boundary line discrepancy or water rights). Buyer's Notice to Terminate or Notice of Title Objection of any unsatisfactory condition (whether disclosed by Seller or revealed by such inspection, notwithstanding § 8.2. (Record Title) and § 13 (Transfer of Title)), in Buyer's sole subjective discretion, must be received by Seller on or before **Off-Record Title Objection Deadline**. If an Off-Record Matter is received by Buyer after the **Off-Record Title Deadline**, Buyer has until the earlier of



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Closing or ten days after receipt by Buyer to review and object to such Off-Record Matter. If Seller receives Buyer's Notice to Terminate or Notice of Title Objection pursuant to this § 8.3. (Off-Record Title), any title objection by Buyer is governed by the provisions set forth in § 8.7. (Right to Object to Title, Resolution). If Seller does not receive Buyer's Notice to Terminate or Notice of Title Objection by the applicable deadline specified above, Buyer accepts title subject to such Off-Record Matters and rights, if any, of third parties not shown by public records of which Buyer has actual knowledge.

**8.4. Special Taxing and Metropolitan Districts. Intentionally Deleted**

**8.5. Tax Certificate.** A tax certificate paid for by ☒ **Seller** ☐ **Buyer,** for the Property (Tax Certificate) must be delivered to Buyer on or before **Record Title Deadline**. If the content of the Tax Certificate is unsatisfactory to Buyer, in Buyer's sole subjective discretion, Buyer may terminate, on or before **Record Title Objection Deadline**. Should Buyer receive the Tax Certificate after **Record Title Deadline**, Buyer, at Buyer's option, has the Right to Terminate under § 24.1. by Buyer's Notice to Terminate received by Seller on or before ten days after Buyer's receipt of the Tax Certificate. If Buyer does not receive the Tax Certificate, or if Buyer's Notice to Terminate would otherwise be required to be received by Seller after **Closing Date**, Buyer's Notice to Terminate must be received by Seller on or before Closing. If Seller does not receive Buyer's Notice to Terminate within such time, Buyer accepts the content of the Tax Certificate as satisfactory and Buyer waives any Right to Terminate under this provision. If Buyer's loan specified in §4.5.3. (Loan Limitations) prohibits Buyer from paying for the Tax Certificate, the Tax Certificate will be paid for by Seller.

**8.6. Third Party Right to Purchase/Approve.** If any third party has a right to purchase the Property (e.g., right of first refusal on the Property, right to purchase the Property under a lease or an option held by a third party to purchase the Property) or a right of a third party to approve this Contract, Seller must promptly submit this Contract according to the terms and conditions of such right. If the third-party holder of such right exercises its right this Contract will terminate. If the third party's right to purchase is waived explicitly or expires, or the Contract is approved, this Contract will remain in full force and effect. Seller must promptly notify Buyer in writing of the foregoing. If the third party right to purchase is exercised or approval of this Contract has not occurred on or before **Third Party Right to Purchase/Approve Deadline**, this Contract will then terminate. Seller will supply to Buyer, in writing, details of any Third Party Right to Purchase the Property on or before the Record Title Deadline.

**8.7. Right to Object to Title, Resolution.** Buyer has a right to object or terminate, in Buyer's sole subjective discretion, based on any title matters including those matters set forth in § 8.2. (Record Title), § 8.3. (Off-Record Title), § 8.5. (Tax Certificate) and § 13 (Transfer of Title). If Buyer exercises Buyer's rights to object or terminate based on any such title matter, on or before the applicable deadline, Buyer has the following options:

**8.7.1. Title Objection, Resolution.** If Seller receives Buyer's written notice objecting to any title matter (Notice of Title Objection) on or before the applicable deadline and if Buyer and Seller have not agreed to a written settlement thereof on or before **Title Resolution Deadline**, this Contract will terminate on the expiration of **Title Resolution Deadline**, unless Seller receives Buyer's written withdrawal of Buyer's Notice of Title Objection (i.e., Buyer's written notice to waive objection to such items and waives the Right to Terminate for that reason), on or before expiration of **Title Resolution Deadline**. If either the Record Title Deadline or the Off-Record Title Deadline, or both, are extended pursuant to § 8.2. (Record Title) or § 8.3. (Off-Record Title) the Title Resolution Deadline also will be automatically extended to the earlier of Closing or fifteen days after Buyer's receipt of the applicable documents; or

**8.7.2. Title Objection, Right to Terminate.** Buyer may exercise the Right to Terminate under § 24.1., on or before the applicable deadline, based on any title matter unsatisfactory to Buyer, in Buyer's sole subjective discretion.

**8.8. Title Advisory.** The Title Documents affect the title, ownership and use of the Property and should be reviewed carefully. Additionally, other matters not reflected in the Title Documents may affect the title, ownership and use of the Property, including, without limitation, boundary lines and encroachments, set-back requirements, area, zoning, building code violations, unrecorded easements and claims of easements, leases and other unrecorded agreements, water on or under the Property and various laws and governmental regulations concerning land use, development and environmental matters.

**8.8.1. OIL, GAS, WATER AND MINERAL DISCLOSURE. THE SURFACE ESTATE OF THE**



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**PROPERTY MAY BE OWNED SEPARATELY FROM THE UNDERLYING MINERAL ESTATE AND TRANSFER OF THE SURFACE ESTATE MAY NOT NECESSARILY INCLUDE TRANSFER OF THE MINERAL ESTATE OR WATER RIGHTS. THIRD PARTIES MAY OWN OR LEASE INTERESTS IN OIL, GAS, OTHER MINERALS, GEOTHERMAL ENERGY OR WATER ON OR UNDER THE SURFACE OF THE PROPERTY, WHICH INTERESTS MAY GIVE THEM RIGHTS TO ENTER AND USE THE SURFACE OF THE PROPERTY TO ACCESS THE MINERAL ESTATE, OIL, GAS OR WATER.**

**8.8.2. SURFACE USE AGREEMENT. THE USE OF THE SURFACE ESTATE OF THE PROPERTY TO ACCESS THE OIL, GAS OR MINERALS MAY BE GOVERNED BY A SURFACE USE AGREEMENT, A MEMORANDUM OR OTHER NOTICE OF WHICH MAY BE RECORDED WITH THE COUNTY CLERK AND RECORDER.**

**8.8.3. OIL AND GAS ACTIVITY. OIL AND GAS ACTIVITY THAT MAY OCCUR ON OR ADJACENT TO THE PROPERTY MAY INCLUDE, BUT IS NOT LIMITED TO, SURVEYING, DRILLING, WELL COMPLETION OPERATIONS, STORAGE, OIL AND GAS, OR PRODUCTION FACILITIES, PRODUCING WELLS, REWORKING OF CURRENT WELLS AND GAS GATHERING AND PROCESSING FACILITIES.**

**8.8.4. ADDITIONAL INFORMATION. BUYER IS ENCOURAGED TO SEEK ADDITIONAL INFORMATION REGARDING OIL AND GAS ACTIVITY ON OR ADJACENT TO THE PROPERTY, INCLUDING DRILLING PERMIT APPLICATIONS. THIS INFORMATION MAY BE AVAILABLE FROM THE COLORADO OIL AND GAS CONSERVATION COMMISSION.**

**8.8.5. Title Insurance Exclusions.** Matters set forth in this Section and others, may be excepted, excluded from, or not covered by the owner's title insurance policy.

**8.9. Mineral Rights Review.** Buyer has a Right to Terminate if examination of the Mineral Rights is unsatisfactory to Buyer on or before the **Mineral Rights Examination Deadline**.

## 9. NEW ILC, NEW SURVEY.

**9.1. New ILC or New Survey.** If the box is checked, (1) ☐ **New Improvement Location Certificate (New ILC);** or, (2) ☒ **New Survey** in the form of ***an ALTA Survey***; is required and the following will apply:

**9.1.1. Ordering of New ILC or New Survey.** ☐ **Seller** ☒ **Buyer** will order the New ILC or New Survey. The New ILC or New Survey may also be a previous ILC or survey that is in the above-required form, certified and updated as of a date after the date of this Contract.

**9.1.2. Payment for New ILC or New Survey.** The cost of the New ILC or New Survey will be paid, on or before Closing, by: ☐ **Seller** ☒ **Buyer** or:

**9.1.3. Delivery of New ILC or New Survey.** Buyer, Seller, the issuer of the Title Commitment (or the provider of the opinion of title if an Abstract of Title) and ***Buyer's Brokers*** will receive a New ILC or New Survey on or before **New ILC or New Survey Deadline**.

**9.1.4. Certification of New ILC or New Survey.** The New ILC or New Survey will be certified by the surveyor to all those who are to receive the New ILC or New Survey.

**9.2. Buyer's Right to Waive or Change New ILC or New Survey Selection.** Buyer may select a New ILC or New Survey different than initially specified in this Contract if there is no additional cost to Seller or change to the **New ILC or New Survey Objection Deadline**. Buyer may, in Buyer's sole subjective discretion, waive a New ILC or New Survey if done prior to Seller incurring any cost for the same.

**9.3. New ILC or New Survey Objection.** Buyer has the right to review and object based on the New ILC or New Survey. If the New ILC or New Survey is not timely received by Buyer or is unsatisfactory to Buyer, in Buyer's sole subjective discretion, Buyer may, on or before **New ILC or New Survey Objection Deadline**, notwithstanding § 8.3. or § 13:

**9.3.1. Notice to Terminate.** Notify Seller in writing, pursuant to § 24.1, that this Contract is terminated; or

**9.3.2. New ILC or New Survey Objection.** Deliver to Seller a written description of any matter that was to be shown or is shown in the New ILC or New Survey that is unsatisfactory and that Buyer requires Seller to correct.

**9.3.3. New ILC or New Survey Resolution.** If a **New ILC or New Survey Objection** is received



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by Seller, on or before **New ILC or New Survey Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **New ILC or New Survey Resolution Deadline**, this Contract will terminate on expiration of the **New ILC or New Survey Resolution Deadline**, unless Seller receives Buyer's written withdrawal of the New ILC or New Survey Objection before such termination (i.e., on or before expiration of **New ILC or New Survey Resolution Deadline**).

## DISCLOSURE, INSPECTION AND DUE DILIGENCE

**10. PROPERTY DISCLOSURE, INSPECTION, INDEMNITY, INSURABILITY, DUE DILIGENCE AND SOURCE OF WATER.**

**10.1. Seller's Property Disclosure.** On or before **Seller's Property Disclosure Deadline,** Seller agrees to deliver to Buyer the most current version of the applicable Colorado Real Estate Commission's Seller's Property Disclosure form completed by Seller to Seller's actual knowledge and current as of the date of the Seller's Property Disclosure Deadline.

**10.2. Disclosure of Adverse Material Facts; Subsequent Disclosure; Present Condition.** Seller must disclose, in writing, to Buyer any adverse material facts actually known by Seller as of the date of this Contract. In the event Seller discovers an adverse material fact after the date of this Contract, Seller must timely disclose such adverse fact to Buyer. Buyer has the Right to Terminate based on the Seller's new disclosure on the earlier of Closing or five days after Buyer's receipt of the new disclosure. Except as otherwise provided in this Contract, Buyer acknowledges that Seller is conveying the Property, Inclusions, and included Leased Items to Buyer in an "**As Is**" condition, " **Where Is**" and " **With All Faults**."

**10.3. Inspection.** Unless otherwise provided in this Contract, Buyer, acting in good faith, has the right to have inspections (by one or more third parties, personally or both) of the Property, Leased Items, and Inclusions (Inspection), at Buyer's expense. If (1) the physical condition of the Property, including, but not limited to, the roof, walls, structural integrity of the Property, the electrical, plumbing, HVAC and other mechanical systems of the Property, (2) the physical condition of the Inclusions and Leased Items, (3) service to the Property (including utilities and communication services), systems and components of the Property (e.g., heating and plumbing), (4) any proposed or existing transportation project, road, street or highway, or (5) any other activity, odor or noise (whether on or off the Property) and its effect or expected effect on the Property or its occupants is unsatisfactory, in Buyer's sole subjective discretion, Buyer may:

**10.3.1. Inspection Termination.** On or before the **Inspection Termination Deadline**, notify Seller in writing, pursuant to § 24.1., that this Contract is terminated due to any unsatisfactory condition, provided the Buyer did not previously deliver an Inspection Objection. Buyer's Right to Terminate under this provision expires upon delivery of an Inspection Objection to Seller pursuant to § 10.3.2.; or

**10.3.2. Inspection Objection.** On or before the **Inspection Objection Deadline**, deliver to Seller a written description of any unsatisfactory condition that Buyer requires Seller to correct.

**10.3.3. Inspection Resolution.** If an Inspection Objection is received by Seller on or before **Inspection Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **Inspection Resolution Deadline**, this Contract will terminate on **Inspection Resolution Deadline** unless Seller receives Buyer's written withdrawal of the Inspection Objection before such termination (i.e., on or before expiration of **Inspection Resolution Deadline**). Nothing in this provision prohibits the Buyer and the Seller from mutually terminating this Contract before the Inspection Resolution Deadline passes by executing an Earnest Money Release.

**10.4. Damage, Liens and Indemnity.** Buyer, except as otherwise provided in this Contract or other written agreement between the parties, is responsible for payment for all inspections, tests, surveys, engineering reports, or other reports performed at Buyer's request (Work) and must pay for any damage that occurs to the Property, Inclusions, and included Leased Items as a result of such Work. Buyer must not permit claims or liens of any kind against the Property for Work performed on the Property. Buyer agrees to indemnify, protect and hold Seller harmless from and against any liability, damage, cost or expense incurred by Seller and caused by any such Work, claim, or lien. This indemnity includes Seller's right to recover all costs and expenses incurred by Seller to defend against any such liability, damage, cost or expense, or to



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enforce this Section, including Seller's reasonable attorney fees, legal fees and expenses. The provisions of this Section survive the termination of this Contract. This § 10.4. does not apply to items performed pursuant to an Inspection Resolution.

**10.5. Insurability.** Buyer has the Right to Terminate under § 24.1., on or before **Property Insurance Termination Deadline**, based on, in Buyer's sole subjective discretion, any unsatisfactory provision of the availability, terms and conditions and premium for property insurance (Property Insurance) on the Property.

**10.6. Due Diligence.**

**10.6.1. Due Diligence Documents.** Seller agrees to deliver copies of the following documents and information pertaining to the Property and Leased Items (Due Diligence Documents) to Buyer on or before **Due Diligence Documents Delivery Deadline**:

**10.6.1.1. Occupancy Agreements.** All current leases, including any amendments or other occupancy agreements, pertaining to the Property. Those leases or other occupancy agreements pertaining to the Property that survive Closing are as follows (Leases):

**10.6.1.2. Leased Items Documents.** If any lease of personal property (§ 2.5.8., Leased Items) will be transferred to Buyer at Closing, Seller agrees to deliver copies of the leases and information pertaining to the personal property to Buyer on or before **Due Diligence Documents Delivery Deadline**.

**10.6.1.3. Encumbered Inclusions Documents.** If any Inclusions owned by Seller are encumbered pursuant to § 2.5.4. (Encumbered Inclusions) above, Seller agrees to deliver copies of the evidence of debt, security and any other documents creating the encumbrance to Buyer on or before **Due Diligence Documents Delivery Deadline**.

**10.6.1.4. Solar Power Plan.** Copy of any Solar Power Plan not included in Leased Items (regardless of its name or title).

**10.6.1.5. Septic Use Permit.** If required by the local health department or other applicable government entity, on or before the local health department's applicable deadline, Seller must pay for and furnish to Buyer a Septic Use Permit.

**10.6.1.6. Other Documents.** If the respective box is checked, Seller agrees to additionally deliver copies of the following:

☒ **10.6.1.6.1.** All contracts relating to the operation, maintenance and management of the Property;

☒ **10.6.1.6.2.** Property tax bills for the last ***3*** years;

☒ **10.6.1.6.3.** As-built construction plans to the Property and the tenant improvements, including architectural, electrical, mechanical and structural systems; engineering reports; and permanent Certificates of Occupancy, to the extent now available;

☒ **10.6.1.6.4.** A list of all Inclusions to be conveyed to Buyer;

☒ **10.6.1.6.5.** Operating statements for the past ***3*** years;

☒ **10.6.1.6.6.** A rent roll accurate and correct to the date of this Contract;

☒ **10.6.1.6.7.** A schedule of any tenant improvement work Seller is obligated to complete but has not yet completed and capital improvement work either scheduled or in process on the date of this Contract;

☒ **10.6.1.6.8.** All insurance policies pertaining to the Property and copies of any claims which have been made for the past ***3*** years;

☒ **10.6.1.6.9.** Soils reports, surveys and engineering reports or data pertaining to the Property (if not delivered earlier under § 8.3.);

☒ **10.6.1.6.10.** Any and all existing documentation and reports regarding Phase I and II environmental reports, letters, test results, advisories and similar documents respective to the existence or nonexistence of asbestos, PCB transformers, or other toxic, hazardous or contaminated substances and/or underground storage tanks and/or radon gas. If no reports are in Seller's possession or known to Seller, Seller warrants that no such reports are in Seller's possession or known to Seller;

☒ **10.6.1.6.11.** Any *Americans with Disabilities Act* reports, studies or surveys concerning the compliance of the Property with said Act;

☒ **10.6.1.6.12.** All permits, licenses and other building or use authorizations issued by any



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governmental authority with jurisdiction over the Property and written notice of any violation of any such permits, licenses or use authorizations, if any; and

☒ **10.6.1.6.13.** Other:

***Seller shall be required to deliver only those Due Diligence Documents that are in Seller's possession or that Seller can reasonably obtain through customary efforts.***

**10.6.2. Due Diligence Documents Review and Objection.** Buyer has the right to review and object based on the Due Diligence Documents. If the Due Diligence Documents are not supplied to Buyer or are unsatisfactory, in Buyer's sole subjective discretion, Buyer may, on or before **Due Diligence Documents Objection Deadline**:

**10.6.2.1. Notice to Terminate.** Notify Seller in writing, pursuant to § 24.1., that this Contract is terminated; or

**10.6.2.2. Due Diligence Documents Objection.** Deliver to Seller a written description of any unsatisfactory Due Diligence Documents that Buyer requires Seller to correct.

**10.6.2.3. Due Diligence Documents Resolution.** If a Due Diligence Documents Objection is received by Seller, on or before **Due Diligence Documents Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **Due Diligence Documents Resolution Deadline**, this Contract will terminate on **Due Diligence Documents Resolution Deadline** unless Seller receives Buyer's written withdrawal of the Due Diligence Documents Objection before such termination (i.e., on or before expiration of **Due Diligence Documents Resolution Deadline**.

**10.6.2.4. Automatic Due Diligence Extension.** If a Due Diligence Document is not delivered on or before the Due Diligence Documents Deadline, Buyer has until the earlier of Closing or ten days after receipt by Buyer to review and object to such Due Diligence Document. If Buyer's right to review and object to such Due Diligence Document is extended due to such Due Diligence Document not being delivered on or before the Due Diligence Documents Deadline, the Due Diligence Document Resolution Deadline will also be extended to the earlier of Closing or fifteen days after Buyer's receipt of such Due Diligence Document.

**10.6.3. Zoning.** Buyer has the Right to Terminate under § 24.1., on or before **Due Diligence Documents Objection Deadline**, based on any unsatisfactory zoning and any use restrictions imposed by any governmental agency with jurisdiction over the Property, in Buyer's sole subjective discretion.

**10.6.4. Due Diligence – Environmental.** Buyer has the right to obtain environmental inspections of the Property including a Phase I Environmental Site Assessment. ☐ **Seller** ☒ **Buyer** will order or provide a current Phase I Environmental Site Assessment (compliant with the most current version of the applicable ASTM E1527 standard practices for Environmental Site Assessments) and/or , at the expense of ☐ **Seller** ☒ **Buyer** (Environmental Inspection).

If the Phase I Environmental Site Assessment recommends a Phase II Environmental Site Assessment, the **Environmental Inspection Termination Deadline** will be extended by ***21*** days (**Extended Environmental Inspection Termination Deadline**) and if such Extended Environmental Inspection Termination Deadline extends beyond the **Closing Date**, the **Closing Date** will be extended a like period of time. In such event, ☐ **Seller** ☒ **Buyer** must pay the cost for such Phase II Environmental Site Assessment.

Notwithstanding Buyer's right to obtain additional environmental inspections of the Property in this § 10.6.4., Buyer has the Right to Terminate under § 24.1., on or before **Environmental Inspection Termination Deadline**, or if applicable, the Extended Environmental Inspection Termination Deadline, based on any unsatisfactory results of Environmental Inspection, in Buyer's sole subjective discretion.

**10.6.5. Due Diligence – ADA.** Buyer, at Buyer's expense, may also conduct an evaluation whether the Property complies with the *Americans with Disabilities Act* (ADA Evaluation). All such inspections and evaluations must be conducted at such times as are mutually agreeable to minimize the interruption of Seller's and any Seller's tenants' business uses of the Property, if any.

Buyer has the Right to Terminate under § 24.1., on or before **ADA Evaluation Termination Deadline,** based on any unsatisfactory ADA Evaluation, in Buyer's sole subjective discretion.

**10.7. Conditional Upon Sale of Property.** This Contract is conditional upon the sale and closing of that certain property owned by Buyer and commonly known as . Buyer has the Right to Terminate under § 24.1. effective upon Seller's receipt of Buyer's Notice to Terminate on or before **Conditional Sale Deadline** if



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such property is not sold and closed by such deadline. This Section is for the sole benefit of Buyer. If Seller does not receive Buyer's Notice to Terminate on or before **Conditional Sale Deadline**, Buyer waives any Right to Terminate under this provision.

**10.8. Source of Potable Water (Residential Land and Residential Improvements Only). [Intentionally Deleted - See Residential Addendum if applicable]**

**10.9. Existing Leases; Modification of Existing Leases; New Leases.** Seller states that none of the Leases to be assigned to the Buyer at the time of Closing contain any rent concessions, rent reductions or rent abatements except as disclosed in the Lease or other writing received by Buyer. Seller will not amend, alter, modify, extend or cancel any of the Leases nor will Seller enter into any new leases affecting the Property without the prior written consent of Buyer, which consent will not be unreasonably withheld or delayed.

**10.10. Lead-Based Paint. [Intentionally Deleted - See Residential Addendum if applicable]**

**10.11. Carbon Monoxide Alarms. [Intentionally Deleted - See Residential Addendum if applicable]**

**10.12. Methamphetamine Disclosure. [Intentionally Deleted - See Residential Addendum if applicable]**

## 11. TENANT ESTOPPEL STATEMENTS.

**11.1. Estoppel Statements Conditions.** Buyer has the right to review and object to any Estoppel Statements. Seller must request from all tenants of the Property and if received by Seller, deliver to Buyer on or before **Estoppel Statements Deadline**, statements in a form and substance reasonably acceptable to Buyer, from each occupant or tenant at the Property (Estoppel Statement) attached to a copy of the Lease stating:

**11.1.1.** The commencement date of the Lease and scheduled termination date of the Lease;

**11.1.2.** That said Lease is in full force and effect and that there have been no subsequent modifications or amendments;

**11.1.3.** The amount of any advance rentals paid, rent concessions given and deposits paid to Seller;

**11.1.4.** The amount of monthly (or other applicable period) rental paid to Seller;

**11.1.5.** That there is no default under the terms of said Lease by landlord or occupant; and

**11.1.6.** That the Lease to which the Estoppel Statement is attached is a true, correct and complete copy of the Lease demising the premises it describes.

**11.2. Seller Estoppel Statement.** In the event Seller does not receive from all tenants of the Property a completed signed Estoppel Statement, Seller agrees to complete and execute an Estoppel Statement setting forth the information and documents required §11.1. above and deliver the same to Buyer on or before **Estoppel Statements Deadline**.

**11.3. Estoppel Statements Termination.** Buyer has the Right to Terminate under § 24.1., on or before **Estoppel Statements Termination Deadline**, based on any unsatisfactory Estoppel Statement, in Buyer's sole subjective discretion, or if Seller fails to deliver the Estoppel Statements on or before **Estoppel Statements Deadline**. Buyer also has the unilateral right to waive any unsatisfactory Estoppel Statement.

# CLOSING PROVISIONS

## 12. CLOSING DOCUMENTS, INSTRUCTIONS AND CLOSING.

**12.1. Closing Documents and Closing Information.** Seller and Buyer will cooperate with the Closing Company to enable the Closing Company to prepare and deliver documents required for Closing to Buyer and Seller and their designees. If Buyer is obtaining a loan to purchase the Property, Buyer acknowledges Buyer's lender is required to provide the Closing Company, in a timely manner, all required loan documents and financial information concerning Buyer's loan. Buyer and Seller will furnish any additional information and documents required by Closing Company that will be necessary to complete this



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transaction. Buyer and Seller will sign and complete all customary or reasonably required documents at or before Closing.

**12.2. Closing Instructions.** Colorado Real Estate Commission's Closing Instructions ☐ **Are** ☒ **Are Not** executed with this Contract.

**12.3. Closing.** Delivery of deed from Seller to Buyer will be at closing (Closing). Closing will be on the date specified as the **Closing Date** or by mutual agreement at an earlier date. At Closing, Seller must provide Buyer with the ability to access the Property (e.g. keys, access code, garage door opener). The hour and place of Closing will be as designated by ***Buyer and Seller***.

**12.4. Disclosure of Settlement Costs.** Buyer and Seller acknowledge that costs, quality and extent of service vary between different settlement service providers (e.g., attorneys, lenders, inspectors and title companies).

**12.5. Assignment of Leases.** Seller must assign to Buyer all Leases at Closing that will continue after Closing and Buyer must assume Seller's obligations under such Leases. Further, Seller must transfer to Buyer all Leased Items and assign to Buyer such leases for the Leased Items accepted by Buyer pursuant to § 2.5.8. (Leased Items).

**13. TRANSFER OF TITLE.** Subject to Buyer's compliance with the terms and provisions of this Contract, including the tender of any payment due at Closing, Seller must execute and deliver the following good and sufficient deed to Buyer, at Closing: ☒ special warranty deed ☐ general warranty deed ☐ bargain and sale deed ☐ quit claim deed ☐ personal representative's deed ☐ deed. Seller, provided another deed is not selected, must execute and deliver a good and sufficient special warranty deed to Buyer, at Closing.

Unless otherwise specified in § 30 (Additional Provisions), if title will be conveyed using a special warranty deed or a general warranty deed, title will be conveyed "subject to statutory exceptions" as defined in §38-30-113(5)(a), C.R.S.

**14. PAYMENT OF LIENS AND ENCUMBRANCES.** Unless otherwise agreed to in this Contract or by Buyer in writing, any amounts owed on any liens or encumbrances against the Property or Inclusions, including any governmental liens for special improvements installed as of the date of Buyer's signature hereon, whether assessed or not, and previous years' taxes, will be paid before Closing by Seller, at Closing from the proceeds of this transaction, or from any other source.

**15. CLOSING COSTS, FEES, ASSOCIATION STATUS LETTER AND DISBURSEMENTS, TAXES AND WITHHOLDING.**

**15.1. Closing Costs.** Buyer and Seller must pay, in Good Funds, their respective closing costs and all other items required to be paid at Closing, except as otherwise provided herein.

**15.2. Closing Services Fee.** The fee for real estate closing services must be paid at Closing by ☐ **Buyer** ☐ **Seller** ☒ **One-Half by Buyer and One-Half by Seller** ☐ **Other** .

**15.3. Association Fees and Required Disbursements.** At least fourteen days prior to **Closing Date**, Seller agrees to promptly request that the Closing Company or the Association deliver to Buyer a current Status Letter, if applicable. Any fees associated with or specified in the Status Letter will be paid as follows:

**15.3.1. Status Letter Fee.** Any fee incident to the issuance of Association's Status Letter must be paid by Seller.

**15.3.2. Record Change Fee.** Any Record Change Fee must be paid by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.3.3. Reserves or Working Capital.** Unless agreed to otherwise, all reserves or working capital due (or other similar cost not addressed in § 16.2. (Association Assessments)) at Closing must be paid by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.3.4. Other Fees.** Any other fee listed in the Status Letter as required to be paid at Closing will be paid by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.4. Local Transfer Tax.** Any Local Transfer Tax must be paid at Closing by ☐ **Buyer** ☒ **Seller**



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☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.5. Sales and Use Tax.** Any sales and use tax that may accrue because of this transaction must be paid when due by ☐ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

**15.6. Private Transfer Fee.** Any private transfer fees and other fees due to a transfer of the Property, payable at Closing, such as community association fees, developer fees and foundation fees, must be paid at Closing by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.7. Water Transfer Fees.** Water Transfer Fees can change. The fees, as of the date of this Contract, do not exceed $ for:

☐ Water District/Municipality ☐ Water Stock

☐ Augmentation Membership ☐ Small Domestic Water Company ☐

and must be paid at Closing by ☒ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.8. Utility Transfer Fees.** Utility transfer fees can change. Any fees to transfer utilities from Seller to Buyer must be paid by ☒ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

**15.9. FIRPTA and Colorado Withholding.**

**15.9.1. FIRPTA.** The Internal Revenue Service (IRS) may require a substantial portion of the Seller's proceeds be withheld after Closing when Seller is a foreign person. If required withholding does not occur, the Buyer could be held liable for the amount of the Seller's tax, interest and penalties. If the box in this Section is checked, Seller represents that Seller ☐ **IS** a foreign person for purposes of U.S. income taxation. If the box in this Section is not checked, Seller represents that Seller is not a foreign person for purposes of U.S. income taxation. Seller agrees to cooperate with Buyer and Closing Company to provide any reasonably requested documents to verify Seller's foreign person status. If withholding is required, Seller authorizes Closing Company to withhold such amount from Seller's proceeds. Seller should inquire with Seller's tax advisor to determine if withholding applies or if an exemption exists.

**15.9.2. Colorado Withholding.** The Colorado Department of Revenue may require a portion of the Seller's proceeds be withheld after Closing when Seller will not be a Colorado resident after Closing, if not otherwise exempt. Seller agrees to cooperate with Buyer and Closing Company to provide any reasonably requested documents to verify Seller's status. If withholding is required, Seller authorizes Closing Company to withhold such amount from Seller's proceeds. Seller should inquire with Seller's tax advisor to determine if withholding applies or if an exemption exists.

## 16. PRORATIONS AND ASSOCIATION ASSESSMENTS.

**16.1. Prorations.** The following will be prorated to the **Closing Date**, except as otherwise provided:

**16.1.1. Taxes.** Personal property taxes, if any, special taxing district assessments, if any, and general real estate taxes for the year of Closing, based on

☐ **Taxes for the Calendar Year Immediately Preceding Closing**

☒ **Most Recent Mill Levy and Most Recent Assessed or Actual Valuation per the county assessor,** adjusted by any applicable qualifying seniors property tax exemption, qualifying disabled veteran exemption or ☐ **Other**

**16.1.2. Rents.** Rents based on ☐ **Rents Actually Received** ☐ **Accrued.** At Closing, Seller will transfer or credit to Buyer the security deposits for all Leases assigned to Buyer, or any remainder after lawful deductions, and notify all tenants in writing of such transfer and of the transferee's name and address.

**16.1.3. Other Prorations.** Water and sewer charges, propane, interest on continuing loan and

**16.1.4. Final Settlement.** Unless otherwise specified in Additional Provisions, these prorations are final.

**16.2. Association Assessments.** Current regular Association assessments and dues (Association Assessments) paid in advance will be credited to Seller at Closing. All Association Assessments accrued before Closing must be paid by Seller and all Association Assessments accrued after Closing must be paid by Buyer. Cash reserves held out of the regular Association Assessments for deferred maintenance by the Association will not be credited to Seller except as may be otherwise provided by the Governing Documents. Any special assessment assessed prior to **Closing Date** by the Association will be the obligation of ☐ **Buyer** ☒ **Seller.** Except however, any special assessment by the Association for improvements that have been installed as of the date of Buyer's signature hereon, whether assessed prior to or after Closing, will be the



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obligation of Seller unless otherwise specified in Additional Provisions. Seller represents there are no unpaid regular or special assessments against the Property except the current regular assessments and Association Assessments are subject to change as provided in the Governing Documents.

**17. POSSESSION.** Possession of the Property and Inclusions will be delivered to Buyer on **Possession Date** at **Possession Time**, subject to the Leases as set forth in § 10.6.1.1.

If Seller, after Closing occurs, fails to deliver possession as specified, Seller will be subject to eviction and will be additionally liable to Buyer, notwithstanding § 20.2. (If Seller is in Default), for payment of $ ***400.00*** per day (or any part of a day notwithstanding § 3.3., Day) from **Possession Date** and **Possession Time** until possession is delivered. Additionally, Buyer may pursue a claim against Seller for any of Buyer's actual additional damages incurred by Buyer in excess of such amount.

## General Provisions

**18. CAUSES OF LOSS, INSURANCE; DAMAGE TO INCLUSIONS AND SERVICES; CONDEMNATION; AND WALK-THROUGH.** Except as otherwise provided in this Contract, the Property and Inclusions will be delivered in the condition existing as of the date of this Contract, ordinary wear and tear excepted.

**18.1. Causes of Loss, Insurance.** In the event the Property or Inclusions are damaged by fire, other perils or causes of loss prior to Closing (Property Damage) in an amount of not more than ten percent of the total Purchase Price and if the repair of the damage will be paid by insurance (other than the deductible to be paid by Seller), then Seller, upon receipt of the insurance proceeds, will use Seller's reasonable efforts to repair the Property before **Closing Date**. Buyer has the Right to Terminate under § 24.1., on or before **Closing Date**, if the Property is not repaired before **Closing Date**, or if the damage exceeds such sum. Should Buyer elect to carry out this Contract despite such Property Damage, Buyer is entitled to a credit at Closing for all insurance proceeds that were received by Seller (but not the Association, if any) resulting from damage to the Property and Inclusions, plus the amount of any deductible provided for in the insurance policy. This credit may not exceed the Purchase Price. In the event Seller has not received the insurance proceeds prior to Closing, the parties may agree to extend the **Closing Date** to have the Property repaired prior to Closing or, at the option of Buyer, (1) Seller must assign to Buyer the right to the proceeds at Closing, if acceptable to Seller's insurance company and Buyer's lender; or (2) the parties may enter into a written agreement prepared by the parties or their attorney requiring the Seller to escrow at Closing from Seller's sale proceeds the amount Seller has received and will receive due to such damage, not exceeding the total Purchase Price, plus the amount of any deductible that applies to the insurance claim.

**18.2. Damage, Inclusions and Services.** Should any Inclusion or service (including utilities and communication services), system, component or fixture of the Property (collectively Service) (e.g., heating or plumbing), fail or be damaged between the date of this Contract and Closing or possession, whichever is earlier, then Seller is liable for the repair or replacement of such Inclusion or Service with a unit of similar size, age and quality, or an equivalent credit, but only to the extent that the maintenance or replacement of such Inclusion or Service is not the responsibility of the Association, if any, less any insurance proceeds received by Buyer covering such repair or replacement. If the failed or damaged Inclusion or Service is not repaired or replaced on or before Closing or possession, whichever is earlier, Buyer has the Right to Terminate under § 24.1., on or before **Closing Date**, or, at the option of Buyer, Buyer is entitled to a credit at Closing for the repair or replacement of such Inclusion or Service. Such credit must not exceed the Purchase Price. If Buyer receives such a credit, Seller's right for any claim against the Association, if any, will survive Closing.

**18.3. Condemnation.** In the event Seller receives actual notice prior to Closing that a pending condemnation action may result in a taking of all or part of the Property or Inclusions, Seller must promptly notify Buyer, in writing, of such condemnation action. Buyer has the Right to Terminate under § 24.1., on or before **Closing Date**, based on such condemnation action, in Buyer's sole subjective discretion. Should Buyer elect to consummate this Contract despite such diminution of value to the Property and Inclusions, Buyer is entitled to a credit at Closing for all condemnation proceeds awarded to Seller for the diminution in the value of the Property or Inclusions. Such credit will not include relocation benefits or expenses or exceed



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the Purchase Price.

**18.4. Walk-Through and Verification of Condition.** Buyer, upon reasonable notice, has the right to walk through the Property prior to Closing to verify that the physical condition of the Property and Inclusions complies with this Contract.

**19. RECOMMENDATION OF LEGAL AND TAX COUNSEL.** By signing this Contract, Buyer and Seller acknowledge that their respective broker has advised that this Contract has important legal consequences and has recommended: (1) legal examination of title; (2) consultation with legal and tax or other counsel before signing this Contract as this Contract may have important legal and tax implications; (3) to consult with their own attorney if Water Rights, Mineral Rights or Leased Items are included or excluded in the sale; and (4) to consult with legal counsel if there are other matters in this transaction for which legal counsel should be engaged and consulted. Such consultations must be done timely as this Contract has strict time limits, including deadlines, that must be complied with.

**20. TIME OF ESSENCE, DEFAULT AND REMEDIES.** Time is of the essence for all dates and deadlines in this Contract. This means that all dates and deadlines are strict and absolute. If any payment due, including Earnest Money, is not paid, honored or tendered when due, or if any obligation is not performed timely as provided in this Contract or waived, the non-defaulting party has the following remedies:

**20.1. If Buyer is in Default:**

☐ **20.1.1. Specific Performance.** Seller may elect to cancel this Contract and all Earnest Money (whether or not paid by Buyer) will be paid to Seller and retained by Seller. It is agreed that the Earnest Money is not a penalty, and the parties agree the amount is fair and reasonable. Seller may recover such additional damages as may be proper. Alternatively, Seller may elect to treat this Contract as being in full force and effect and Seller has the right to specific performance or damages, or both.

**20.1.2. Liquidated Damages, Applicable. This § 20.1.2. applies unless the box in § 20.1.1. is checked.** Seller may cancel this Contract. All Earnest Money (whether or not paid by Buyer) will be paid to Seller and retained by Seller. It is agreed that the Earnest Money amount specified in § 4.1. is LIQUIDATED DAMAGES and not a penalty, which amount the parties agree is fair and reasonable and (except as provided in §§ 10.4. and 21), such amount is SELLER'S ONLY REMEDY for Buyer's failure to perform the obligations of this Contract. Seller expressly waives the remedies of specific performance and additional damages.

**20.2. If Seller is in Default:**

**20.2.1. Specific Performance, Damages or Both.** Buyer may elect to treat this Contract as canceled, in which case all Earnest Money received hereunder will be returned to Buyer and Buyer may recover such damages as may be proper. Alternatively, in addition to the per diem in § 17 (Possession) for failure of Seller to timely deliver possession of the Property after Closing occurs, Buyer may elect to treat this Contract as being in full force and effect and Buyer has the right to specific performance or damages, or both.

**20.2.2. Seller's Failure to Perform.** In the event Seller fails to perform Seller's obligations under this Contract, to include, but not limited to, failure to timely disclose Association violations known by Seller, failure to perform any replacements or repairs required under this Contract or failure to timely disclose any known adverse material facts, Seller remains liable for any such failures to perform under this Contract after Closing. Buyer's rights to pursue the Seller for Seller's failure to perform under this Contract are reserved and survive Closing.

**21. LEGAL FEES, COST AND EXPENSES.** Anything to the contrary herein notwithstanding, in the event of any arbitration or litigation relating to this Contract, prior to or after **Closing Date**, the arbitrator or court must award to the prevailing party all reasonable costs and expenses, including attorney fees, legal fees and expenses.

**22. MEDIATION.** If a dispute arises relating to this Contract (whether prior to or after Closing) and the dispute is not resolved, the parties must first proceed, in good faith, to mediation before proceeding to arbitration or litigation. Mediation is a process in which the parties meet with an impartial person who helps to



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resolve the dispute informally and confidentially. Mediators cannot impose binding decisions. Before any mediated settlement is binding, the parties to the dispute must agree to the settlement, in writing. A party requesting mediation must deliver written notice requesting mediation to the other party as provided in § 26. The parties will jointly appoint an acceptable mediator and will share equally in the cost of such mediation. The obligation to mediate, unless otherwise agreed, will terminate if the entire dispute is not resolved within thirty days of the date of written notice requesting mediation. Nothing in this Section prohibits either party from filing a lawsuit and recording a *lis pendens* affecting the Property, before or after the date of written notice requesting mediation. This Section will not alter any date in this Contract, unless otherwise agreed.

**23. EARNEST MONEY DISPUTE.** Except as otherwise provided herein, Earnest Money Holder must release the Earnest Money following receipt of written mutual instructions (e.g., Earnest Money Release form), signed by both Buyer and Seller. In the event of any controversy regarding the Earnest Money, Earnest Money Holder is not required to release the Earnest Money. Earnest Money Holder, in its sole subjective discretion, has several options: (1) wait for any proceeding between Buyer and Seller; (2) interplead all parties and deposit Earnest Money into a court of competent jurisdiction (Earnest Money Holder is entitled to recover court costs and reasonable attorney and legal fees incurred with such action); or (3) provide notice to Buyer and Seller that unless Earnest Money Holder receives a copy of the Summons and Complaint or Claim (between Buyer and Seller) containing the case number of the lawsuit (Lawsuit) within one hundred twenty days of Earnest Money Holder's notice to the parties, Earnest Money Holder is authorized to return the Earnest Money to Buyer. In the event Earnest Money Holder does receive a copy of the Lawsuit and has not interpled the monies at the time of any Order, Earnest Money Holder must disburse the Earnest Money pursuant to the Order of the Court. The parties reaffirm the obligation of § 22 (Mediation). This Section will survive cancellation or termination of this Contract.

**24. TERMINATION.**

**24.1. Right to Terminate.** If a party has a right to terminate, as provided in this Contract (Right to Terminate), the termination is effective upon the other party's receipt of a written notice to terminate (Notice to Terminate), provided such written notice was received on or before the applicable deadline specified in this Contract. If the Notice to Terminate is not received on or before the specified deadline, the party with the Right to Terminate accepts the specified matter, document or condition as satisfactory and waives the Right to Terminate under such provision. Any Notice to Terminate delivered after the applicable deadline specified in the Contract is ineffective and does not terminate this Contract.

**24.2. Effect of Termination.** In the event this Contract is terminated, all Earnest Money received hereunder must be timely returned to Buyer and the parties are then relieved of all obligations hereunder, subject to §§ 10.4. and 21.

**25. ENTIRE AGREEMENT, MODIFICATION, SURVIVAL; SUCCESSORS.** This Contract, its exhibits and specified addenda, constitute the entire agreement between the parties relating to the subject hereof and any prior agreements pertaining thereto, whether oral or written, have been merged and integrated into this Contract. No subsequent modification of any of the terms of this Contract is valid, binding upon the parties, or enforceable unless made in writing and signed by the parties. Any right or obligation in this Contract that, by its terms, exists or is intended to be performed after termination or Closing survives the same. Any successor to a party receives the predecessor's benefits and obligations of this Contract.

**26. NOTICE, DELIVERY AND CHOICE OF LAW.**

**26.1. Physical Delivery and Notice.** Any document or notice to Buyer or Seller must be in writing, except as provided in § 26.2. and § 26.3. and is effective when physically received by such party, any individual named in this Contract to receive documents or notices for such party, Broker, or Brokerage Firm of Broker working with such party (except any notice or delivery after Closing must be received by the party, not Broker or Brokerage Firm).

**26.2. Electronic Notice.** As an alternative to physical delivery, any notice may be delivered in electronic form to Buyer or Seller, any individual named in this Contract to receive documents or notices for



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such party, Broker or Brokerage Firm of Broker working with such party (except any notice or delivery after Closing, cancellation or Termination must be received by the party, not Broker or Brokerage Firm) at the electronic address of the recipient by facsimile, email or ***CTM eContracts***.

**26.3. Electronic Delivery.** Electronic Delivery of documents may be delivered by: (1) email at the email address of the recipient, (2) a link or access to a website or server provided the recipient receives the information necessary to access the documents, or (3) facsimile at the facsimile number (Fax No.) of the recipient.

**26.4. Choice of Law.** This Contract and all disputes arising hereunder are governed by and construed in accordance with the laws of the State of Colorado that would be applicable to Colorado residents who sign a contract in Colorado for real property located in Colorado.

**27. NOTICE OF ACCEPTANCE, COUNTERPARTS.** This proposal will expire unless accepted in writing by Buyer and Seller, as evidenced by their signatures below and the offering party receives notice of such acceptance pursuant to § 26 on or before **Acceptance Deadline Date** and **Acceptance Deadline Time**. If accepted, this document will become a contract between Seller and Buyer. A copy of this Contract may be executed by each party separately and when each party has executed a copy thereof, such copies taken together are deemed to be a full and complete contract between the parties.

**28. GOOD FAITH.** Buyer and Seller acknowledge that each party has an obligation to act in good faith including, but not limited to, exercising the rights and obligations set forth in the provisions of **Financing Conditions and Obligations**; **Title Insurance, Record Title and Off-Record Title**; **New ILC, New Survey**; and **Property Disclosure, Inspection, Indemnity, Insurability and Due Diligence**.

**29. BUYER'S BROKERAGE FIRM COMPENSATION.** Buyer's brokerage firm's compensation will be paid, at Closing, as follows:

☒ **29.1.** ***2.50***% of the Purchase Price or $ by Seller. Buyer's brokerage firm is an intended third party beneficiary under this provision only. The amount paid by Seller under this provision is in addition to any other amounts Seller is paying on behalf of Buyer elsewhere in this Contract.

☐ **29.2.** % of the Purchase Price or $ by Buyer pursuant to a separate agreement between Buyer and Buyer's brokerage firm. This amount may be modified between Buyer and Buyer's brokerage firm outside of this Contract.

☐ **29.3.** % of the Purchase Price or $ by a separate agreement between Buyer's brokerage firm and Seller's brokerage firm.

## ADDITIONAL PROVISIONS AND ATTACHMENTS

**30. ADDITIONAL PROVISIONS. The following additional provisions have not been approved by the Colorado Real Estate Commission:**

***30.1 Back Up Offer Provision - In the event Seller receives a backup offer after the initial 30 days following Mutual Execution of Contract (MEC), Seller may provide written notice to Buyer requesting that Buyer confirm its intent to proceed to closing in accordance with the terms of this Contract, subject to an expedited closing timeline of 45 calendar days from Buyer confirming intent to proceed, and at such time the earnest money shall become nonrefundable and pass through to the Seller. Buyer shall have fifteen (15) days from receipt of such notice to elect in writing to proceed with the purchase. If Buyer fails to timely elect to proceed, Seller may terminate this Contract and return the Earnest Money to Buyer, after which neither party shall have further obligation hereunder.***

***30.2 "PROPERTY IS SOLD "AS-IS", IN ITS PRESENT CONDITION, AS OF THE TIME OF ACCEPTANCE OF THIS OFFER, WITHOUT WARRANTY. SELLER SHALL NOT BE***



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***RESPONSIBLE FOR MAKING CORRECTIONS OR REPAIRS OF ANY NATURE EXCEPT WHICH APPLIANCES, MECHANICAL, LANDSCAPING, AND GROUNDS, SHALL BE MAINTAINED IN SUBSTANTIALLY THE SAME CONDITION AS ON THE DATE OF ACCEPTANCE OF THE OFFER. IT IS FURTHER ACKNOWLEDGED BY THE BUYERS THAT THE INSPECTION OF SAID PROPERTY, PARAGRAPH 10, IS FOR THE BUYER'S INFORMATION ONLY. SELLERS WILL NOT MAKE OR PAY FOR ANY CORRECTIONS TO THE SUBJECT PROPERTY. THE BUYER'S SOLE REMEDY FOR AN UNSATISFACTORY INSPECTION IS TO TERMINATE THE PURCHASE CONTRACT UNDER THE PROVISIONS AS STATED IN PARAGRAPH 10.***

**31. OTHER DOCUMENTS.**

**31.1. Documents Part of Contract.** The following documents **are a part** of this Contract:
***ADDENDUM TO CONTRACT TO BUY AND SELL REAL ESTATE (COMMERCIAL)***

**31.2. Documents Not Part of Contract.** The following documents have been provided but are **not** a part of this Contract:

**Signatures**

_____ Date: _____

Buyer: ***City of Louisville***
***By: Chris Leh***

**[NOTE: If this offer is being countered or rejected, do not sign this document.]**

Seller: _____ Date: _____
***SPECIALIZED BICYCLE COMPONENTS INC***
***By***

**END OF CONTRACT TO BUY AND SELL REAL ESTATE**

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## BROKER'S ACKNOWLEDGMENTS AND COMPENSATION DISCLOSURE.

**A. Broker Working With Buyer**

Broker ☐ **Does** ☒ **Does Not** acknowledge receipt of Earnest Money deposit. Broker agrees that if Brokerage Firm is the Earnest Money Holder and, except as provided in § 23, if the Earnest Money has not already been returned following receipt of a Notice to Terminate or other written notice of termination, Earnest



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Money Holder will release the Earnest Money as directed by the written mutual instructions. Such release of Earnest Money will be made within five days of Earnest Money Holder's receipt of the executed written mutual instructions, provided the Earnest Money check has cleared.

Broker is working with Buyer as a ☒ **Buyer's Agent** ☐ **Transaction-Broker** in this transaction.

☐ **Customer.** Broker has no brokerage relationship with Buyer. See § B for Broker's brokerage relationship with Seller.

Brokerage Firm's compensation or commission is to be paid by as specified in §29 above.

This Broker's Acknowledgments and Compensation Disclosure is for disclosure purposes only and does NOT create any claim for compensation. Any compensation agreement between the brokerage firms must be entered into separately and apart from this provision.

Brokerage Firm's Name: ***Kentwood Commercial***

Brokerage Firm's License #: ***EC 100056828***

_____ Date: _____

Broker's Name: ***Solveig T. Lawrence***

Broker's License #: ***EA.040043894***

Address: ***215 Saint Paul, Ste 200 Denver, CO 80206***

Phone No.: ***303.601.9285***

Fax No.:

Email Address: ***solveig@kentwoodcommercial.com***

---

**B. Broker Working with Seller**

Broker ☐ **Does** ☒ **Does Not** acknowledge receipt of Earnest Money deposit. Broker agrees that if Brokerage Firm is the Earnest Money Holder and, except as provided in § 23, if the Earnest Money has not already been returned following receipt of a Notice to Terminate or other written notice of termination, Earnest Money Holder will release the Earnest Money as directed by the written mutual instructions. Such release of Earnest Money will be made within five days of Earnest Money Holder's receipt of the executed written mutual instructions, provided the Earnest Money check has cleared.

Broker is working with Seller as a ☒ **Seller's Agent** ☐ **Transaction-Broker** in this transaction.

☐ **Customer.** Broker has no brokerage relationship with Seller. See § A for Broker's brokerage relationship with Buyer.

Brokerage Firm's compensation or commission is to be paid by ☒ **Seller** ☐ **Buyer** ☐ **Other** .

This Broker's Acknowledgments and Compensation Disclosure is for disclosure purposes only and does NOT create any claim for compensation. Any agreement to pay compensation must be entered into separately and apart from this provision.



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Brokerage Firm's Name: ***The Colorado Group Inc***

Brokerage Firm's License #: ***EC50840***

_____ Date: _____

Broker's Name: ***Scott Crabtree***

Broker's License #: ***IA.100031424***

Address: ***3101 Iris Avenue, Ste 240 Boulder, CO 80301***

Phone No.: ***303-449-2131***

Fax No.:

Email Address: ***crabtree@coloradogroup.com***

**CBS3 CONTRACT TO BUY AND SELL REAL ESTATE (COMMERCIAL)**

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## ADDENDUM TO CONTRACT TO BUY AND SELL REAL ESTATE (COMMERCIAL)

**THIS ADDENDUM** to Contract to Buy and Sell Real Estate (the "Addendum") forms a part of the Contract to Buy and Sell Real Estate (the "Base Form Contract") made by the **City of Louisville** ("Buyer") and **Specialized Bicycle Components Inc** ("Seller") as though it were printed out in full under Section 30 of the Base Form Contract. All capitalized terms not otherwise defined herein shall have the meanings given to them in the Base Form Contract. In the event of any conflict between this Addendum and the Base Form Contract, this Addendum shall control. The Base Form Contract as modified by this Addendum is referred to herein as the "Contract."

**1. Public Process Deadline.** Buyer intends to utilize the Property for public purposes and will be holding a series of public meetings to receive input and feedback from residents and taxpayers to determine the suitability of the Property for Buyer's purpose. On or before the date that is **90 Days Following MEC**, Buyer may notify Seller in writing that this Contract is terminated under Section 24.1 based on, in Buyer's sole subjective discretion, the Property is not desired for Buyer's public purposes. As set forth in Section 24.2, in the event Buyer terminates the Contract pursuant to this Section 30.1, all Earnest Money received hereunder must be timely returned to Buyer and the parties shall then be relieved of all obligations hereunder, subject to Sections 10.4 and 21.

**2. COP Funding Deadline.** Buyer will pay all or part of the Purchase Price by issuance of certificates of participation ("COP") financing, which requires a public process and adoption of an ordinance by the Louisville City Council at public meetings. On or before the date that is **120 Days Following MEC**, Buyer may notify Seller in writing that this Contract is terminated under Section 24.1 if such financing is not completed and funds received by Buyer on or before such date. As set forth in Section 24.2, in the event Buyer terminates the Contract pursuant to this Section 30.2, all Earnest Money received hereunder must be timely returned to Buyer and the parties shall then be relieved of all obligations hereunder, subject to Sections 10.4 and 21.

**3. Assignability.** This Contract may not be assigned by Buyer without the prior written consent of Seller, which consent shall not unreasonably be withheld, conditioned, or delayed. Any attempted assignment without such consent shall be null and void and of no effect.

**4. Extension.** Buyer shall have the right to a one-time extension of the Public Process Deadline, COP Funding Deadline, or both such deadlines, for an additional thirty (30) days (the "Extended Deadline") by providing written notice to Seller prior to the expiration of the deadlines set forth in Sections 30.1 and 30.2 and by delivering to Seller an extension fee in the amount of Fifty Thousand Dollars ($50,000) (the "Extension Fee") concurrently with such notice. The Extension Fee shall be nonrefundable but shall be applied toward the Purchase Price at Closing. In the event Buyer exercises such extension, the Closing Date shall automatically be extended to a date that is thirty (30) days following the expiration of the Extended Deadline. All other terms and conditions of this Contract shall remain in full force and effect.

**5.** **Contract Approval Content on City Council Approval.** Notwithstanding Section 26 (Notice, Delivery and Choice of Law) and Section 27 (Notice of Acceptance, Counterparts), this Contract shall not be binding upon Buyer until this Contract is approved by resolution of the City Council adopted at a public meeting. Further, notwithstanding Section 3.2 (Applicability of Terms), the date of signature of the Mayor of Louisville shall be used to determine Buyer's execution for all purposes, including calculating dates and deadlines from the mutual execution of the Contract ("MEC"). If, within seven (7) business days after Buyer's receipt of the Contract signed by Seller, Buyer does not deliver to Seller the Contract signed by Buyer, the Contract signed by Seller shall not be binding upon Seller and Buyer.

**6.** **Indemnification; No Waiver of Governmental Immunity.** To the extent any provision of this Contract requires Buyer to indemnify any person or party, such indemnification shall be to the extent permitted by law. Nothing contained in this Contract shall be construed as a waiver, in whole or in part, of the protection afforded Buyer under the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as the same may from time to time be amended.

**7.** **Advice of Counsel; Language Not to be Construed Against Drafter.** Each of the Parties has had the advice of legal counsel of its own choosing in negotiations for and the preparation of this Contract. No portion of this Contract shall be construed against either of the Parties owing to such party having drafted such portion of this Contract.

**BUYER**
**City of Louisville,** a Colorado home rule municipal corporation

By: _____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

**SELLER**

**Specialized Bicycle Components Inc**

By: _____

Title: _____

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 8.D.i.**

**Subject:** Resolution No. 38, Series 2026 — A Resolution Approving a First Amendment to the Louisville Mill Site Redevelopment Planned Unit Development (PUD) and a Special Review Use (SRU) for an Outdoor Eating Establishment and Mobile Food Court

**Date:** April 21, 2026

**Prepared By:** Rob Zuccaro, Director

**Presented By:** Rob Zuccaro, Director

**Summary:**

The applicants, Louisville Mill Site LLC, 544CR LLC, and RCC LLC, request approval of an amendment to the Louisville Mill Site Redevelopment Planned Unit Development (PUD) for the redevelopment and renovation of the historic Louisville Grain Elevator building. The proposal includes use of the property as a bar and a Special Review Use (SRU) to allow an Outdoor Eating and Drinking Establishment and a Mobile Food Court. The majority of the development would occur on Lot 2 and Outlot A of the Louisville Mill Site Subdivision, with limited development, such as parking, drive aisles, and drainage infrastructure, occurring on Lot 1, Lot 3, and within the BNSF right-of-way.

**Background / Prior Discussions:**

The City purchased the Louisville Grain Elevator property in 2012 for $950,000 using Historic Preservation Funds (HPF) to prevent demolition of the historic building. The Grain Elevator represents a unique part of Louisville's agricultural history, is among the few remaining historic grain elevators, and has been considered a high-value property for local historic preservation. The City's acquisition included both the Grain Elevator property and the adjoining commercial property at 544 Front Street (formerly a NAPA Auto Parts store and currently occupied by E-Bike of Colorado).

The City subsequently issued a request for proposals (RFP) for a public-private partnership to redevelop the properties, including restoration and activation of the Grain Elevator for commercial use. The City initially entered into an agreement with a redevelopment company, Olde Town Group, and approved up to $2.1 million in HPF grants to assist with development costs.

Issues later arose regarding property boundaries and a building encroachment onto the adjacent property to the south (500 Front Street). Due to a lack of resolution, the agreement with Olde Town Group was terminated. The City then entered into a new

agreement with Louisville Mill Site, LLC. This partnership included the owner of 500 Front Street and enabled resolution of the encroachment and boundary issues.

The agreement with Louisville Mill Site, LLC included the sale of the property at a discounted price of $200,000; a $500,000 HPF grant for initial stabilization work on the Grain Elevator; waiver of public land dedication requirements; and rebates on application fees associated with redevelopment. Initial stabilization work was completed in 2016, and the property was transferred to Louisville Mill Site, LLC.

In 2015, the City approved the following applications related to the Grain Elevator property:

- Designation of the Grain Elevator as a local landmark, establishment of a conservation easement, and approval of a Historic Preservation Alteration Certificate for restoration work and a small addition on the east side of the building.
- The Louisville Mill Site Subdivision, establishing three lots and one outlot in front of the Grain Elevator (see Attachment No. 3). Lot 1 contains the existing commercial building on the south side, Lot 2 contains the Grain Elevator, and Lot 3 contains the existing commercial building on the north side. Outlot A is located in front of the Grain Elevator. Outlot A and portions of Lots 2 and 3 are subject to a conservation easement (Note No. 8 on the plat) that establishes “no-build areas” to preserve public view corridors to the Grain Elevator.
- The Louisville Mill Site Redevelopment PUD/SRU, which approved demolition of the NAPA building (Lot 3) to be replaced with a new 19,000-square-foot, three-story commercial building; a three-story addition to the existing commercial building; a small addition on the east side of the Grain Elevator (Lot 2); and an outdoor gathering area on Outlot A, with an alternative plan for parking (see Attachment No. 4). The development also included use of a leased area from BNSF for additional parking within the BNSF right-of-way on the east side of the site. The SRU authorized an “outdoor activity area” on Outlot A and Lot 2, including food and beverage service. The PUD and SRU approvals have since expired.

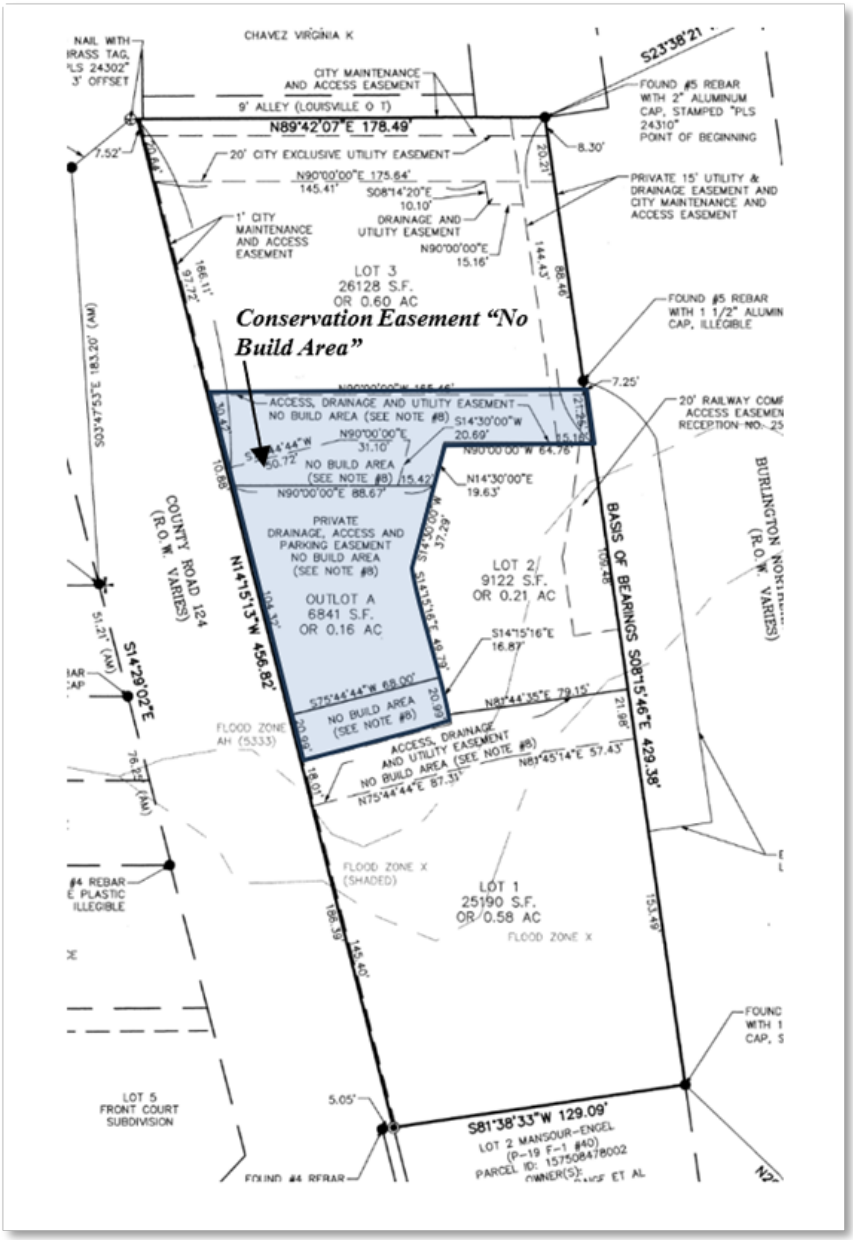



*Figure 1: Current Louisville Mill Site Subdivision with No Build Area Highlighted*

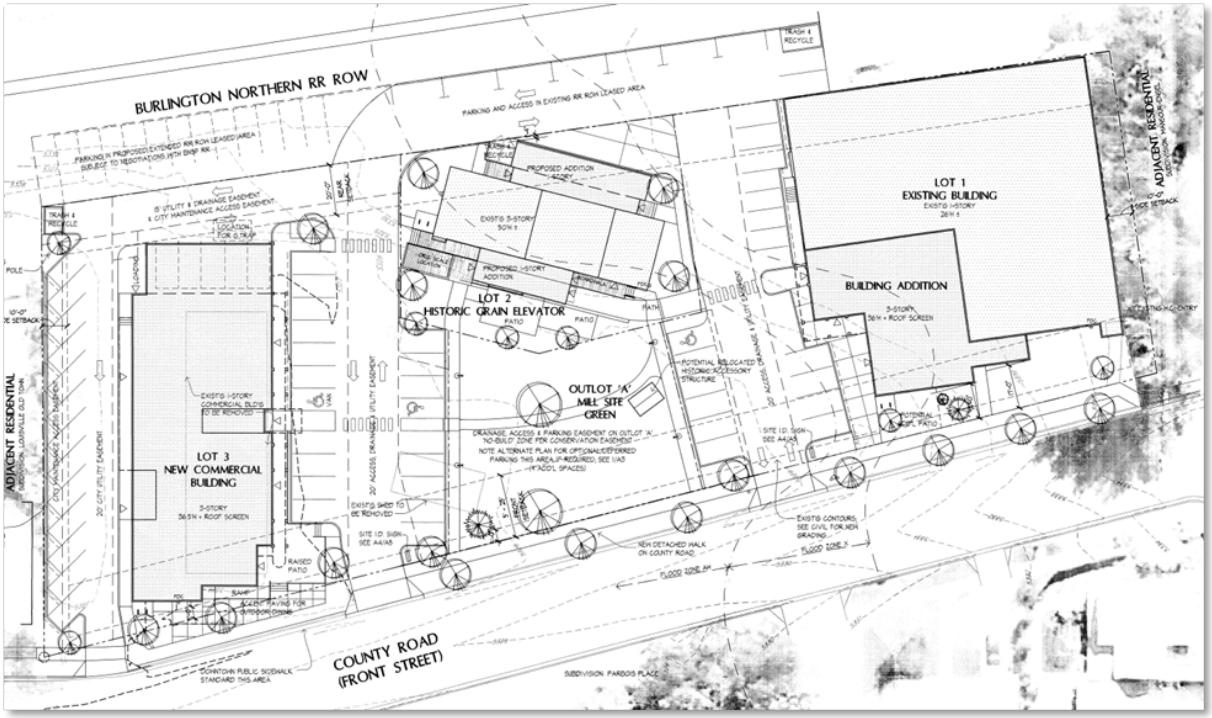



*Figure 2: Current Louisville Mill Site Redevelopment PUD Site Plan*

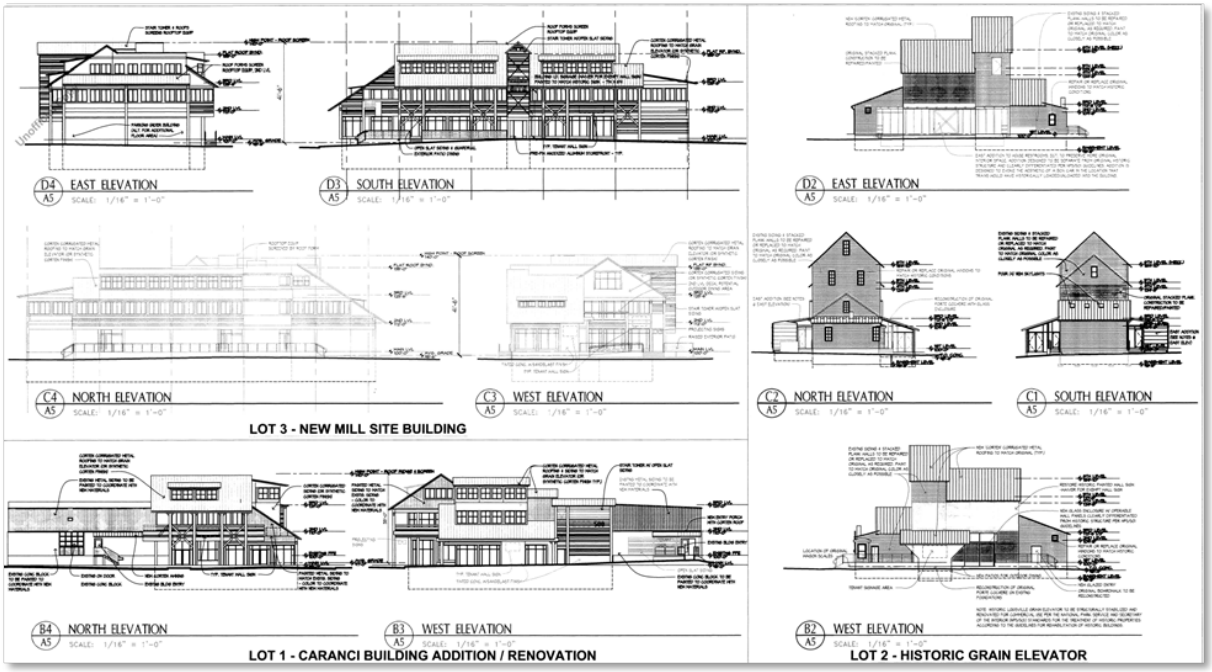



*Figure 3: Current Louisville Mill Site Redevelopment PUD Building*

To date, the City and the City's Urban Renewal Authority have provided $1,485,490 in assistance for the redevelopment of the property.

*Table 1: Prior City Financial Contributions*

| | |
|---|---|
| Sale of Property* | $750,000 |
| HPF Stabilization Grant | $500,000 |
| Urban Renewal Public Streetscape Improvements** | $163,526 |
| Urban Renewal Façade Grant for Mural | $14,989 |
| Public Land Dedication Waiver | $48,989 |
| Fee Waivers | $7,986 |
| ***TOTAL*** | ***$1,485,490*** |

** $950,000 acquisition cost minus $200,000 sale price*
*** Required Infrastructure by Subdivision Improvement Agreement*

The applicant is also in the process of requesting additional funding through the Louisville Urban Renewal Authority (URA), including a Tax Increment Financing (TIF) rebate, and Façade and Property Improvement grants. The Louisville Revitalization Commission (LRC) has approved the Façade and Property Improvement grants. The TIF rebate will be included in an upcoming LRC agenda for consideration.

The LRC conducted a third-party gap analysis as part of the TIF review, which identified the project funding gap at $1,950,000. The following table summarizes how the combined HPF grant and URA funding will fill the total project gap if awarded.

*Proposed Grant and TIF Funding*

| | *Staff Recommendation* |
|---|---|
| *Tax Increment Rebate* | $216,000 |
| *Façade Improvement Grant* | $108,500 |
| *Property Improvement Grant* | $91,500 |
| *Historic Preservation Grant* | $1,535,789 |
| ***Totals*** | **$1,951,789** |
| *Third-Party Gap Determination* | $1,950,000 |
| ***Difference*** | ***$1,789*** |

Between past and current funding requests, a total of $3,437,279 in public funding will go towards the acquisition, preservation, and rehabilitation of the Grain Elevator.

*Planning Commission Recommendation*
At their November 13, 2025 meeting, the Planning Commission voted unanimously to recommend approval of the requested PUD amendment and SRU with the following conditions, which have both been met prior to this hearing:

1. Prior to the City Council hearing, the applicant shall obtain an Alteration Certificate approval from the Louisville Historic Preservation Commission.
2. Prior the City Council hearing, the applicant shall revise the PUD plans and Drainage Report to address outstanding Public Works comments related to the drainage infrastructure.

The meeting minutes and Planning Commission Resolution No. 18, Series 2025 are attached. The meeting video can be accessed at the following link (starting at 1.36.10): https://www.youtube.com/watch?v=18DOyhStrI4

**Development Proposal:**

The proposal includes restoration of the Grain Elevator building and leasing the space to The Grain Yard, LLC, which intends to operate the site as a bar, gathering space, and Mobile Food Court. The plans include restoration of the porte cochere and boardwalk along the front of the building, including preservation of a historic wagon scale, as well as construction of a small “boxcar” building addition at the rear of the Grain Elevator. The outdoor gathering area would be enclosed with fencing and would include food truck pads, outdoor seating, a relocated historic accessory structure to be used as a tap house, and a small stage in the southwest corner of the lot.




*Figure 4: Birdseye Rendering of Proposal*

The proposal also includes improved drive aisles and parking on the north and south sides of the Grain Elevator property, within portions of Lot 1 and Lot 3, as well as additional parking within the BNSF right-of-way on the east side of the property. A total of 24 parking spaces would be constructed as part of the site improvements. The applicants have submitted a shared parking agreement and a Common Area Use, Maintenance, and Management Agreement addressing access, drainage, and utilities across all properties within the subdivision, including the BNSF lease area.

Drainage improvements would be installed as part of this initial phase of development and could be expanded with future development on Lot 1 and Lot 3.

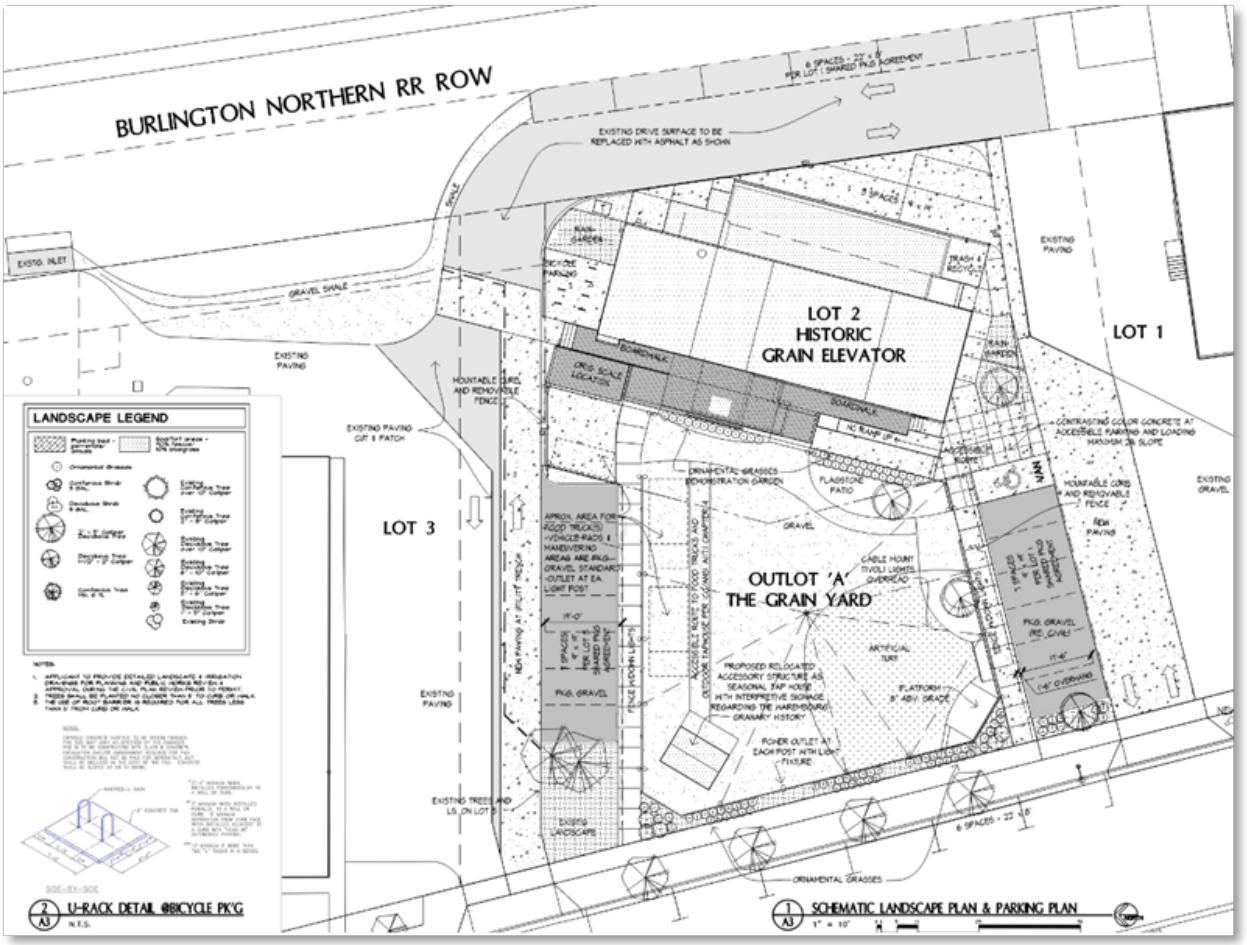



*Figure 5: Proposed Site Plan*

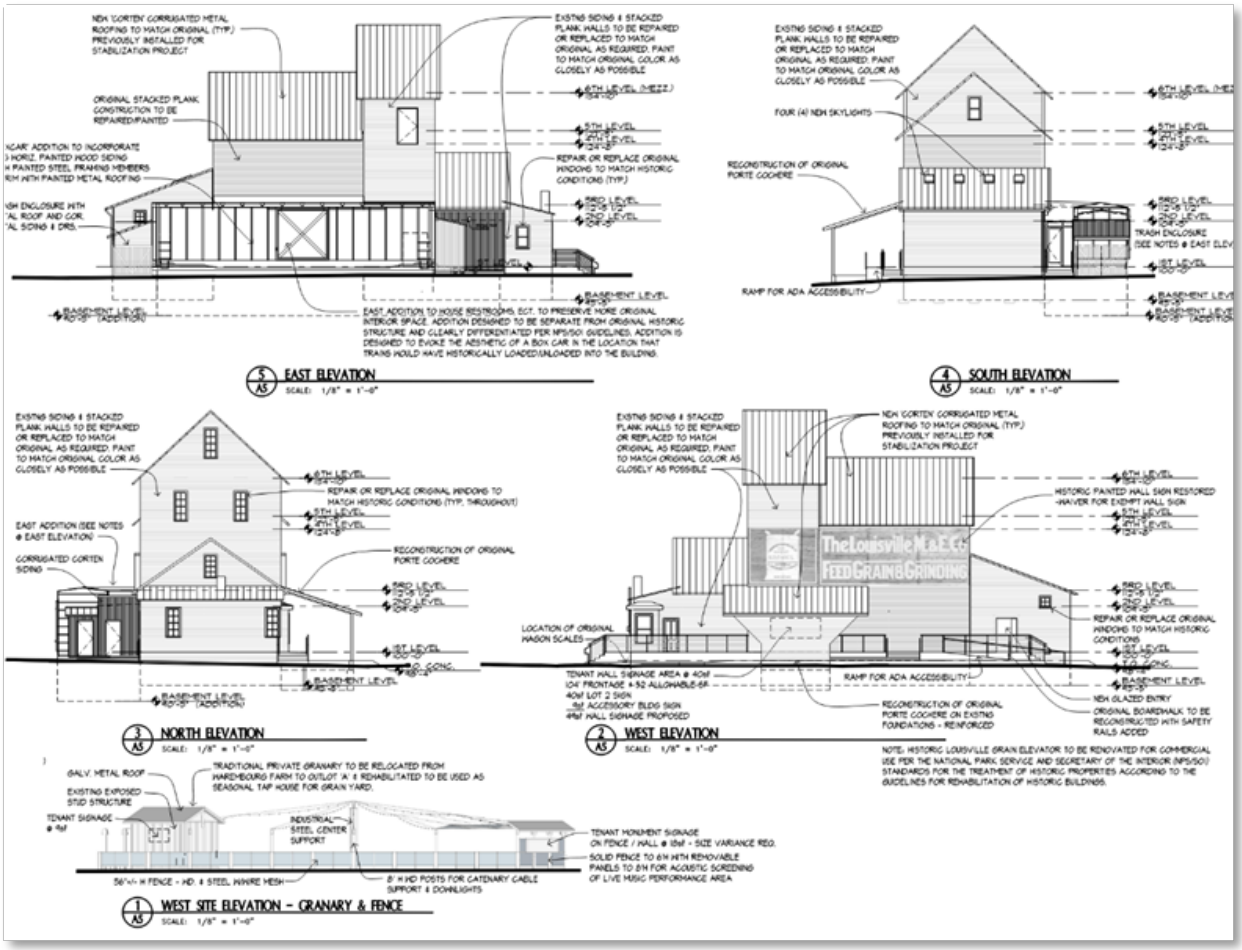



*Figure 6: Proposed Grain Elevator and Outdoor Gather Space Elevations*

The SRU proposal includes requests for approval of an Outdoor Eating and Drinking Establishment and a Mobile Food Court on portions of Lot 2 and Outlot A. Three food truck pads are proposed on the north side of the outdoor activity area. The lighting plan includes outdoor string lighting; building-mounted lighting for the boardwalk and tap house; stage lighting; and pedestrian-scale, pole-mounted lighting along the fencing. The plans include the following operational restrictions:

- Outdoor use would be limited to the hours of 8:00 a.m. to midnight, seven days a week. Outdoor amplified music would be limited to 9:00 p.m. Sunday through Thursday and 10:00 p.m. on Friday and Saturday.
- Outdoor decorative and stage lighting would be turned off after business hours.
- Temporary structures, such as tents, would be permitted but limited to a total of 60 days within any six-month period. Temporary shade features and table umbrellas would be exempt.
- Each food truck pad would be equipped with electrical connections, eliminating

the need for generators.

**Analysis:**
The project is located within the Commercial Core Transition Area of Downtown and the property is zoned Commercial Business (CB). Staff analysis includes review of the following standards applicable to the development:

- Design Handbook for Downtown Louisville
- Parking Standards Designated for Downtown Louisville (LMC Sec. 17.20.025)
- Waiver Requests to CB Zoning Standards
- Compliance with the No-Build Area and view corridor conservation easement restrictions established through the Louisville Mill Site Subdivision
- Special Review Use Criteria (LMC Chapter 17.40) and Mobile Food Court Criteria (LMC Sec. 17.16.310.D)
- Planned Unit Development Criteria (LMC Sec. 17.28.120) (Staff analysis is attached as an appendix to this report)

*Design Handbook for Downtown Louisville*
Staff have highlighted the following policies that are applicable to the project, along with staff's analysis in italics. Staff finds that the project is consistent with applicable standards and guidelines outlined in the Design Handbook. Please reference pg. 4 of the Design Handbook for further discussion on how the policies are structured as either mandatory or only encouraged. Policies are broken out by categories of General Standards and Guidelines ("**G**") applicable to all areas of Downtown, Transition Area Standards and Guidelines ("**T**"), and Historic Standards and Guidelines ("**H**"). Not all policies need to be met for approval or support of a project, but all projects should seek to meet all applicable policies when appropriate.

**G1.** All projects should respect the traditional context of downtown.

1. In all cases, consideration should be given to the broader context of the block and the town at large.
2. If historic resources exist on the property, then the Design Standards and Guidelines for Historic Buildings also shall apply.

*The Grain Elevator is not immediately adjacent to other historic buildings and is unique in its context and location near the railroad tracks, where it was used for loading agricultural products into rail cars for transport. The surrounding development includes new and historic residences and commercial buildings.* ***Staff find the proposal meets applicable standards.***

**G10.** Minimize the visual impacts of site and architectural lighting.
1) Prevent glare onto adjacent properties by using shielded and focused light sources

that direct light onto the ground.
2) Un-shielded, high intensity light sources and those which direct light upward will not be permitted.
3) Shield lighting associated with service areas, parking lots and parking structures.
4) Avoid placing lights in highly visible locations, such as on the upper walls of buildings.

*All lighting is full cut off to minimize glare except the string lights used for the outdoor gathering area and stage lighting. The proposal includes limiting the times when these lights could be turned on to business hours. The plans also include a photometric analysis demonstrating minimal light spill outside of the project boundary.* ***Staff find the proposal meets applicable standards.***

**G11.** Provide site lighting that encourages pedestrian activity at night.
1) Site lighting should be at a pedestrian scale and help define different functional areas of the property.

*The development includes lighting in the outdoor areas so that the areas are well lit but not excessively lit according to the photometric plans submitted. The lighting is meant to support the outdoor activity areas and are mounted on poles around the fenced area and include decorative string lights. There is additional lighting for the tap house accessory building, the stage and the boardwalk.* ***Staff find the proposal meets applicable standards.***

**G13.** Where appropriate, design a parking area to be accessed from an alley rather than the street.

1. In a residential context, the use of a detached garage, located along the alley, is especially encouraged.

*The project does include alley access to parking, but primary access will be from Front Street.* ***Staff find the proposal meets applicable standards.***

**G14.** Screen a parking lot from view from the street.

1. Provide buffers between the edge of a parking lot and sidewalk.
2. Use planted areas, decorative paving, fences, hedges and decorative walls.
3. The landscape should be at least 5 feet in width**.**

*The new parking areas on the north and side sides of the Grain Elevator property and The plans include minimum 5' landscape buffers between the sidewalk and the parking area.* ***Staff find the proposal meets applicable standards.***

**G15.** Locate parking such that it will be subordinate to other site features.

1. An on-site parking area should be located inside or behind a building, where its

visual impacts will be minimized.
2. Minimize the surface area of paving and consider using less impervious material. Options to consider are modular pavers in the Core Area and “grasscrete" in the Transition Areas.

*Due to the existing location of the Grain Elevator building there is limited opportunity to provide parking behind the building. The plans included some parking behind the building in an area leased from BNSF. The new parking areas on the north and south sides of the Grain Elevator property and Outlot A are compact gravel rather than pavement, providing less impervious materials.* ***Staff find the proposal meets applicable standards.***

**G17.** Minimize the visual impacts of trash storage areas.

1. Trash enclosures should be constructed with similar materials as those of the primary structure.
2. Locate a service area along the rear of a site, accessed by an alley, when feasible.
3. Trash areas, including large waste containers (dumpsters) should also be screened from view of major pedestrian routes, using a fence or hedge. For a larger storage facility, consider using a shed to enclose it.
4. Combine service areas with other properties, when feasible.

*A fenced and covered trash enclosure is located on the east side of the building south of the proposed “box car” building addition and includes metal doors and fencing that will be architecturally incorporated into the building.* ***Staff find the proposal meets applicable standards.***

**G20.** New construction should appear similar in mass and scale to structures found traditionally in the area.

*The Grain Elevator building is unique in its mass and scale for the area and will be maintained. Restoration of the porte cochere and boardwalk on the front of the building will closely resemble the historic design of the structure. The “boxcar” addition on the east side of the building will be largely screened from view from Front Street.* ***Staff find the proposal meets applicable standards.***

**T1.** Maintain the general alignment of building fronts.

1. Front yard setbacks range from 5 to 25 feet. This range of setbacks should be maintained in new construction.
2. Where similar front setbacks are characteristic, maintain the alignment of building facades.
3. New construction should be set back to match the general alignment of buildings on the street and to maintain the traditional front yard.

4. Landscaping and fences that help define the yard's front edge are encouraged.

*The Grain Elevator building is situated in its traditional location at the rear of the development adjacent to the railroad tracks. The proposed outdoor activity area includes a historic one-story outbuilding to be relocated to the property that is located near Front Street, complimenting the residential context of the properties on the west side of Front Street. The proposed stage, fencing, and outdoor gathering areas will help define the front edge of the development.* ***Staff find the proposal meets applicable standards.***

**H1.** Respect the original design character of the building.

1. Analyze the building to determine which elements are essential to its character.
2. Don't try to make it appear older (or younger) in style than it really is. Instead, the genuine heritage of downtown *should be expressed.*

*The existing Grain Elevator would be rehabilitated and the plans include restoring the front porte cochere and boardwalk back to the historic form.* ***Staff find the proposal meets applicable standards.***

**H3.** Preserve an historic structure in its original location on the site when feasible.

1. This includes orientation, setbacks, building height and the relationship of the first floor to finish grade.
2. Existing historic landscape features, such as fences, sidewalks and mature vegetation, should be preserved, and should be protected during construction.

*The Grain Elevator would be maintained in its historic location and maintain its historic building height.* ***Staff find the proposal meets applicable standards.***

**H4.** Avoid removing or altering any historic material or significant architectural features.

1. Original materials and details that contribute to the historic significance of the structure are qualities that should be preserved whenever feasible.
2. Rehabilitation work should not destroy the distinguishing character of the property or its environment.
3. Retain and preserve original wall and siding material.

*The restoration and rehabilitation plans include preserving the majority of original materials when feasible.* ***Staff find the proposal meets applicable standards.***

**H5.** Avoid adding materials, elements or details which were not part of the original

building.

1. For example, details such as decorative millwork or shingles should not be added to buildings if they were not an original feature of that structure.

*The restoration and rehabilitation plans include preserving the majority of original materials when feasible and restoration work on the front porte cochere and boardwalk similar to the original structure.* ***Staff find the proposal meets applicable standards.***

**H6.** Maintain existing significant stylistic elements.

1. The best preservation procedure is to maintain historic features from the outset so that intervention is not required. Employ treatments such as rust removal, caulking, limited paint removal and reapplication of paint.
2. Protect historic material with maintenance treatments such as rust removal, caulking and re-painting.
3. Repair only those features that are deteriorated. Finally, replace only those features that are beyond repair.
4. Patch, piece-in, splice, consolidate or otherwise upgrade the existing material, using recognized preservation methods whenever possible.

*The restoration and rehabilitation plans include preserving the majority of original materials when feasible and restoration work on the front porte cochere and boardwalk similar to the original structure.* ***Staff find the proposal meets applicable standards.***

**H7.** Replace only missing portions of original elements when necessary.

1. Don’t throw out an entire window frame, for example, if only the sill is rotted.
2. Match the original material when patching with new material.

*The plans included restoring the front porte cochere and boardwalk back to the historic form using appropriate materials to match historic architecture and form.* ***Staff find the proposal meets applicable standards.***

**H10.** Replace missing original features in kind when feasible.

1. Use the same kind of material as the original when feasible. A substitute material may be acceptable if the form and design of the substitute itself conveys the visual appearance of the original material.
2. Replacement of missing architectural elements should be based on accurate duplications of original features. In some cases, an entire detail must be reconstructed. In the event replacement is necessary, the new material should

match the original in design, color, texture and other visual qualities.
3. Where reconstruction of an element is impossible because of a lack of historical evidence, then a new design that relates to the building in general size, scale and material may be considered.

*The plans included restoring the front porte cochere and boardwalk back to the historic form using appropriate materials to match historic architecture and form.* ***Staff find the proposal meets applicable standards.***

**H12.** Preserve original siding when feasible.

1. Avoid removing siding that is in good condition or that can be repaired in place.
2. If portions of wood siding must be replaced, be sure to match the style and lap dimensions of the original.
3. Maintain protective coatings of paint. If the building was painted historically, it should remain painted, including all trim.

*The restoration and rehabilitation plans include preserving the majority of original materials when feasible.* ***Staff find the proposal meets applicable standards.***

**H16.** Design an addition to be as inconspicuous as possible.

1. An addition should be visually subordinate to the main building.
2. Set an addition back from the primary facade in order to allow the original proportions, form and overall character of the main building to remain prominent.
3. Consider setting an addition back from the sides of buildings, as well.
4. Additions to buildings in visible locations, such as corners, require greater sensitivity.

*The "box car" addition is located behind the main façade of the Grain Elevator and would be visually subordinate to the main building.* ***Staff find the proposal meets applicable standards.***

*Parking Standards Designated for Downtown Louisville*

The zoning code establishes off-street parking standards specific to Downtown Louisville, recognizing the area's unique urban design. This includes a traditional street grid network with alleys, as well as public and shared on-street parking that supports pedestrian-friendly development and an active streetscape. This approach differs significantly from suburban development patterns, which typically have higher vehicular parking demand and accommodate parking entirely within individual development parcels.

The Downtown Louisville parking standards also promote new development and

redevelopment by exempting the first 999 square feet of new floor area from minimum parking requirements. Additional exemptions apply to areas such as uninhabitable spaces below grade, restrooms, food preparation and service areas, and circulation areas (e.g., hallways and stairwells). Any building area beyond the first 999 square feet must provide parking at a ratio of one space per 500 square feet of additional floor area, rounded to the nearest 500 square feet.

The proposed development includes 2,937 square feet of new floor area, of which 2,915 square feet qualifies for these exemptions. Therefore, under the Downtown Louisville parking standards, no additional off-street parking is required. However, the proposal includes a substantial outdoor activity area that may increase parking demand. Additional parking may be required through the SRU review process, as discussed further below.

The project provides 23 new off-street parking spaces and includes a shared parking agreement with the two adjacent commercial properties. In addition, on-street parking is available adjacent to the site, and public parking lots located south of Lucky Pie and Sweet Cow are within close proximity. The proposal also includes six bicycle parking racks on the north side of the building.

Staff finds that the proposed parking plan provides sufficient parking to meet Downtown Louisville standards and adequately addresses anticipated additional parking demand.

*Waiver Criteria*

The applicant is requesting the following waivers from the CB zoning standards:

- An 8-foot front setback for the accessory building within the outdoor gathering area, where a 30-foot front setback is required.
- A 9-foot, 4-inch side setback on the south side for the existing Grain Elevator building, where a 10-foot side setback is required.
- A 1-foot, 4-inch rear setback for the proposed “boxcar” addition, where a 20-foot rear setback is required.
- Lot coverage of 44 percent on Lot 2, where a maximum of 40 percent is permitted.

LMC Sec. 17.28.110 states that waivers may be granted through the PUD approval process “if the spirit and intent of the development plan criteria contained in Section 17.28.120 are met and the City Council finds that the development plan contains areas allocated for usable open space or common park area in excess of public use dedication requirements, or that the modification or waiver is warranted by the design and amenities incorporated in the development plan, and that the needs of residents for usable or functional open space and buffer areas can be met.”

Staff finds that the requested waivers are warranted by the design and amenities

incorporated into the development plan and that usable and functional open space is provided within the outdoor activity area. The setback waivers associated with the Grain Elevator building support preservation of the historic structure and facilitate an appropriate design of the “boxcar” addition, which is located behind and subordinate to the historic building. The reduced front setback for the accessory building in Outlot A is appropriate given the design of the Mobile Food Court and overall layout of the outdoor activity area. While Lot 2 alone exceeds the 40 percent lot coverage standard, the overall coverage remains below 40 percent when considering Lot 2 and Outlot A collectively.

*No-Build Area and View Corridor Conservation Easement*

The No-Build Area and conservation easement established through the Louisville Mill Site Subdivision are intended to preserve public view corridors to the Grain Elevator for historic preservation purposes. The No-Build Area generally prohibits buildings and other improvements within its boundaries. However, the conservation easement allows for consideration of limited development within the No-Build Area if authorized by resolution of the City Council.

Given the stated intent of the conservation easement, staff finds that limited development within the No-Build Area may be appropriate, provided such development does not materially impact public view corridors to the Grain Elevator. The proposed use of the No-Build Area includes parking areas, a Mobile Food Court, and associated improvements such as an accessory building, fencing, a stage, and decorative lighting.

These improvements are intended to support redevelopment and activation of the property and are not expected to materially impact the protected view corridors.

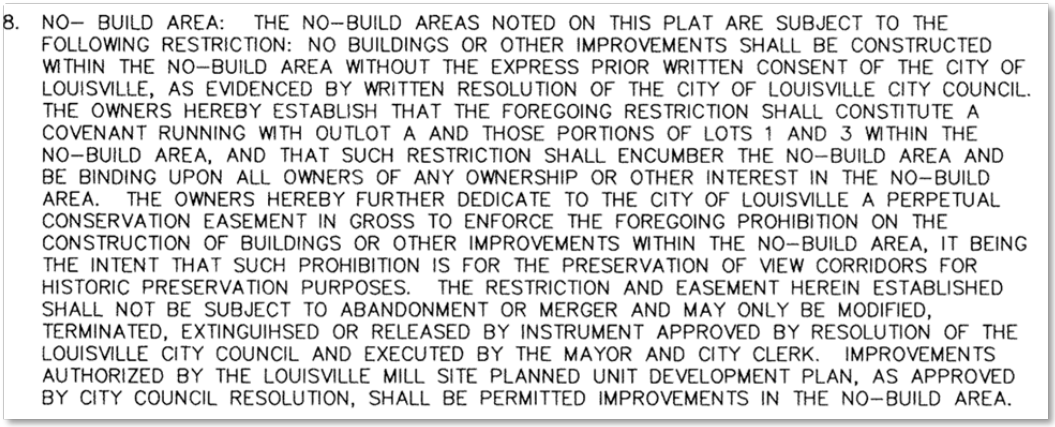

8. NO– BUILD AREA: THE NO–BUILD AREAS NOTED ON THIS PLAT ARE SUBJECT TO THE FOLLOWING RESTRICTION: NO BUILDINGS OR OTHER IMPROVEMENTS SHALL BE CONSTRUCTED WITHIN THE NO–BUILD AREA WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE CITY OF LOUISVILLE, AS EVIDENCED BY WRITTEN RESOLUTION OF THE CITY OF LOUISVILLE CITY COUNCIL. THE OWNERS HEREBY ESTABLISH THAT THE FOREGOING RESTRICTION SHALL CONSTITUTE A COVENANT RUNNING WITH OUTLOT A AND THOSE PORTIONS OF LOTS 1 AND 3 WITHIN THE NO–BUILD AREA, AND THAT SUCH RESTRICTION SHALL ENCUMBER THE NO–BUILD AREA AND BE BINDING UPON ALL OWNERS OF ANY OWNERSHIP OR OTHER INTEREST IN THE NO–BUILD AREA. THE OWNERS HEREBY FURTHER DEDICATE TO THE CITY OF LOUISVILLE A PERPETUAL CONSERVATION EASEMENT IN GROSS TO ENFORCE THE FOREGOING PROHIBITION ON THE CONSTRUCTION OF BUILDINGS OR OTHER IMPROVEMENTS WITHIN THE NO–BUILD AREA, IT BEING THE INTENT THAT SUCH PROHIBITION IS FOR THE PRESERVATION OF VIEW CORRIDORS FOR HISTORIC PRESERVATION PURPOSES. THE RESTRICTION AND EASEMENT HEREIN ESTABLISHED SHALL NOT BE SUBJECT TO ABANDONMENT OR MERGER AND MAY ONLY BE MODIFIED, TERMINATED, EXTINGUIHSED OR RELEASED BY INSTRUMENT APPROVED BY RESOLUTION OF THE LOUISVILLE CITY COUNCIL AND EXECUTED BY THE MAYOR AND CITY CLERK. IMPROVEMENTS AUTHORIZED BY THE LOUISVILLE MILL SITE PLANNED UNIT DEVELOPMENT PLAN, AS APPROVED BY CITY COUNCIL RESOLUTION, SHALL BE PERMITTED IMPROVEMENTS IN THE NO–BUILD AREA.

*Figure 7: Conservation Easement Note*




*Figure 8: Street Level View of Grain Elevator and Mobile Food Court*

*Special Review Use*
LMC Sec. 17.12.030 allows Outdoor Eating and Drinking Establishments and Mobile Food Courts in the CB zone district if approved through an SRU. SRUs shall be reviewed against the criteria listed in LMC Sec. 17.40.100 to determine whether the proposed use is compatible with the surrounding area and if any conditions on the use may be appropriate. LMC Sec. 17.16.310.D includes additional criteria for Mobile Food Courts. Staff's analysis of the SRU review criteria is provided below.

General SRU Criteria:

1. That the proposed use/development is consistent in all respects with the spirit and intent of the comprehensive plan and of this chapter, and that it would not be contrary to the general welfare and economic prosperity of the city or the immediate neighborhood.

*The Comprehensive Plan (Plan) envisions "a healthy and vibrant Downtown" (Policy LU-4.2) with a "mix of uses that bring new revenue generation to the Downtown area" (Policy ED-5.3). The Comprehensive Plan classifies Downtown Louisville as Center type development and describes Center development by the following:*

*Centers are defined by their mixture of uses (retail, commercial, and residential), street interconnectivity, and integrated public spaces. A center's physical design is that of a destination or gathering point for city-wide activities. Centers are connected to and oriented toward their adjacent land uses. Centers typically have the greatest retailing opportunities. Centers feature integrated public spaces with a recognized public space, or focal point.*

*The Downtown Louisville Framework Plan includes a goal to "Maintain downtown as a*

*vibrant, mixed-use activity center". The use and activation of this previously vacant site will improve economic activity and vibrancy of downtown while also improving the streetscape and pedestrian scale development patterns.* **Staff find the proposal meets this criterion.**

2. That such use/development will lend economic stability, compatible with the character of any surrounding established areas;

*The proposed uses will support continued economic activity and investment in the area. The building design is consistent with Design Handbook for Downtown Louisville policies, including creating an inviting pedestrian scale to Downtown. Surrounding development includes a mix of residential and commercial uses, which are all compatible with an outdoor dining use in the downtown area.* **Staff find the proposal meets this criterion.**

3. That the use/development is adequate for internal efficiency of the proposal, considering the functions of residents, recreation, public access, safety and such factors including storm drainage facilities, sewage and water facilities, grades, dust control and such other factors directly related to public health and convenience;

*Public Works has reviewed the drainage plan and is coordinating the utility plans for the development and is in support of the proposal. The Fire District has also reviewed the plans and has no conflict with the proposal.* **Staff finds the proposal meets this criterion.**

4. That external effects of the proposal are controlled, considering compatibility of land use; movement or congestion of traffic; services, including arrangement of signs and lighting devices as to prevent the occurrence of nuisances; landscaping and other similar features to prevent the littering or accumulation of trash, together with other factors deemed to affect public health, welfare, safety and convenience;

*The development proposal includes parking exceeding the standards for Downtown Louisville, partly to accommodate parking demand for the outdoor activity areas. The site is fenced and landscaped, providing a buffer from the public way. The applicant also proposes limits on the allowed hours of use for the outdoor area, limits on hours when amplified music is allowed and a requirement to turn off the outdoor decorative lights after business hours. These restrictions are similar to other restrictions placed on Outdoor Eating and Drinking Establishments.* **Staff find the proposal meets this criterion.**

5. That an adequate amount and proper location of pedestrian walks, malls and

landscaped spaces to prevent pedestrian use of vehicular ways and parking spaces and to separate pedestrian walks, malls and public transportation loading places from general vehicular circulation facilities.

*The proposal includes 5-foot paved sidewalks connecting to Front Street providing adequate access to the site separated from the parking and drive aisles. The trash enclosure access and loading areas are available south of the development to provide adequate and separated loading areas from pedestrian ways. Adequate vehicular circulation is provided around the development separated from the pedestrian ways.* **Staff find the proposal meets this criterion.**

Mobile Food Court Criteria:

Under the City's code for Mobile Retail Food Establishments, mobile food vehicles and vending carts may operate in temporary locations on private property or within public rights-of-way, subject to approval from any brick-and-mortar restaurant within 150 feet of the proposed location. The Mobile Food Court designation allows for the permanent establishment of an area for food trucks and vending carts through the Special Review Use (SRU) public hearing process, even when located within 150 feet of an existing restaurant.

Mobile Food Courts are required to include designated vendor pads equipped with electrical connections, as generators are prohibited. They must also comply with minimum setback requirements from residential areas consistent with applicable parking setbacks. Standard hours of operation for mobile food vehicles and vending carts are limited to 7:00 a.m. to 9:00 p.m.; however, these hours may be modified through the SRU process. Additionally, while amplified music is generally prohibited for mobile food vehicles and vending carts, it may be authorized through the SRU process for Mobile Food Courts.

LMC Sec. 17.16.310.D.5 requires that the applicant submit a site plan as part of the SRU application, including the following:

a) The location and orientation of each vendor pad;
b) The location of all proposed dining areas and designated gathering/activity areas;
c) The location of paving, trash enclosures, landscaping, planters, fencing, and any other site requirements per the International Building Code or Boulder County Public Health Department;
d) The location of permanent electrical and other necessary utility connections;
e) Circulation patterns for pedestrian, bicycle, and vehicular traffic;
f) The location of fixed or movable seating and tables;
g) The location of permanent and ADA-accessible restrooms;
h) The location of vehicular and bicycle parking.

Staff finds that the proposed Mobile Food Court complies with the applicable SRU

standards and site plan requirements. The minimum parking setback within the Downtown Transition Area is 5 feet, and the proposed vendor pads exceed this requirement. The proposal includes extended hours of operation beyond the standard 9:00 p.m. cutoff, allowing operation until midnight, with amplified music permitted until 9:00 p.m. Sunday through Thursday and 10:00 p.m. on Friday and Saturday.

The site is located adjacent to residential areas; however, the proposed limitations on hours of operation and the requirement that decorative lighting be turned off after business hours are expected to mitigate potential impacts to nearby residences.

*Development Cap in Westerly Portion of Downtown*
Section 17.12.060 of the LMC establishes a cap of 475,000 sq. ft. of floor area for the Westerly Portion of Downtown, which this property is within the boundaries of. Current floor area totals 348,195 sq. ft. and would increase by 2,937 sq. ft. with this proposal for a total of 351,132 sq. ft, which is within the maximum floor area allowed.

**Council Work Plan:**
This item is not included in the 2026 City Council Work Plan.

**Fiscal Impact:**
No fiscal impact.

**Alternatives:**
Approve, approve with conditions, or not approve Resolution No. 38, Series 2026, approving a First Amendment to the Louisville Mill Site Redevelopment Site PUD and an SRU for an Outdoor Eating Establishment and Mobile Food Court.

**Recommendation:**
Staff recommends approval of Resolution No. 38, Series 2026, approving a First Amendment to the Louisville Mill Site Redevelopment Site PUD and an SRU for an Outdoor Eating Establishment and Mobile Food Court.

**Attachments:**
1. Appendix: PUD Criteria Analysis
2. Resolution 38, Series 2026
3. Application Materials
4. Louisville Mill Site Subdivision
5. Louisville Mill Site Redevelopment PUD/SRU
6. Planning Commission Resolution No. 18, Series 2025
7. November 13, 2025 Planning Commission Minutes
8. Public Comments
9. Staff Presentation

## Appendix: PUD Criteria Analysis

| Criteria 17.28.120 (A) | Finding | Narrative |
|---|---|---|
| 1. An appropriate relationship to the surrounding area. | Compliant | The design is appropriate for the area and permitted in the CB zone district. The site and building design are compatible with the Design Handbook for Downtown Louisville. |
| 2. Circulation in terms of the internal street circulation system, designed for the type of traffic generated, safety, separation from living areas, convenience, access, and noise and exhaust control. Proper circulation in parking areas in terms of safety, convenience, separation and screening. | Compliant | The application provides for adequate and safe internal circulation. The City's engineering division and Fire District have reviewed the proposal and have no concerns. |
| 3. Consideration and provision for low and moderate-income housing | Not Applicable | No housing is proposed. |
| 4. Functional open space in terms of optimum preservation of natural features, including trees and drainage areas, recreation, views, density relief and convenience of function | Compliant | The project provides functional private open space and landscape buffers. |
| 5. Variety in terms of housing types, densities, facilities and open space | Not Applicable | No housing is proposed. |
| 6. Privacy in terms of the needs of individuals, families and neighbors | Compliant | The proposal provides limits on use of the outdoor areas to limit potential impacts to neighbors. |
| 7. Pedestrian and bicycle traffic in terms of safety, separation, convenience, access points of destination and attractiveness | Compliant | The PUD provides pedestrian amenities, creates pedestrian scale development in Downtown and adds bicycle parking. |
| 8. Building types in terms of appropriateness to density, site relationship and bulk | Compliant | The application is compatible with surrounding development, preserves a unique historic building in Downtown, and meets Design Handbook for Downtown Louisville policies for historic buildings. |
| 9. Building design in terms of orientation, spacing, materials, color, texture, storage, signs and lighting | Compliant | The PUD complies with the architectural design and site planning requirements in the Design Handbook for Downtown Louisville. |
| 10. Landscaping of total site in terms of purpose, such as screening, ornamental types used, and materials used, if any; and maintenance, suitability and effect on the neighborhood | Compliant | The PUD complies with landscape requirements in the Design Handbook for Downtown Louisville. |

| Criteria 17.28.120 (A) | Finding | Narrative |
|---|---|---|
| 11. Compliance with all applicable development design standards and guidelines and all applicable regulations pertaining to matters of state interest, as specified in chapter 17.32 | Compliant | The PUD complies with all applicable development design standards and guidelines. |
| 12. None of the standards for annexation specified in chapter 16.32 have been violated | Not applicable | Annexation is not proposed. |
| 13. Services including utilities, fire and police protection, and other such services are available or can be made available to adequately serve the development specified in the final development plan | Compliant | The Public Works Department and Louisville Fire District reviewed the PUD and meets their requirements. |

| Criteria 17.28.120 (B) | Finding | Narrative |
|---|---|---|
| 1. Development shall be in accordance with the adopted elements of the comprehensive development plan of the city, and in accordance with any adopted development design standards and guidelines. | Compliant | The PUD complies with the adopted elements of the comprehensive plan, and the adopted development design standards and guidelines. |
| 2. No structures in a planned unit development shall encroach upon the floodplain. Existing bodies of water and existing stream courses shall not be channelized or altered in a planned unit development plan. | Compliant | The property is not located in a floodplain, nor are there any existing bodies of water in the area. |
| 3. No occupied structure shall be located on ground showing severe subsidence potential without adequate design and study approved specifically by the city. | Compliant | There is no known subsidence on the property. |
| 4. The proposal should utilize and preserve existing vegetation, land forms, waterways, and historical or archeological sites in the best manner possible. Steep slopes and important natural drainage systems shall not be disrupted. How the proposal meets this provision, including an inventory of how existing vegetation is included in the proposal, shall be set forth on the landscape plan submitted to the city. | Compliant | The PUD preserves and activates the open area in front of the Grain Elevator building, and creatively activates use of the historic property. There is no noteworthy existing vegetation or topography that should be preserved on the property. |

| | | |
|---|---|---|
| 5. Visual relief and variety of visual sitings shall be located within a development in the overall site plan. Such relief shall be accomplished by building placements, shortened or interrupted street vistas, visual access to open space and other methods of design. | Compliant | The PUD complies with site planning requirements in the Design Handbook for Downtown Louisville. |
| 6. Open space within the project shall be located in such a manner as to facilitate pedestrian use and to create an area that is usable and accessible to residents of surrounding developments. | Compliant | The proposal includes private outdoor areas that will provide a new public amenity for Downtown. |
| 7. Street design should minimize through traffic passing residential units. Suggested standards with respect to paving widths, housing setbacks and landscaping are set forth in public works standards of the city and applicable development design standards and guidelines. The system of streets, including parking lots, shall aid the order and aesthetic quality of the development. | Compliant | The PUD complies with requirements in the Design Handbook for Downtown Louisville, ensuring properly designed orientation to the adjacent street network. |
| 8. There shall exist an internal pedestrian circulation system separate from the vehicular system such that allows access to adjacent parcels as well as to parks, open space or recreation facilities within the development. Pedestrian links to trail systems of the city shall be provided. | Compliant | The PUD complies with bicycle and pedestrian requirements in the Design Handbook for Downtown Louisville and municipal code, ensuring adequate pedestrian and bicycle access. |
| 9. The project and development should attempt to incorporate features which reduce the demand for water usage. | Compliant | The PUD proposes appropriate use of water, with minimal landscaping and no turf included in the proposal. |
| 10. Landscape plans shall attempt to reduce heating and cooling demands of buildings through the selection and placement of landscape materials, paving, vegetation, earth forms, walls, fences, or other materials. | Compliant | Street trees were previously installed along the road frontage. |
| 11. Proposed developments shall be buffered from collector and arterial streets. Such buffering may be accomplished by earthen berms, landscaping, leafing patterns, and other materials. Entrance islands | Not applicable | The PUD is adjacent to a local street; it is not located next to collector or arterial streets. |

| | | |
|---|---|---|
| defining traffic patterns along with landscaping shall be incorporated into entrances to developments. | | |
| 12. There shall be encouraged the siting of lot arrangement, building orientation and roof orientation in developments so as to obtain the maximum use of solar energy for heating. | Compliant | The main building is an existing building and historic in nature. No new substantial buildings are proposed. |
| 13. The overall PUD shall provide a variety of housing types. | Not applicable | No housing is proposed. |
| 14. Neighborhoods within a PUD shall provide a range of housing size. | Not applicable | No housing is proposed. |
| 15. Architectural design of buildings shall be compatible in design with the contours of the site, compatible with surrounding designs and neighborhoods, shall promote harmonious transitions and scale in character in areas of different planned uses, and shall contribute to a mix of styles within the city. | Compliant | The plans do not have significant new buildings. The “box car” accessory building will be the closest to the adjoining neighborhood and is appropriately scaled in character. |

**RESOLUTION NO. 38**
**SERIES 2026**

**A RESOLUTION APPROVING A FIRST AMENDMENT TO THE LOUISVILLE MILL SITE REDEVELOPMENT PLANNED UNIT DEVELOPMENT (PUD) AND A SPECIAL REVIEW USE (SRU) FOR AN OUTDOOR EATING ESTABLISHMENT AND MOBILE FOOD COURT**

**WHEREAS**, there has been submitted to the City Council an application for an amendment to the Planned Unit Development (PUD) for the Louisville Mill Site Redevelopment on Lots 1-3 and Outlot A, Louisville Mill Site Subdivision, City of Louisville, County of Boulder (the "Property"); and

**WHEREAS,** there has also been submitted an application for a special review use (SRU) to allow an outdoor eating establishment and mobile food court on the Property; and

**WHEREAS**, City staff has reviewed the application materials and finds that they comply with the Louisville zoning regulations, sign code and other applicable sections of the Louisville Municipal Code; and

**WHEREAS**, the Planning Commission considered the applications at a duly noticed public hearing on November 13, 2025, where evidence and testimony were entered into the record and the Planning Commission voted in favor of recommending approval; and

**WHEREAS**, the City Council considered the applications at a duly noticed public hearing on April 21, 2026, where evidence and testimony were entered into the record, including the findings in the Louisville City Council staff report dated April 21, 2026; and

**WHEREAS,** the City Council finds the applications should be approved, as set forth herein; and

**WHEREAS,** a portion of the Property is designated as a "No-Build Area" on the subdivision plat recorded with the Boulder County Clerk and Recorder on December 13, 2016 at Reception No. 03563028 for the purpose of preserving view corridors to the historic Grain Elevator; and

**WHEREAS,** no buildings or improvements may be constructed within the "No-Build Area" without the express written consent of the City as evidenced by a resolution of the City Council; and

**WHEREAS,** the application proposes the construction of certain improvements within the "No-Build Area," but City Council finds that the improvements will not impair the view corridors and finds that such improvements should be permitted.

**NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** The City Council of the City of Louisville, Colorado hereby approves the First Amendment to the Louisville Mill Site Redevelopment Planned Unit Development (PUD) and a special review use (SRU) to allow an outdoor eating establishment and mobile food court on Lots 1-3 and Outlot A, Louisville Mill Site Subdivision, City of Louisville, County of Boulder.

**Section 2.** The improvements authorized by the PUD amendment and SRU, as approved by this Resolution, shall be considered permitted improvements in the No-Build Area designated on the subdivision plat recorded with the Boulder County Clerk and Recorder on December 13, 2016 at Reception No. 03563028.

**PASSED AND ADOPTED** this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

# Development Review Application Form

Please complete this form and include it with the submittal documents for your development review application. Applications will not be processed until all required information is provided to the satisfaction of the City of Louisville Planning Department.

## Property Information

Common Address(es): 520 and 540 County Road, Louisville Colorado
Legal Description:
Lot 2 & Outlot 'A' Block 1 Subdivision Louisville Mill Site Subdivision
Lot Area: 9,122 (Lot 2) + 6,841 (Outlot A) Sq. Ft. or 0.366 Acres

**LAND USE PROCESS** (check all that apply)

- ☐ Annexation
- ☐ Concept Plan
- ☐ Easement Vacation
- ☐ Oil and Gas
- ☐ General Development Plan (GDP)
  - ☐ Amendment
  - ☐ New GDP
- ☐ Planned Unit Development (PUD)
  - ☐ Amendment
  - ☐ Preliminary
  - ☐ New PUD
- ☐ Rezoning
- ☐ Special Review Use (SRU)
  - ☐ Amendment
  - ☐ New SRU
- ☐ Subdivision
  - ☐ Final or Replat
  - ☐ Preliminary Plat
- ☐ Temporary Use Permit
- ☐ Variance
- ☐ Vested Property Right
- ☐ Wireless Facility
- ☐ Other: _____

**PROJECT DESCRIPTION:**

Louisville Mill Site LLC & Louisville's Living Room LLC are proposing to redevelop Lot 2 and Outlot A of the Louisville Mill Site Subdivision. This will include the historic grain elevator and the outlot/open space in front of the grain elevator. Louisville's Living Room LLC is proposing to create a unique food beverage venue called "The Grain Yard" on this property that will showcase the historic grain elevator structure and add vitality to the southern end of Downtown Louisville. The 'front yard' will become a vibrant, active part of the concept as an informal gathering space for the community and a new outdoor area for events. The redevelopment will focus on 520 and 540 County Road, and will affect 500 and 544 County Road only as necessary for utilities, drainage and access. The original PUD and SRU are the basis for this Amendment.

## Property Owner Information

Name: J. Erik Hartronft & Ross Bowdy Entity (if applicable) Louisville Mill Site, LLC
Address: 950 Spruce Street, Suite 2C, Louisville, CO 80027
Phone: LMS LLC: 303-673-9304 Ross Bowdy: 720-583-4369 Email: erik@hapcdesign.com & ross@foxpropertymgmt.com

## Application Representative Information

Name: J. Erik Hartronft Entity (if applicable) Hartronft Associates, p.c.
Address: 950 Spruce Street, Suite 2C, Louisville, CO 80027
Phone: 303-673-9304 Email: erik@hapcdesign.com

## Certification/Signature

I certify that the information I have submitted is true and correct to the best of my knowledge and in filing the application and submittal documents, I am acting as and/or with the knowledge and consent of those persons who are owners of the subject property or are parties to this application.

| Signature* | J. Erik Hartronft, AIA | 09/15/25 |
|---|---|---|
| | Print Name | Date |

***If acting as a representative/agent of the owner, include written authorization from the owner that certifies the agent's right to submit this application**

# Development Review Application Form

Please complete this form and include it with the submittal documents for your development review application. Applications will not be processed until all required information is provided to the satisfaction of the City of Louisville Planning Department.

## Property Information

Common Address(es): 544 County Road, Louisville Colorado
Legal Description:
Lot 3 Block 1 Subdivision Louisville Mill Site Subdivision
Lot Area: 27,158.57 sf Sq. Ft. or 0.623 Acres

**LAND USE PROCESS** (check all that apply)

- ☐ Annexation
- ☐ Concept Plan
- ☐ Easement Vacation
- ☐ Oil and Gas
- ☐ General Development Plan (GDP)
  - ☐ Amendment
  - ☐ New GDP
- ■ Planned Unit Development (PUD)
  - ■ Amendment
  - ☐ Preliminary
  - ☐ New PUD
- ☐ Rezoning
- ■ Special Review Use (SRU)
  - ☐ Amendment
  - ■ New SRU
- ☐ Subdivision
  - ☐ Final or Replat
  - ☐ Preliminary Plat
- ☐ Temporary Use Permit
- ☐ Variance
- ☐ Vested Property Right
- ☐ Wireless Facility
- ☐ Other: _____

**PROJECT DESCRIPTION:**

Note: This property will not be redeveloped per this application. Previously approved PUD will be amended as indicated herein to allow the redevelopment of Lot 2 and Outlot A, including access and drainage improvements on this property & installation of utilities within easements.

## Property Owner Information

Name: J. Erik Hartronft & Randall C. Caranci Entity (if applicable) 544CR, LLC
Address: 950 Spruce Street, Suite 2C, Louisville, CO 80027
Phone: Erik Hartronft: 303-673-9304 Randall C Caranci: 303-910-0019 Email: erik@hapcdesign.com & randy@carancicorp.com

## Application Representative Information

Name: J. Erik Hartronft Entity (if applicable) Hartronft Associates, p.c.
Address: 950 Spruce Street, Suite 2C, Louisville, CO 80027
Phone: 303-673-9304 Email: erik@hapcdesign.com

## Certification/Signature

I certify that the information I have submitted is true and correct to the best of my knowledge and in filing the application and submittal documents, I am acting as and/or with the knowledge and consent of those persons who are owners of the subject property or are parties to this application.

| Signature* | J. Erik Hartronft, AIA | 09/15/25 |
|---|---|---|
| | Print Name | Date |

***If acting as a representative/agent of the owner, include written authorization from the owner that certifies the agent's right to submit this application**

# Development Review Application Form

Please complete this form and include it with the submittal documents for your development review application. Applications will not be processed until all required information is provided to the satisfaction of the City of Louisville Planning Department.

## Property Information

Common Address(es): 500 County Road, Louisville Colorado
Legal Description:
Lot 1 Block 1 Subdivision Louisville Mill Site Subdivision
Lot Area: 26,220.15sf Sq. Ft. or 0.601 Acres

**LAND USE PROCESS** (check all that apply)

- ☐ Annexation
- ☐ Concept Plan
- ☐ Easement Vacation
- ☐ Oil and Gas
- ☐ General Development Plan (GDP)
  - ☐ Amendment
  - ☐ New GDP
- ■ Planned Unit Development (PUD)
  - ■ Amendment
  - ☐ Preliminary
  - ☐ New PUD
- ☐ Rezoning
- ■ Special Review Use (SRU)
  - ☐ Amendment
  - ■ New SRU
- ☐ Subdivision
  - ☐ Final or Replat
  - ☐ Preliminary Plat
- ☐ Temporary Use Permit
- ☐ Variance
- ☐ Vested Property Right
- ☐ Wireless Facility
- ☐ Other: _____

**PROJECT DESCRIPTION:**

Note: This property will not be redeveloped per this application. Previously approved PUD will be amended as indicated herein to allow the redevelopment of Lot 2 and Outlot A, including access and drainage improvements on this property & installation of utilities within easements.

## Property Owner Information

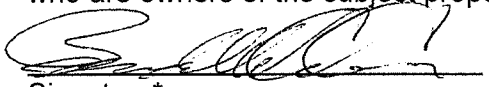
Name: Randall C.Caranci Entity (if applicable) R.C.C, LLC
Address: 441 Elk Trail, Lafayette, CO 80026
Phone: Randall C Caranci: 303-910-0019 Email: randy@carancicorp.com

## Application Representative Information

Name: NA Entity (if applicable) _____
Address: _____
Phone: _____ Email: _____

## Certification/Signature

I certify that the information I have submitted is true and correct to the best of my knowledge and in filing the application and submittal documents, I am acting as and/or with the knowledge and consent of those persons who are owners of the subject property or are parties to this application.



Signature* Randall C.Caranci Print Name 09/15/25 Date

***If acting as a representative/agent of the owner, include written authorization from the owner that certifies the agent's right to submit this application**

LOUISVILLE MILL SITE LLC

950 Spruce Street, Suite 2C, Louisville, CO 80027 303.673.9304

Mr. Rob Zuccaro, Planning Director
City of Louisville, Colorado
749 Main Street
Louisville, CO 80027

16 May 2025

Re: Louisville Mill Site Redevelopment
Final PUD Amendment - Phase 1
520, 540 County Road (Front Street)

Rob,

We are pleased to present herein, an amendment to the Louisville Mill Site Final PUD for the first phase development of the Louisville Mill Site Subdivision.

The redevelopment of Louisville's historic Grain Elevator is intended to transform this iconic 120-year-old utilitarian agrarian structure into a vibrant venue that will become a community gathering place, contributing to Downtown Louisville's vitality. Please see the attached letter from the owners of The Grain Yard LLC, who will be the tenants of the building and site. Please note that the managing partners of the Grain Yard LLC are also partners in the ownership of the property as part of Louisville Mill Site LLC/Louisville's Living Room LLC ownership group.

The design for the Grain Yard redevelopment retains all of the original features of this historic landmark and provides for reconstructing the original porte cochere, wagon ramp and wagon scales, which were an integral part of the original building design and function. We have proposed a small addition on the back of the building which will emulate a boxcar, in the location of the railroad siding that used to run behind the building. The proposed design for this first phase is consistent with the original PUD and SRU that was approved in 2015. This amendment to that PUD is intended to allow for some minor changes to the original approval, but is mainly a separation of this first phase from the rest of the development that is not currently moving forward. The grain elevator building will be fully renovated inside in the areas that will accommodate this new use, while preserving the historic fabric of the wooden structure, (even preserving evidence of the major fire that occurred in the past). The building will be ADA accessible, and energy upgrades will be provided as well as structural upgrades and new mechanical and electrical systems. New electrical service will be provided as well as new water and sewer services.

The site will be improved with landscaping, fencing and lighting for the open space in front of the grain elevator, which will be an area for community gathering, events and relaxing at this historic site, with spaces for food trucks. We envision interpretive historic signage and displays documenting the agrarian history of Louisville's early years and this building and site. We would like to work with the City of Louisville and the Museum to bring this history to life on this site. We would also like to move a small private granary from the Warembourg farm to the Grain Yard as a demonstration of how farmers stored grain on their private land versus the commercial grain elevator. We will utilize that small structure as a tap house for the Grain Yard in good weather. We will also propose landmark status for this structure.

We truly envision this project as a significant community benefit from an experiential and educational perspective. Again, the ability to have this type of a tenant utilize the building is perfect to sustain the

history of this site, and Louisville's history into the future. It will activate the site and give people access inside this amazing wooden agricultural cathedral. The revenue from the commercial use of the building will provide the ability to properly maintain the property, which is not possible without a significant revenue stream and private investment into the building and the business.

As we will demonstrate with our grant assistance submittals to the LRC and the HPC, the redevelopment of this site and the renovation and adaptive reuse of this unique historic structure will not be possible without significant public assistance. Such assistance will be an investment together with a private venture for economic revitalization of this area, and also an investment in preserving and maintaining one of the most significant (if not the most significant) remaining structures from Louisville's early history. We look forward to accomplishing this project together with the City of Louisville, the Historic Preservation Commission and the Louisville Revitalization Commission. This one truly takes a village.

We are sensitive to possible concerns related to this proposed use at this site as they were expressed during the original PUD and SRU hearings. Parking is always a concern in downtown Louisville, and we have addressed this issue similar to the originally approved PUD and SRU. There are three commercial properties within this subdivision, which have entered into shared access, maintenance and parking agreements. As part of this development, we will be providing parking on site as required per the Downtown parking regulations, as well as providing 20 shared spaces on Lot 1 (including BNSF leased ROW) and Lot 3 with formalized access lanes through the combined site. We are also showing potential for approximately 30 additional parking spaces in the adjacent BNSF ROW leased area that is controlled by the City of Louisville. We would like to work with the city and the LRC to provide additional parking spaces for downtown in this area, which has been leased by the city for parking. Please note that there are 6 street-parking spaces directly in front of the site on County Road and a city parking lot is about ½ block from the site.

The submittal also includes an amendment to the previously approved SRU, which is intended to provide for specified outdoor activity areas on Lot 2 as well as the Outlot 'A', including the potential for food and beverage service, (subject to other applicable regulations). The SRU is also intended to provide for the potential of a governmental use on Lot 2 and/or Outlot 'A' which would include a potential historic interpretive site, and similar uses within the building which could be private, public, or a combination thereof. Again, this SRU amendment is substantially the same as approved in 2015, with the phasing changed as indicated. An area for outdoor music is proposed in the southwest corner of the Grain Yard, which would be oriented towards the northeast, away from the adjacent residential neighborhoods. Landscape screening, fencing around the outdoor activity area and an acoustical barrier behind the performance area will help to mitigate off-site sound migration.

Concurrently with this Final PUD amendment and SRU, we are also submitting an amended application to the HPC for our previously approved Landmark Alteration Certificate.

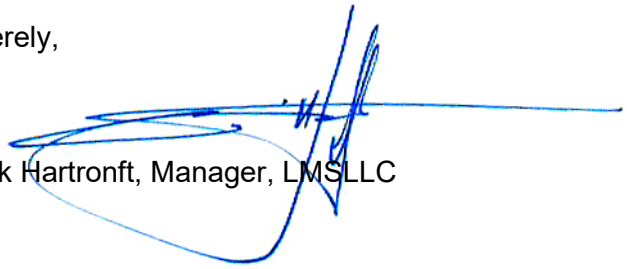
We anticipate that construction will begin after final City Council approval of the PUD/SRU and any LRC and HPC funding is approved. We are hoping to get the approvals by approximately the fourth quarter of 2025, with building permit issuance subsequent to that. Ideally, we would like to have the construction complete by mid-summer 2026.

Please see the attached supplemental graphic information regarding the proposed project. Also attached are excerpts from the Louisville Mill Site Subdivision Plat, showing the access, drainage and utility easement areas. Please note that the exterior of the rehabilitated Grain Elevator structure will

appear as it did in the early 1900's, as much as possible. Obviously, there will be significant historically sensitive improvements and modifications on the interior for the proposed adaptive reuse. Those improvements will be described in more detail with our presentations to Planning Commission, HPC, City Council, and the LRC.

Please consider this request for approval of the Final PUD Amendment attached herein. Let us know if you have any questions regarding this proposal.

Sincerely,



J. Erik Hartronft, Manager, LMSLLC

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City of Louisville,

The ownership group of The Grain Yard, LLC is excited to begin the process of working with the City to bring the grain elevator back to the community.

We are proud to be the catalyst for the Restoration, Rehabilitation, and continued Preservation of the most historic commercial building in Louisville. It is our intention to work alongside the building owner to utilize the inherent strengths of the building and honor the history of the space.

Our concept as tenants of the building is to create a community gathering space. We will be open all day, every day as a place for people to gather, talk, and learn. Beyond the casual hangout moments, we plan to host pop up events, yoga classes, business meetings, private parties and public events, like museum tours. We will utilize lots of the cool spaces inside the building and also the yard between the building and the street.

We plan to sell all sorts of beverages from coffee and tea to kombucha and mocktails to beer and cocktails. We do not plan on having a kitchen, but rather we will partner with local restaurants like Azul Fuego and Lucky Pie during their slow hours and bring in food trucks during busy times. We will need to apply for a liquor license that includes the building and the outlot. The outlot will be fenced in to create a boundary for the license, but will be minimal in design to honor the conservation easement that requires the building not be obstructed.

We will also be coming to the City for a Special Review Use for outdoor dining and live music. The live music will be limited in frequency and size, with the sound directed to the North East, away from the residential neighbors.

Finally, we intend on submitting an application for a Business Assistance Package with the City prior to signing any lease agreement with the building owners. We hope for some use tax rebates for the tenant improvements that are quite complicated in this old building and a sales tax rebate for our first few years to help us get off to a profitable beginning.

We can’t wait to work with a great team of building owners, architects, builders, City staff, boards and commissions, neighbors, and all residents to bring this idea to life and return the grain elevator to the community.

Sincerely,

Ownership Group of the The Grain Yard

**EXHIBIT A**

**Louisville Mill Site Subdivision Plat**

**EXCERPT Boulder County Reception #03563028**

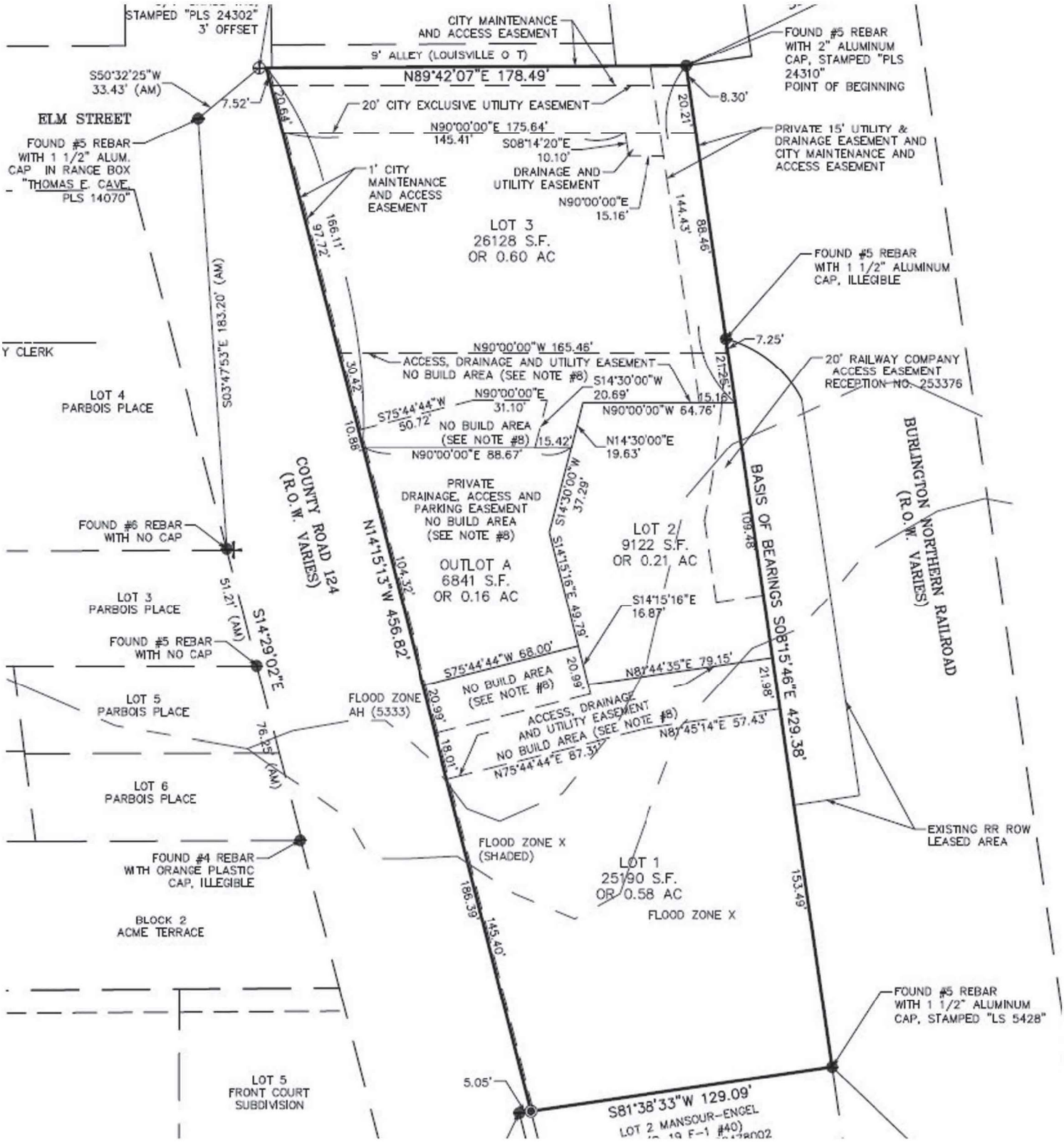



Exhibit A

**EXHIBIT B**

**Lease Exhibit – Caranci Inc. & BNSF Railway Company**

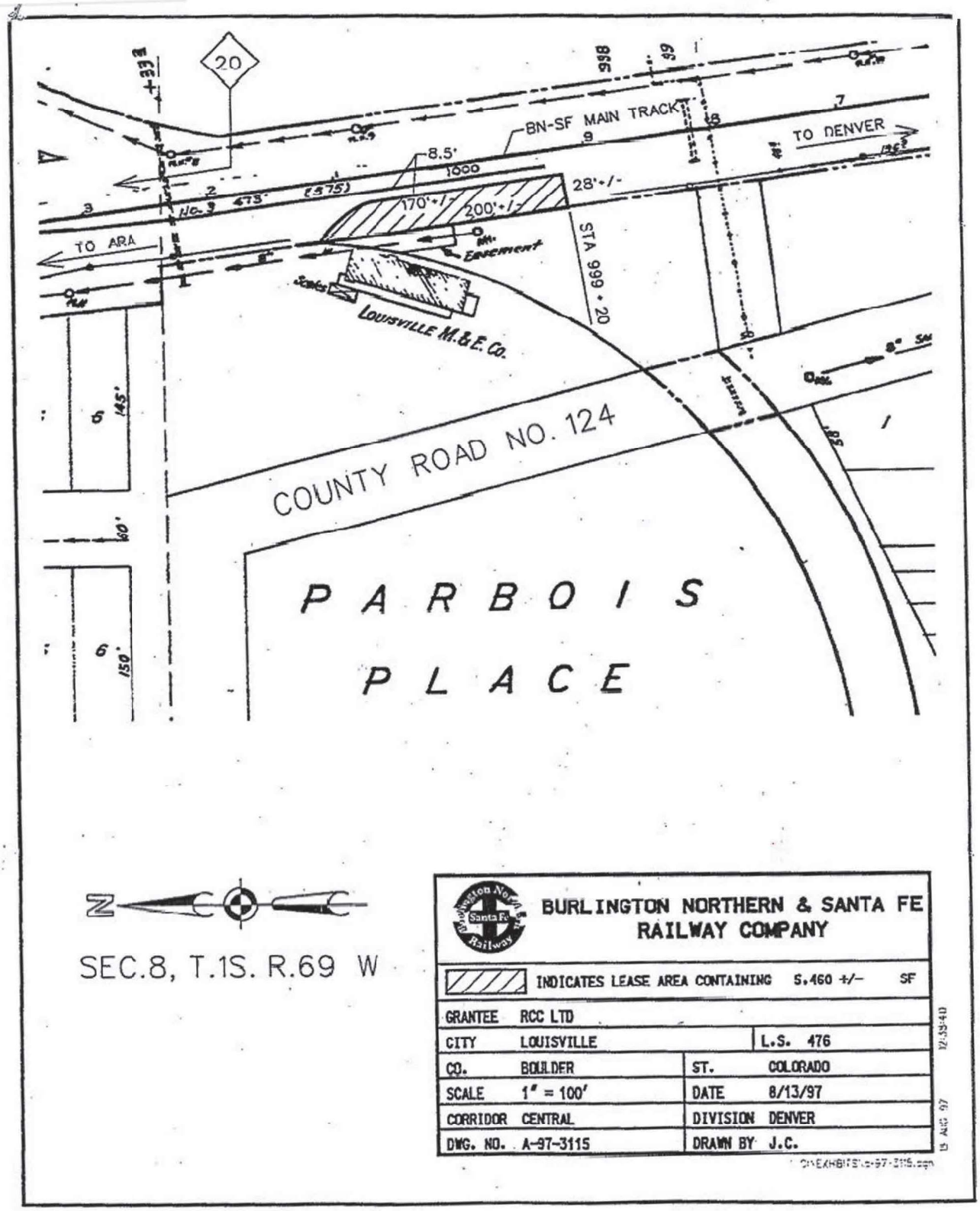


**EXHIBIT C**
**Common Area Easement Depiction**

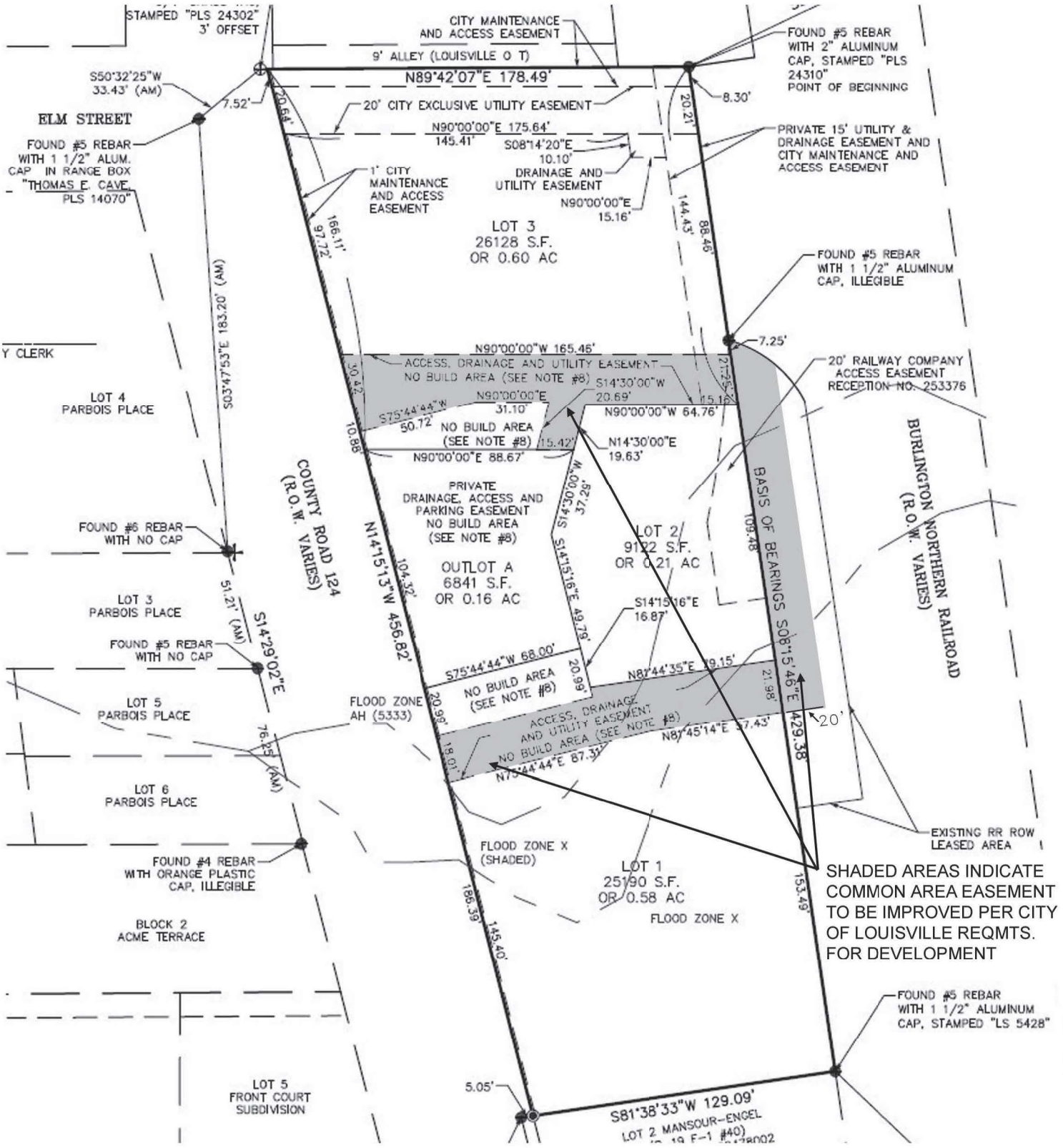



Exhibit C

**EXHIBIT D**

**Utility and Drainage Easement**

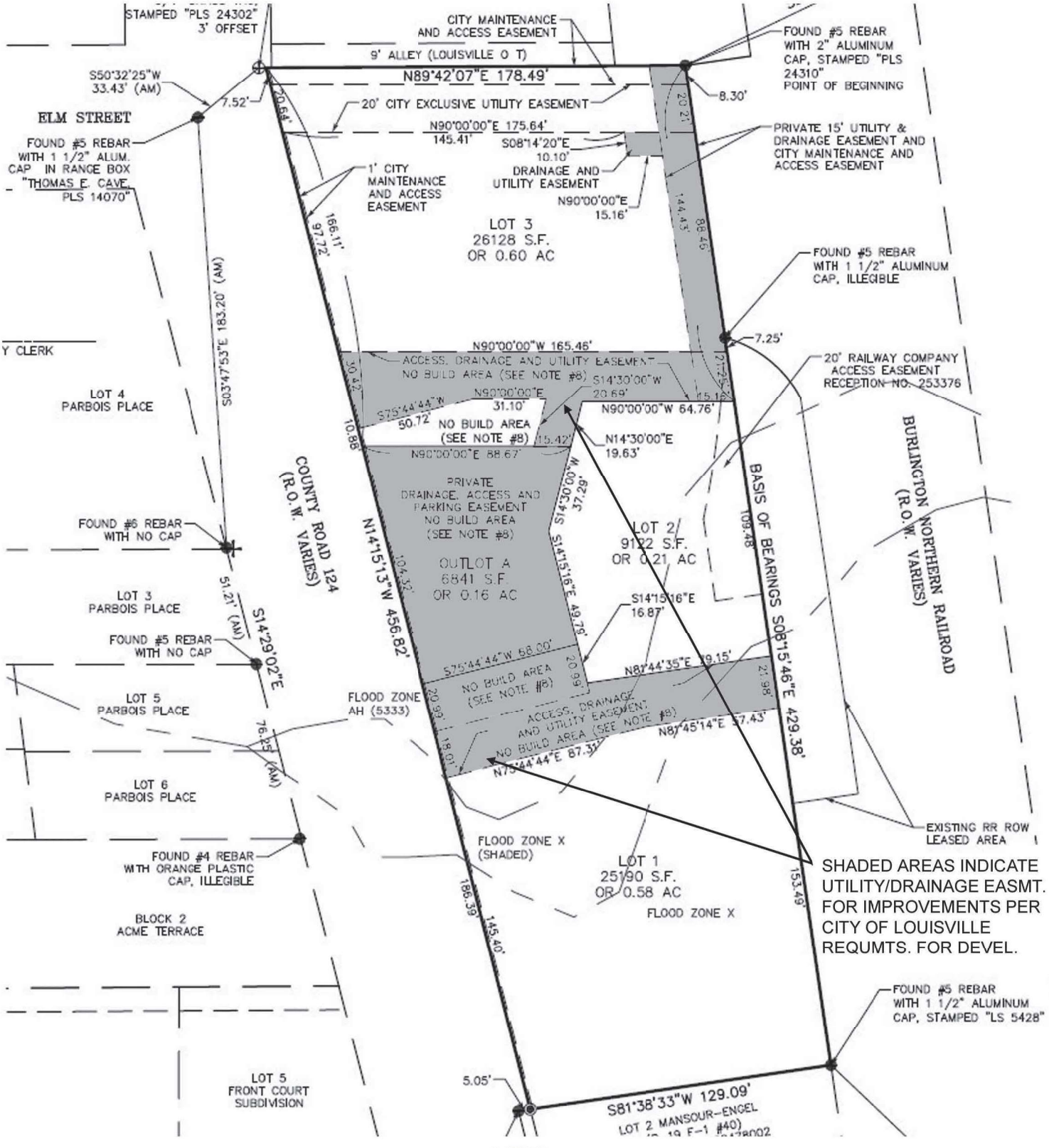



Exhibit D

LOUISVILLE MILL SITE LLC

950 Spruce Street, Suite 2C, Louisville, CO 80027 303.673.9304

Mr. Rob Zuccaro, Planning Director
City of Louisville, Colorado
749 Main Street
Louisville, CO 80027

16 May 2025

Re: Louisville Mill Site Redevelopment
Special Review Use - Phase 1
520, 540 County Road (Front Street)

Rob,

Attached please find the SRU Plan indicating the proposed Special Review Use for the Louisville Mill Site Subdivision. The SRU is intended to provide for specified outdoor activity areas on Lot 2 as well as the Outlot 'A', including the potential for food and beverage service, (subject to other applicable regulations). The SRU is also intended to provide for the potential of a governmental use on Lot 2 and/or Outlot 'A' which would include a potential historic interpretive site, and similar uses in the building which could be private, public, or a combination thereof. Below is the formal written response addressing the SRU criteria.

1) The proposed uses / development is consistent in all respects with the spirit and intent of the comprehensive plan and of chapter 17, and it is not contrary to the general welfare and economic prosperity of the city or the immediate neighborhood;
2) The proposed uses / development will lend economic stability, compatible with the character of any surrounding established areas;
3) The proposed uses / development are adequate for internal efficiency of the proposal, considering the functions of residents, recreation, public access, safety and such factors including storm drainage facilities, sewage and water facilities, grades, dust control and such other factors directly related to public health and convenience;
4) The external effects of the proposal are controlled, considering compatibility of land use; movement or congestion of traffic; services, including arrangement of signs and lighting devices as to prevent the occurrence of nuisances; landscaping and other similar features to prevent the littering or accumulation of trash, together with other factors deemed to effect public health, welfare, safety and convenience;
5) An adequate amount and proper location of pedestrian walks, malls and landscaped spaces are provided to prevent pedestrian use of vehicular ways and parking spaces and to separate pedestrian walks, malls and public transportation loading places from general vehicular circulation facilities.

Please consider this request for approval of the Special Review Use attached herein. Also refer to our Final PUD Amendment for this project which contains additional information regarding parking, landscaping, screening, etc. Let us know if you have any questions regarding this proposal.

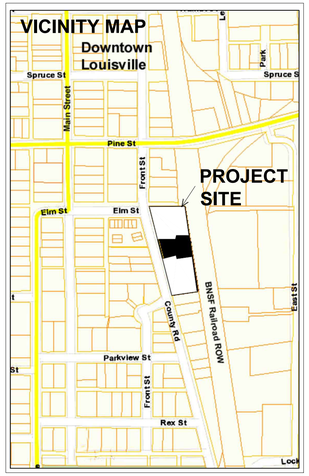
Sincerely,

J. Erik Hartronft, Manager, LMSLLC

L:_MAIN_065_Proj\1252-LsvlGrainElevator\Project Admin\City Public Approvals\PUD&Plat\25-020425-PUD_Amendment-Lot2\Louisville_Mill_Site-SRU-Amendment_CriteriaResponse-051625.doc

# FINAL P.U.D. FIRST AMENDMENT
# LOUISVILLE MILL SITE REDEVELOPMENT
## LOUISVILLE MILL SITE SUBDIVISION

**LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO**







## SIGNATURES

**OWNERSHIP SIGNATURE BLOCK**
By signing this PUD & SRU the owner acknowledges and accepts all the requirements and intent set forth in this PUD & SRU Witness my/our hand(s) seal(s) this ___ day of _____, 20___.
Randall C. Caranci, Lot 1
Owner Name and Signature
_____ (Notary Seal)
Notary Name (print)
_____
Notary Signature
My Commission Expires _____

**OWNERSHIP SIGNATURE BLOCK**
By signing this PUD & SRU the owner acknowledges and accepts all the requirements and intent set forth in this PUD & SRU Witness my/our hand(s) seal(s) this ___ day of _____, 20___.
J. Erik Hartronft, Lot 3
Owner Name and Signature
Randall C. Caranci, Lot 3
Owner Name and Signature
_____ (Notary Seal)
Notary Name (print)
_____
Notary Signature
My Commission Expires _____

**OWNERSHIP SIGNATURE BLOCK**
By signing this PUD & SRU the owner acknowledges and accepts all the requirements and intent set forth in this PUD & SRU Witness my/our hand(s) seal(s) this ___ day of _____, 20___.
J. Erik Hartronft, Lot 2 & Outlot A
Owner Name and Signature
Ross Bowdy, Lot 2 & Outlot A
Owner Name and Signature
_____ (Notary Seal)
Notary Name (print)
_____
Notary Signature
My Commission Expires _____

**PLANNING COMMISSION CERTIFICATE**
Approved this ___ day of _____, 20___ by the Planning Commission of the City of Louisville, Colorado.
Resolution No. _____, Series _____

**CITY COUNCIL CERTIFICATE**
Approved this ___ day of _____, 20___ by the City Council of the City of Louisville, Colorado.
Resolution No. _____, Series _____
(City Seal)
_____
Mayor Signature
_____
City Clerk Signature

## SHEET INDEX


| SHEET | DESCRIPTION |
|---|---|
| ARCHITECTURAL | |
| A1 | Cover Sheet, Project Data & Rendering |
| A2 | Site Plan |
| A3 | Landscape Plan & Parking Plan |
| A4 | Building Floor Plans |
| A5 | Building Elevations |
| A6 | Site Photometric |
| A7 | SPECIAL REVIEW USE |
| CIVIL | |
| C101 | Grading & Drainage Plan |
| C102 | Utility Plan |
| C103 | Fire Truck Turning Analysis |
| C201 | Utility Plan – Future Phase |


## PROJECT DIRECTORY


OWNER-DEVELOPER
LOT 2 & OUTLOT A
Louisville Mill Site LLC
950 Spruce Street, Suite 2C
Louisville, Colorado 80027
Contact: Erik Hartronft 303.673.9304
Ross Bowdey 720.583.4369

ARCHITECT/PLANNER
Hartronft Associates, p.c.
950 Spruce Street, Suite 2C
Louisville, Colorado 80027
Contact: Erik Hartronft, AIA
303.673.9304

CIVIL ENGINEER
Siteworks Studio
2101 Pearl Street
Boulder, Colorado 80302
Contact: Dash Ash
303.918.7859


## HISTORIC VIEW OF GRAIN ELEVATOR FROM THE NORTHWEST

Carnegie Branch Library for Local History / Boulder Historical Society Collection







## PROJECT DATA

**Louisville Mill Site - Use and Zoning Information** — Final PUD - First Amendment

**Project Description:**

This phase of the Louisville Mill Site Redevelopment will encompass Lot 2 and Outlot A of the Mill Site Subdivision. Lot 1 and Lot 3 of the subdivision are not proposed for redevelopment in this phase. However, work associated with common access easements, utilities and common parking areas located on Lots 1 and 3 is included in this phase to the extent indicated herein. Lot 2 currently contains the historic Louisville Grain Elevator building, which is on the National Register of Historic Places, and has been designated a Louisville local landmark, which will be rehabilitated for commercial use with minor additions. The proposed use for Lot 2 and Outlot A is commercial, with retail, restaurant/bar, and similar allowable uses. There is a potential for some private museum-type exhibit space in the grain elevator structure as well. The outlot is proposed to be an outdoor activity area for the business in the grain elevator, including outdoor sales subject to an approved SRU. The proposed development also includes relocating a small traditional wood-framed granary from the Warembourg farm, south of Community Park to the site to be rehabilitated to serve as a seasonal tap house for the outdoor activity area.

**Building Bulk and Density Standards:**

| Required Setbacks: | PR | AC | Proposed Setbacks: |
|---|---|---|---|
| Front | 20' | 30' | Variance req. to 8' for AC |
| Rear | 20' | | Variance req. to 1'-4" for PR |
| Side (internal) | 10' | 5' | Variance req. to 9' for PR |
| (note fence structure @ sw corner outlot @ 3' front & 5' side setback) | | | |
| Maximum Lot Covg. | 40% | | 44% Proposed Variance Lot 2 |

| Allowable Height: | Proposed Height: |
|---|---|
| 2 story - 35' | 3 story - 50.5' - Existing |
| | 1-story - 17.5' - East Addition |
| | 1-story - 13'-0" - Accessory Struct. |

**ZONING:**
CB within the Transition Area of the Design Handbook for Downtown Louisville

**Addresses and Legal Descriptions:**
See Plat and Survey for Legal Descriptions

| | RCC | Grain Elevator | 'Yard' | 544CR |
|---|---|---|---|---|
| Mill Site Subdivision: | Lot 1 | Lot 2 | Outlot A | Lot 3 |
| Address - County Road | 500 | 540 | 520 | 544 |

**Louisville Mill Site - Lot / Building Areas and Parking Calculation - Lot 2 and Outlot A** — Final PUD - First Amendment

**Building Area and Parking Calculations - Lot 2 & Outlot**

| | Existing | Reconstruct | New |
|---|---|---|---|
| Existing Grain Elevator Building | 4,094 | | |
| *Non-usable areas (unfinished) | (1,096) | | |
| Finish part of existing basement | | | 290 |
| Porte Cochere | | 396 | |
| Mezanine and Stair | | | 385 |
| East Addition | | | |
| Main Level | | | 1,061 |
| Basement | | | 1,061 |
| Total Area Grain Elevator | 2,998 | 396 | 2,797 |
| Accessory Tap House (moved) (Warembourg Granary) | | | 140 |
| Total Building Areas | 2,998 | 396 | 2,937 |
| Total Building Area on Site | | | 6,331 |

**PUD Areas From Redevelopment**

| | RCC | Grain Elevator | 'Yard' | 544CR | Total |
|---|---|---|---|---|---|
| | Lot 1 | Lot 2 | Outlot A | Lot 3 | |
| Platted Lot Area - Phase 1 | Not Incl. | 9,122 | 6,841 | Not Incl. | 15,963 |
| Existing Building Coverage | | 2,494 | 0 | | |
| Additional Building Coverage | | 1,457 | 140 | | |
| Total Building (Lot) Coverage | | 3,951 | 140 | | 4,091 |
| % Lot Coverage | | 43.3% | 2.0% | | |

**Parking Calculation**

| | | |
|---|---|---|
| Net Building Area for Parking Calculation: | New Area: | 2,937 |
| New square footage exemption: | | (999) |
| Deduct prep areas, storage, restrooms, circulation etc. | | (1,916) |
| Total Net Area for Parking Calculation | | 22 |
| Parking required at 1/500sf = | 1 Space | |
| Parking provided on site = | 4 Spaces** | |
| Parking provided incl. shared = | 24 Spaces total developed as part of this project. | |

Notes:
* Existing building area of Grain Elevator not all usable.
**One space is ADA accessible parking space (parking space & loading shared w/Lot 1). Shared parking agreement and access/maintenance agreement has been executed by all Mill Site Subdivision property owners. This project will develop 14 shared spaces directly adjacent to Outlot A, and 6 shared spaces directly adjacent to Lot 2. Regarding public parking nearby, note that 6 public parking spaces on County Road are directly in front of Outlot A plus 9 in front of Lot 1 and 3. An existing city parking lot is less than one block from the site. The City of Louisville has leased land within the BNSF ROW for future public parking which currently serves as 'ad hoc' unimproved parking spaces. There is leased ROW area available for approximately 30 additional parking spaces adjacent and to the north of the Mill Site Subdivision.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LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
520 & 540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Louisville's Living Room LLC

FINAL PUD
FIRST AMENDMENT

PROJECT # 1252.50
DATE: 05/16/25
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CHECKED BY: JEH
REVISIONS: FPC 11/03/25
CC: 04/21/26


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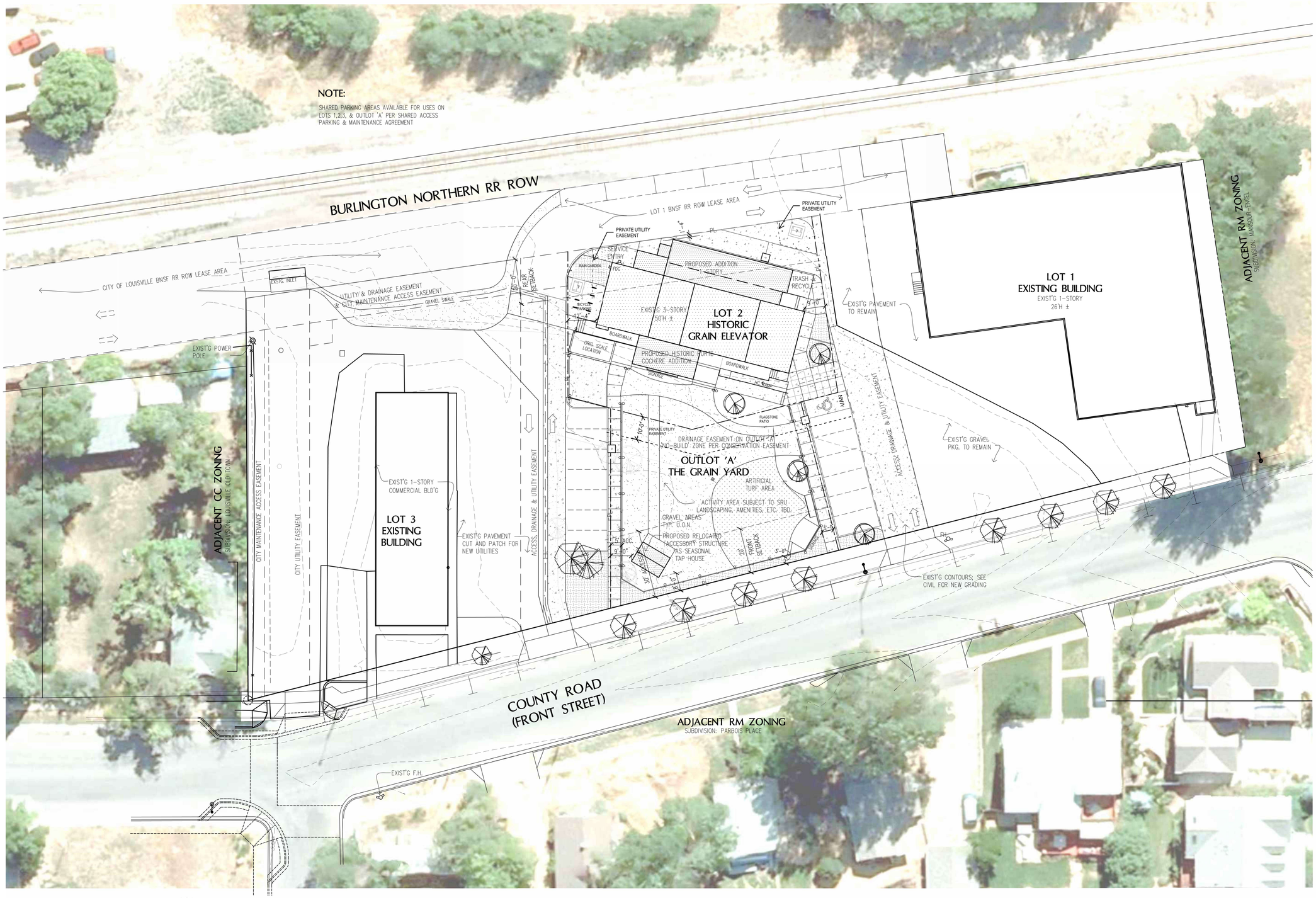
COVER SHEET
PROJECT DATA
RENDERING
SIGNATURES

Sheet
A1
1 of 11 Sheets




1 / A2 ARCHITECTURAL SITE PLAN

1" = 20'

NORTH

0 1 5 10 25 50 100 FEET

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

520 & 540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Louisville's Living Room LLC

FINAL PUD
FIRST AMENDMENT

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**SITE PLAN**

Sheet
**A2**
2 of 11 Sheets

BURLINGTON NORTHERN RR ROW

6 SPACES – 22' x 8'
PER LOT 1 SHARED PKG AGREEMENT

EXISTING DRIVE SURFACE TO BE REPLACED WITH ASPHALT AS SHOWN

PRIVATE UTILITY EASEMENT

TP-10, 12 EVSE DUAL STN

PRIVATE UTILITY EASEMENT

FDC

SWALE

EXSTG. INLET

GRAVEL SWALE

2 SPACES 9' x 19'

A3

RAIN GARDEN

TRASH & RECYCLE

EXISTING PAVING

BICYCLE PARKING

LOT 2
HISTORIC
GRAIN ELEVATOR

LOT 1

BOARDWALK

ORIG. SCALE LOCATION

BOARDWALK

RAIN GARDEN

EXISTING PAVING

MOUNTABLE CURB AND REMOVABLE FENCE

HC RAMP UP

CONTRASTING COLOR CONCRETE AT ACCESSIBLE PARKING AND LOADING MAXIMUM 2% SLOPE

EXISTING PAVING CUT & PATCH

CRUSHER FINES

PATIO

ACCESSIBLE ROUTE

TP-6,8 DUAL STN
W/(1) ADA EV
READY/CAPABLE

VAN

ORNAMENTAL GRASSES DEMONSTRATION GARDEN

FLAGSTONE PATIO

MOUNTABLE CURB AND REMOVABLE FENCE

EXISTING GRAVEL

LOT 3

APROX. AREA FOR FOOD TRUCK(S) -VEHICLE PADS & MANEUVERING AREAS ARE PKG. GRAVEL STANDARD -OUTLET AT EA. LIGHT POST

10'-0" PRIVATE UTILITY EASEMENT

GRAVEL OR PLAYGROUND BARK

NEW CONC. PAVING

CONC. PAN; RE: CIVIL

TP-2,4 DUAL STN EV READY/CAPABLE

CONC.

NEW PAVING AT UTILITY TRENCH

ACCESSIBLE ROUTE TO FOOD TRUCKS AND OUTDOOR TAPHOUSE PER ICC/ANSI A117.1 CHAPTER 4

OUTLOT 'A'
THE GRAIN YARD

CABLE MOUNT TIVOLI LIGHTS OVERHEAD

7 SPACES 9' x 19' PER LOT 1 PER SHARED PKG AGREEMENT

PKG. GRAVEL (RE: CIVIL)

17'-6"

1'-6" OVERHANG

6' FENCE W/DOWN LIGHTS

PROPOSED RELOCATED ACCESSORY STRUCTURE AS SEASONAL TAP HOUSE WITH INTERPRETIVE SIGNAGE REGARDING THE WAREMBOURG GRANARY HISTORY

ARTIFICIAL TURF

PLATFORM 8" ABV. GRADE

EXISTING PAVING

7 SPACES 9' x 19' PER LOT 3 SHARED PKG AGREEMENT

PKG. GRAVEL

19'-0"

INLET

NEW FH

EXISTING TREES AND U.S. ON LOT 3

EXIST'G LANDSCAPE

6 SPACES – 22' x 8'

ORNAMENTAL GRASSES

## LANDSCAPE LEGEND

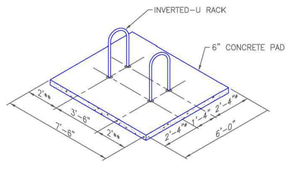
- Planting bed – perrenials/ annuals
- Asphalt paving
- Gravel Parking
- Ornamental Grasses
- Coniferous Shrub 5 GAL.
- Deciduous Shrub 5 GAL.
- 2" – 3" Caliper Deciduous Tree
- Deciduous Tree 1–1/2" – 2" Caliper
- Coniferous Tree Min. 6 ft.
- Gravel–Ped. Areas
- Conc.
- Existing Coniferous Tree over 10" Caliper
- Existing Coniferous Tree 2" – 8" Caliper
- Existing Deciduous Tree over 10" Caliper
- Existing Deciduous Tree 6" – 10" Caliper
- Existing Deciduous Tree 3" – 6" Caliper
- Existing Deciduous Tree 1" – 3" Caliper
- Existing Shrub

NOTES:

1. APPLICANT TO PROVIDE DETAILED LANDSCAPE & IRRIGATION DRAWINGS TO PUBLIC WORKS FOR REVIEW & APPROVAL DURING THE CIVIL PLAN REVIEW
2. PARKWAY TREES SHALL BE PLANTED NO CLOSER THAN 5' TO CURB OR WALK
3. THE USE OF ROOF BARRIER IS REQUIRED FOR ALL TREES LESS THAN 5' FROM CURB OR WALK

NOTES:

EXPOSED CONCRETE SURFACE TO BE BROOM FINISHED. PAD SIZE MAY VARY AS DIRECTED BY THE ENGINEER. PAD IS TO BE CONSTRUCTED WITH CLASS B CONCRETE. EXCAVATION AND/OR EMBANKMENT REQUIRED FOR PAD CONSTRUCTION WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAD. CONCRETE SHALL BE SLOPED AT 2% TO DRAIN.




SIDE–BY–SIDE

* 3"–4" MINIMUM WHEN INSTALLED PERPENDICULAR TO A WALL OR CURB.

** 3" MINIMUM WHEN INSTALLED PARALLEL TO A WALL OR CURB. 5" MINIMUM SEPARATION FROM CURB FACE WHEN INSTALLED ADJACENT TO A CURB WITH "HEAD–IN" AUTOMOBILE PARKING.

*** 10" MINIMUM IF MORE THAN TWO "U" RACKS IN A SERIES.

2 / A3 U–RACK DETAIL @BICYCLE PK'G
N.T.S.

1 / A3 SCHEMATIC LANDSCAPE PLAN & PARKING PLAN
1" = 10'

0 1 5 10 25 50

NORTH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LANDSCAPE & PARKING PLAN

Sheet
A3
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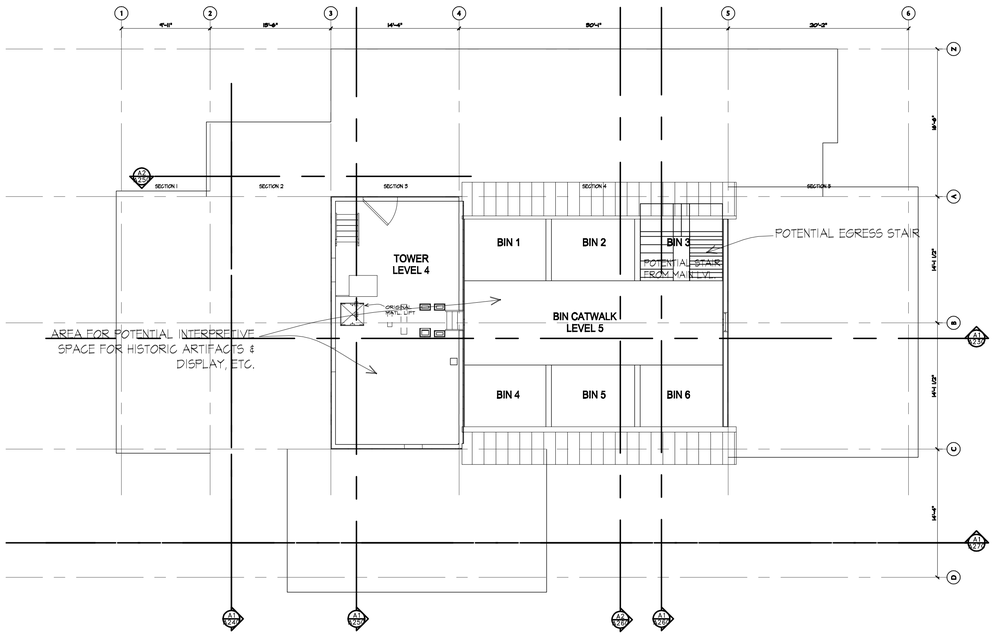
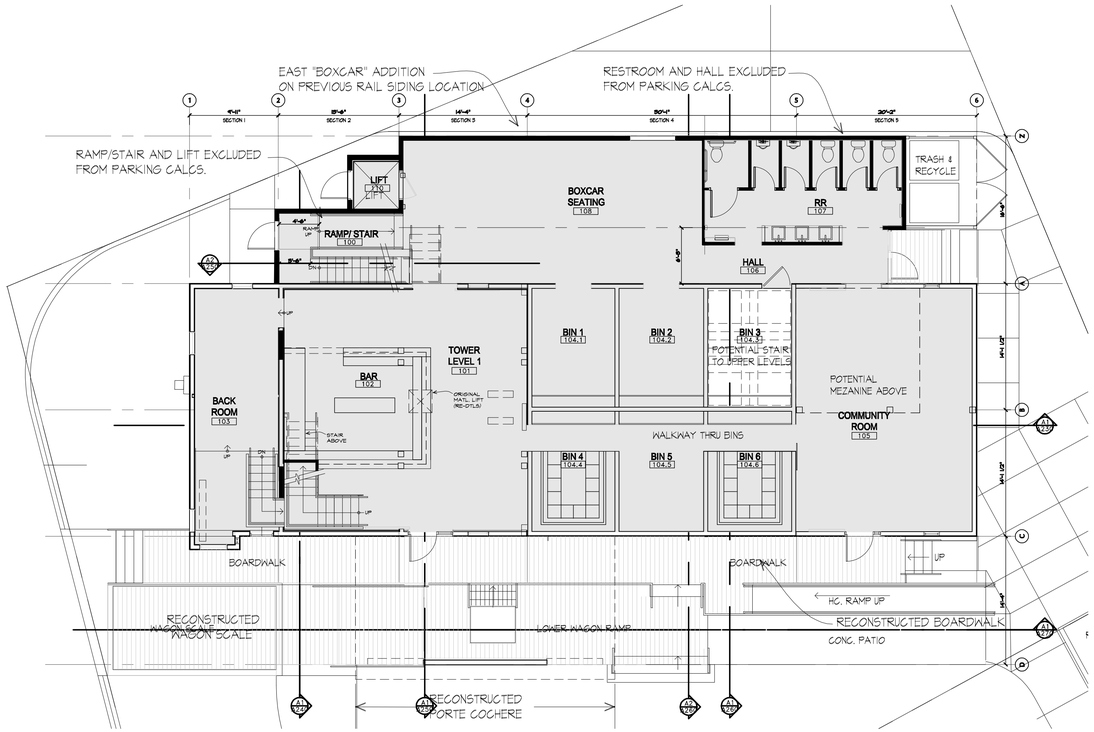


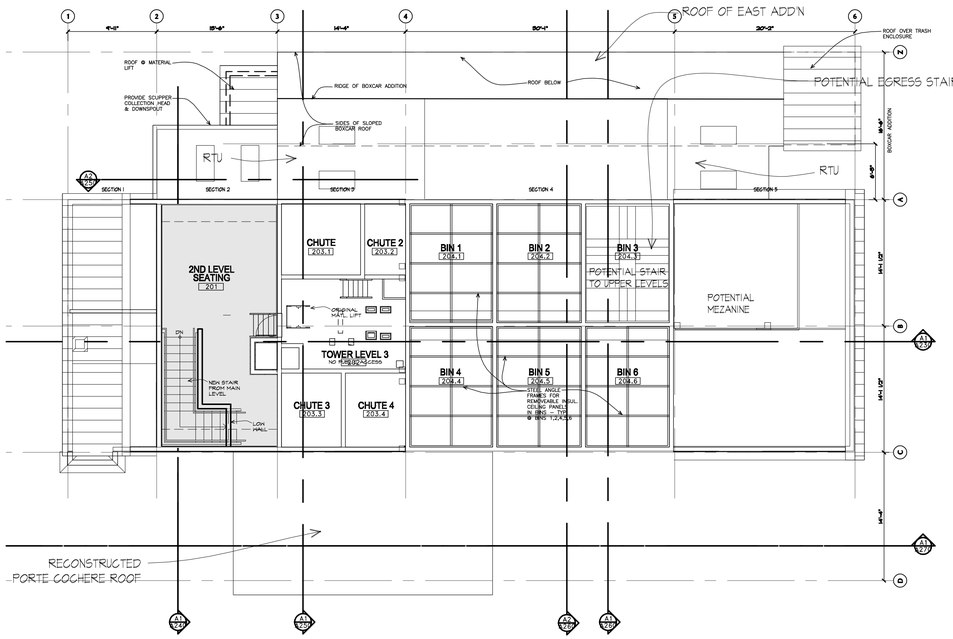

## 4 / A4 FLOOR PLAN – FOURTH/FIFTH LEVEL (3RD STORY)

SCALE: 1/8" = 1'-0"



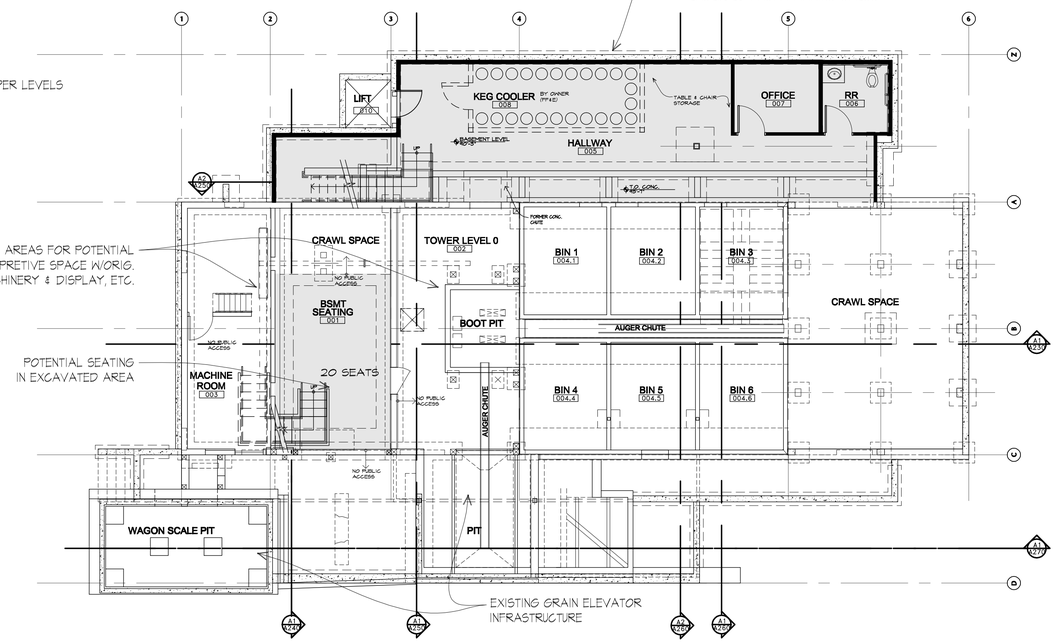

## 2 / A4 FLOOR PLAN – FIRST LEVEL (1ST STORY)

SCALE: 1/8" = 1'-0"




## 3 / A4 FLOOR PLAN – SECOND/THIRD LEVEL (2ND STORY)

SCALE: 1/8" = 1'-0"




## 1 / A4 FLOOR PLAN – BASEMENT/CRAWL SPACE

SCALE: 1/8" = 1'-0"

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FLOOR PLANS

Sheet
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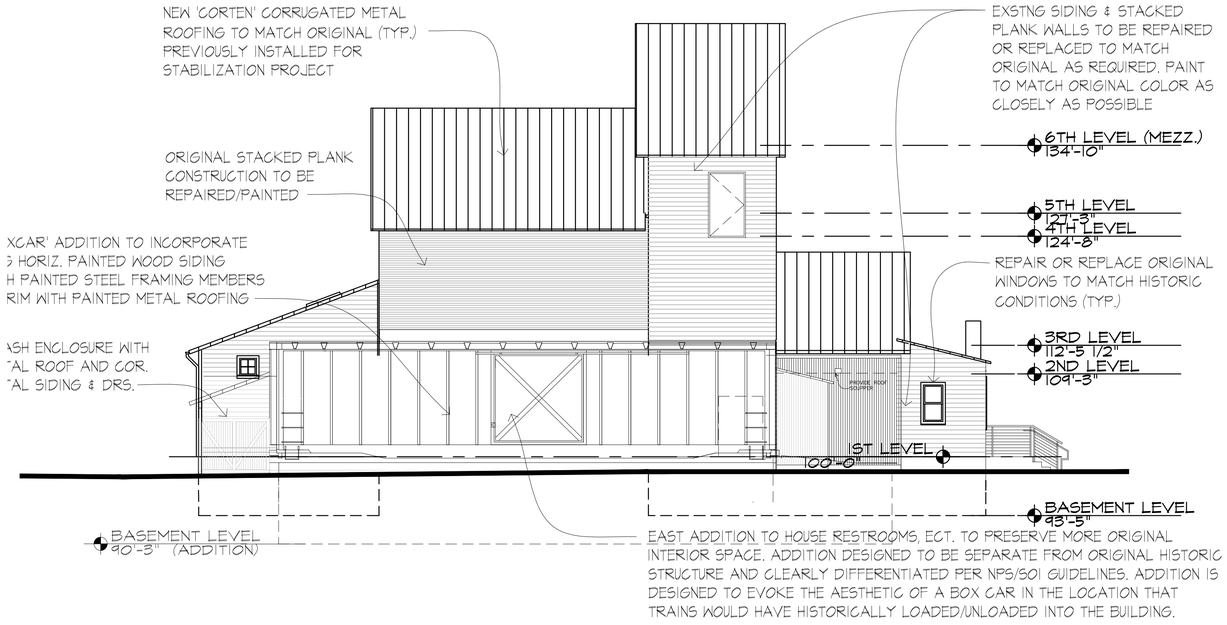
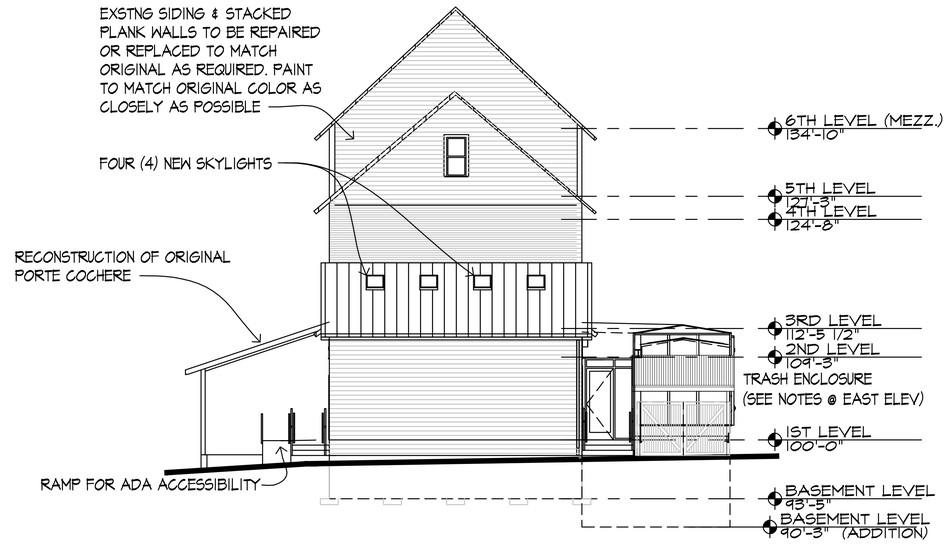
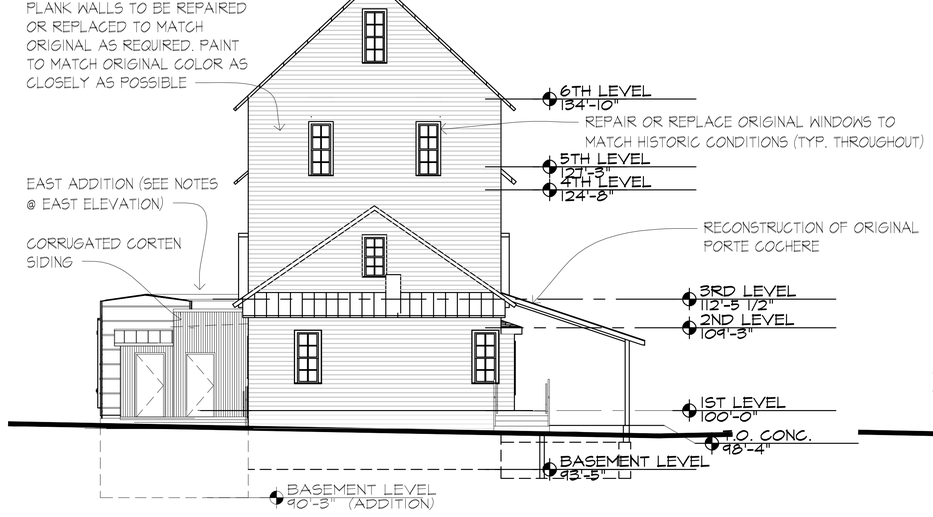


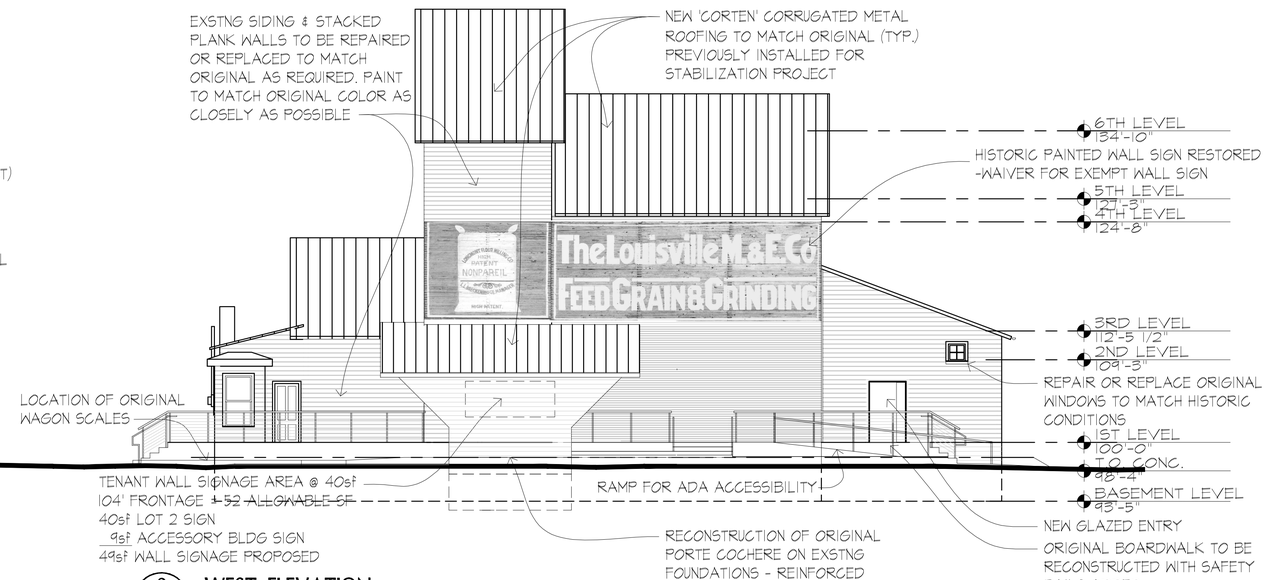

5 / A5 **EAST ELEVATION**
SCALE: 1/8" = 1'-0"




4 / A5 **SOUTH ELEVATION**
SCALE: 1/8" = 1'-0"



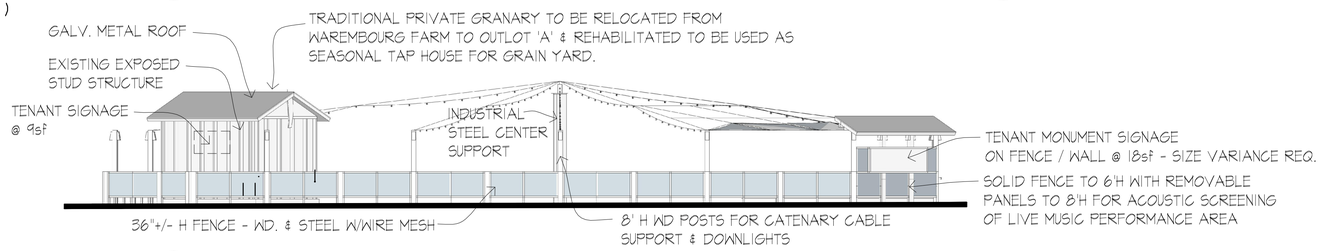

3 / A5 **NORTH ELEVATION**
SCALE: 1/8" = 1'-0"




2 / A5 **WEST ELEVATION**
SCALE: 1/8" = 1'-0"

NOTE: HISTORIC LOUISVILLE GRAIN ELEVATOR TO BE RENOVATED FOR COMMERCIAL USE PER THE NATIONAL PARK SERVICE AND SECRETARY OF THE INTERIOR (NPS/SOI) STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES ACCORDING TO THE GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS.

)




1 / A5 **WEST SITE ELEVATION - GRANARY & FENCE**
SCALE: 1/8" = 1'-0"

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

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**BUILDING ELEVATIONS**

Sheet
**A5**
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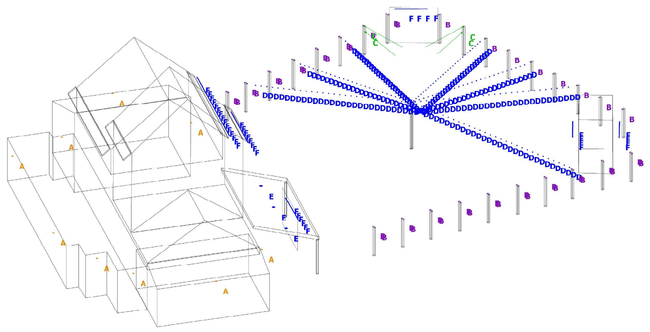
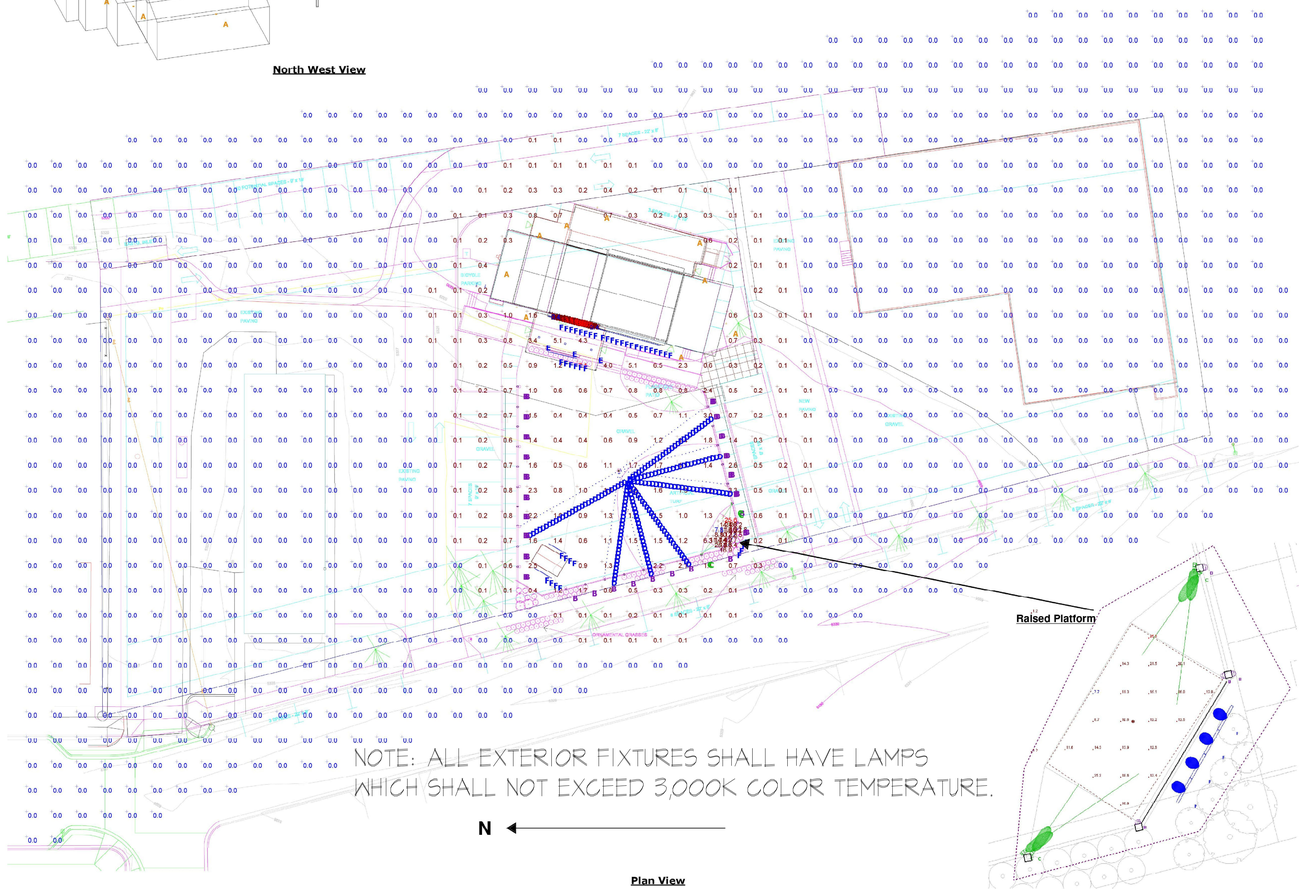
**Luminaire Schedule**

| Symbol | Label | Quantity | Manufacturer | Catalog Number | Description | Lamp | Number Lamps | Filename | Lumens Per Lamp | Light Loss Factor | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | 9 | 90+ LIGHTING | | | A19 10W 820lm 3000K E26 PF 0.7 | 24 | SE-350.050_A19_10W_820lm_3000K_E26_PF_0.7.ies | 33 | 1 | 9.6 |
| | B | 43 | WAC LIGHTING | WS-W14911-XX | Surface-mounted Luminaires | | 1 | WS-W14911_IESF.IES | 269 | 1 | 7.74136 |
| | C | 4 | LUMINIS | SC355-L1L10-FLD-40K | Scopo 3 | (1) Bridgelux BXRC-40E2000-D-73 c/w Philips-XI055C180V054BSJ1 @ 120.00V | 1 | SC355-L1L10-FLD--40K.ies | 922 | 1 | 12.5 |
| | D | 194 | Tivoli, LCC | LSL2-B-12-V-30-O | | | 1 | 7828-LSL2-B-12-V-30-O.ies | 63 | 1 | 0.8 |
| | E | 3 | Juno Lighting | JSFSQ 7IN 10LM 30K 90CRI MVOLT ZT WH | 7" Square Edgelit (Slimform) Surface Mount, 3000K, 90CRI, MV | N/A | 1 | JSFSQ 7IN 10LM 30K 90CRI MVOLT ZT WH.ies | 1097 | 1 | 12.9 |
| | F | 41 | LUMENPULSE | LFP-120/277-24-3.75W-30K-30x30-CL-NO+LV | LUMENFACADE PURE This file was created by Lumenpulse to reflect an accessorized configuration. | | 1 | LFP-120_277-24-3.75W-30K-30x30-CL-NO+LV.ies | 603 | 1 | 7.21 |





North West View

Raised Platform

NOTE: ALL EXTERIOR FIXTURES SHALL HAVE LAMPS WHICH SHALL NOT EXCEED 3,000K COLOR TEMPERATURE.

N

Plan View

1 A6 SITE PHOTOMETRIC

1" = 30'

0 1.5 10 25 50 100 FEET

NORTH

**Statistics**

| Description | Symbol | Avg | Max | Min | Max/Min | Avg/Min | Avg/Max |
|---|---|---|---|---|---|---|---|
| RAISED PLATFORM | + | 15.1 fc | 25.6 fc | 7.8 fc | 3.3:1 | 1.9:1 | 0.6:1 |
| SITE | + | 0.1 fc | 7.1 fc | 0.0 fc | N/A | N/A | 0.0:1 |

*CLICK ON FIXTURE IMAGES TO LINK TO PRODUCT PAGES*



A: BASELITE CAFE LITE
(W/90+ LIGHTING A19 LAMP)



B: WAC SLANT



C: LUMINIS SCOPO 355



E: JUNO SLIMFORM



D: TIVOLI LITESPHERE 2.0



F: LUMENPULSE LUMENFACADE PURE

*CLICK ON FIXTURE IMAGES TO LINK TO PRODUCT PAGES*

**Note**

Lighting calculation software is for estimating purposes only, not generating exact values.

These calculations are for the use and adoption by our clients and theirs' solely at their discretion. This includes evaluation of the calculated lighting levels and model by the Architect, Engineer, Lighting Designer or Owner for adherence to the project's lighting specifications for levels and uniformity.

We make no guarantees of meeting any subjective expectations. Calculations are based on a model only. Space characteristics and electrical supply to fixtures, along with installation details, may alter fixture output and model performance. Model is based on standard reflectance values unless otherwise noted.

Any variance from reflectance values, obstructions, light loss factors (including both physical and electrical in nature) or dimensional data will affect the actual light levels obtained.

Final construction drawings and calculations are the responsibility of a licensed architect or engineer.

The Lighting Agency provides these calculations as a courtesy for evaluation only.

**Note**

1.file=visual-files-may2025-millsite3--louisville grain - r2.vsl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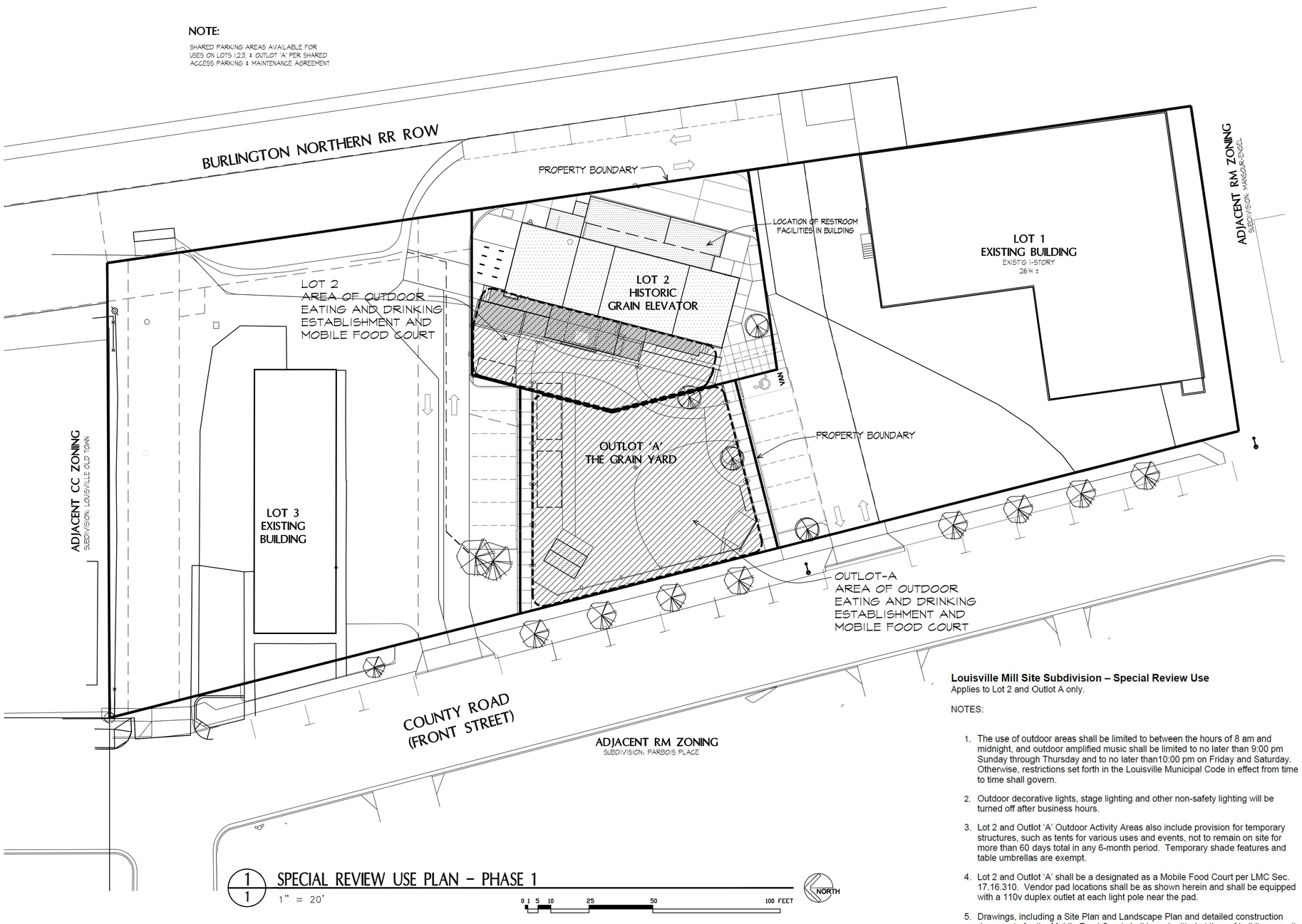
SITE PHOTOMETRIC

Sheet
**A6**
6 of 11 Sheets

# SPECIAL REVIEW USE - AMENDMENT - PHASE 1
# LOUISVILLE MILL SITE REDEVELOPMENT
## LOUISVILLE MILL SITE SUBDIVISION

**LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO**




**Louisville Mill Site Subdivision – Special Review Use**
Applies to Lot 2 and Outlot A only.

NOTES:

1. The use of outdoor areas shall be limited to between the hours of 8 am and midnight, and outdoor amplified music shall be limited to no later than 9:00 pm Sunday through Thursday and to no later than10:00 pm on Friday and Saturday. Otherwise, restrictions set forth in the Louisville Municipal Code in effect from time to time shall govern.
2. Outdoor decorative lights, stage lighting and other non-safety lighting will be turned off after business hours.
3. Lot 2 and Outlot 'A' Outdoor Activity Areas also include provision for temporary structures, such as tents for various uses and events, not to remain on site for more than 60 days total in any 6-month period. Temporary shade features and table umbrellas are exempt.
4. Lot 2 and Outlot 'A' shall be a designated as a Mobile Food Court per LMC Sec. 17.16.310. Vendor pad locations shall be as shown herein and shall be equipped with a 110v duplex outlet at each light pole near the pad.
5. Drawings, including a Site Plan and Landscape Plan and detailed construction documents for the Mobile Food Court shall be submitted at time of building permit indicating compliance with requirements of LMC Sec. 17.16.310.D.5, as well as compliance with applicable building codes and Boulder County Health Department requirements.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SPECIAL REVIEW USE

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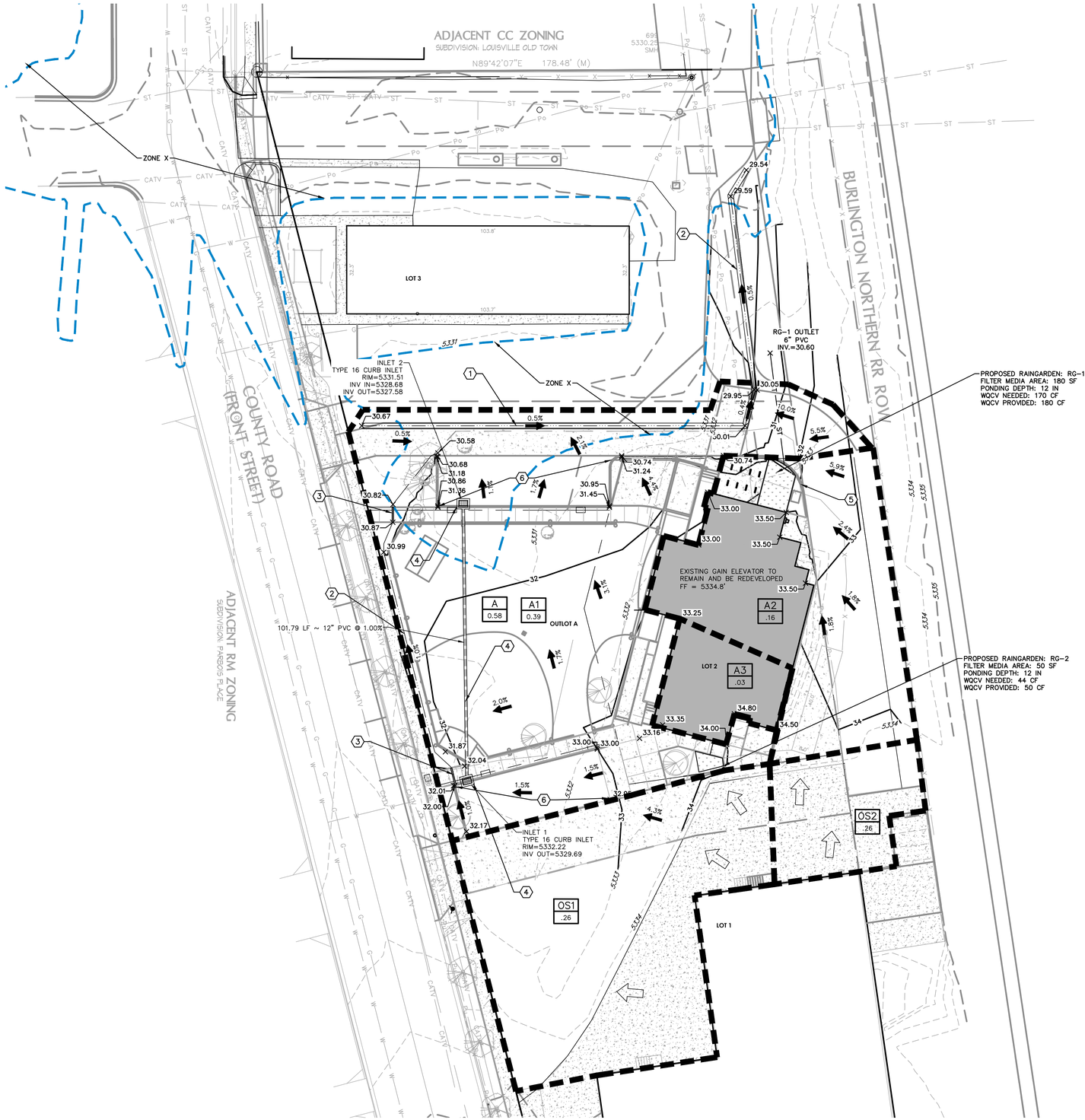
**A7**
7 of 11 Sheets




## LEGEND

| | |
|---|---|
| 5 | PROPOSED CONTOUR<br>ADD 5300 TO ALL CONTOURS |
| X 25.8 | PROPOSED SPOT ELEVATION<br>ADD 5300 TO ALL SPOT ELEVATIONS |
| X 25.8 | EXISTING SPOT ELEVATION |
| | PROPOSED FLOW DIRECTION |
| | HISTORIC SHEET FLOW |
| A / 1 | PROPOSED SUB-BASIN DESIGNATION<br>AREA IN ACRES |
| | PROPOSED BASIN BOUNDARY |

## GRADING NOTES

1. FLOOD INFORMATION: ACCORDING TO FEMA FLOOD INSURANCE MAP NO. 08013C0582K DATED 08/15/2019, THE NORTH OF OUTLOT A IS LOCATED IN ZONE X (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREA LESS THAN 1 SQUARE MILE. THE ENTIRETY OF LOT 2 IS OUTSIDE OF ANY MAPPED FLOODPLAIN.
2. BENCHMARK INFORMATION: CITY OF LOUISVILLE LP5, FOUND 2.5" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E ¼ CORNER OF SECTION 8 ELEVATION=5349.49' (NAVD88). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
3. THE LOCATION OF THE ABOVE GROUND UTILITIES SHOWN HEREON ARE BASED ON THE FIELD SURVEY BY SITESURVEYS LLC DATED 08/26/2015. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON SAID SURVEY AND INFORMATION PROVIDED BY OTHERS (WHICH MAY INCLUDE THE UTILITY OWNER OR UTILITY LOCATING SERVICES). SITEWORKS, LLC. IS NOT RESPONSIBLE FOR UTILITY INFORMATION PROVIDED BY OTHERS. SITEWORKS, LLC. RECOMMENDS THAT THE LOCATION OF THE UTILITIES BE FIELD VERIFIED PRIOR TO ANY DIGGING ON, OR ADJACENT TO THE SUBJECT PROPERTY.

## KEYED NOTES

1. PROPOSED 2' CONCRETE SWALE.
2. PROPOSED GRAVEL SWALE.
3. PROPOSED SIDEWALK CHASE.
4. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPMENT. STEEL COVER TO GO OVER STORM SEWER INLETS TO PREVENT ANY DRAINAGE UNTIL FUTURE DEVELOPMENT.
5. PROPOSED 12" CURB CUT TO ALLOW RUNOFF TO DRAIN INTO RAINGARDEN THROUGH SLOTTED CURB.
6. PROPOSED PARKING AREAS COMPRISED OF 6" OF COMPACTED CLASS 6 ROADBASE TOPPED WITH 2" OF DECORATIVE GRAVEL.

N

Scale: 1" = 20'

0 10 20 40

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

520 & 540 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC - Louisville's Living Room LLC

PHASE I FINAL PUD AMENDMENT

PROJECT # 25138A
DATE: 09/12/2025
DRAWN BY: DRS
CHECKED BY: DPA
REVISIONS:

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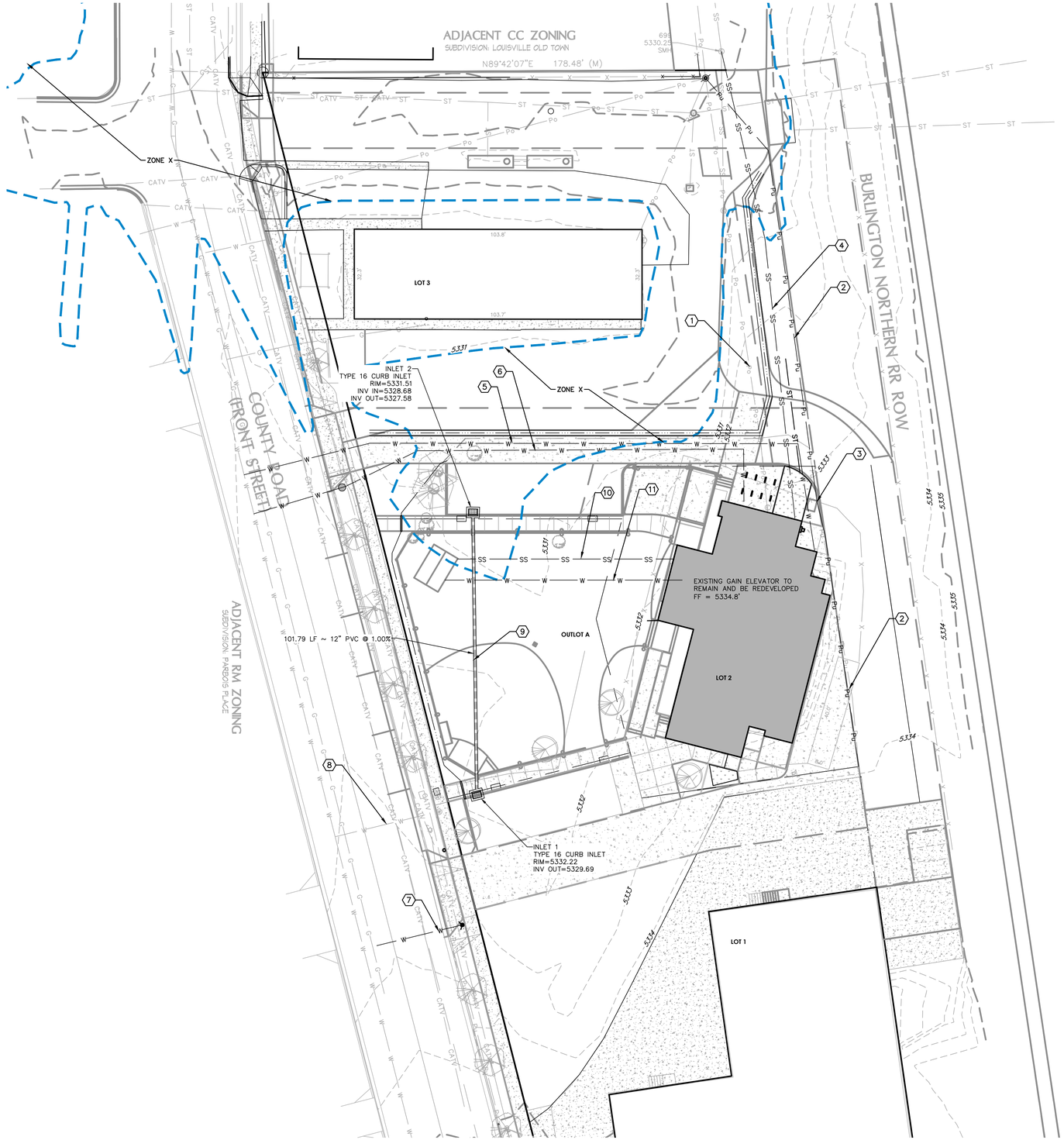
GRADING & DRAINAGE PLAN

Sheet
C-101
1 of 4 Sheets




## LEGEND

- EXISTING CONTOUR
- EXISTING SEWER CLEANOUT
- EXISTING WATER METER
- EXISTING STORM MANHOLE
- EXISTING WATER VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FIRE HYDRANT
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING SANITARY SEWER W/MANHOLE
- EXISTING WATER W/FIRE HYDRANT
- EXISTING STORM SEWER W/MANHOLE
- PROPOSED WATER W/FIRE HYDRANT
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED GAS SERVICE
- PROPOSED WATER METER

## KEYED NOTES ①

1. EXISTING OVERHEAD ELECTRIC TO BE REMOVED.
2. PROPOSED UNDERGROUND ELECTRIC. TO CONNECT TO LOT 1 FEED.
3. PROPOSED TRANSFORMER.
4. PROPOSED 6" SANITARY SEWER SERVICE.
5. PROPOSED 4" FIRE SERVICE.
6. PROPOSED 1" DOMESTIC SERVICE WITH METER PIT.
7. PROPOSED 6" FIRE HYDRANT LINE.
8. EXISTING 3/4" IRRIGATION SERVICE WITH METER PIT TO REMAIN.
9. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPEMENT. STEEL COVER TO GO OVER SEWER INLETS TO PREVENT ANY DRAINAGE UNTIL FUTURE DEVELOPMENT.
10. PROPOSED 6" SANITARY SEWER SERVICE TO CONNECT TO TAP HOUSE.
11. PROPOSED 1" DOMESTIC SERVICE TO CONNECT TO TAP HOUSE.

Scale: 1" = 20'
0 10 20 40

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

520 & 540 COUNTY ROAD, LOUISVILLE, CO

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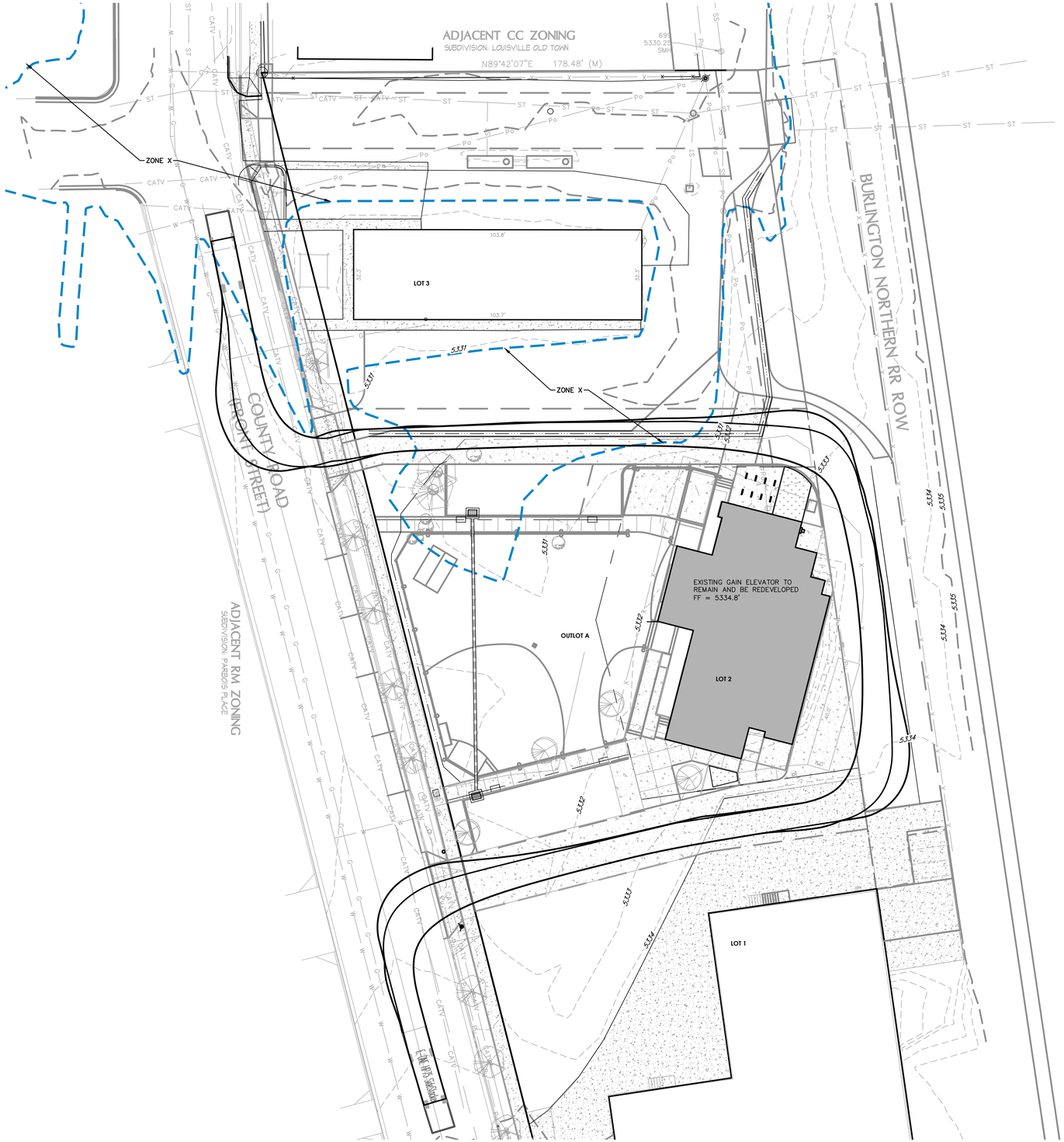
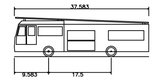
UTILITY PLAN

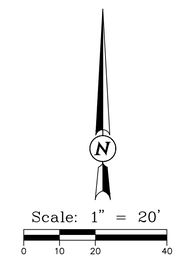
Sheet
C-102
2 of 4 Sheets




## LEGEND




| | |
|---|---|
| E-ONE HP75 SideStacker | |
| Overall Length | 37.583ft |
| Overall Width | 8.333ft |
| Overall Body Height | 11.000ft |
| Min Body Ground Clearance | 1.393ft |
| Track Width | 8.333ft |
| Lock-to-lock time | 6.00s |
| Max Wheel Angle | 45.00° |

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520 & 540 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC – Louisville's Living Room LLC

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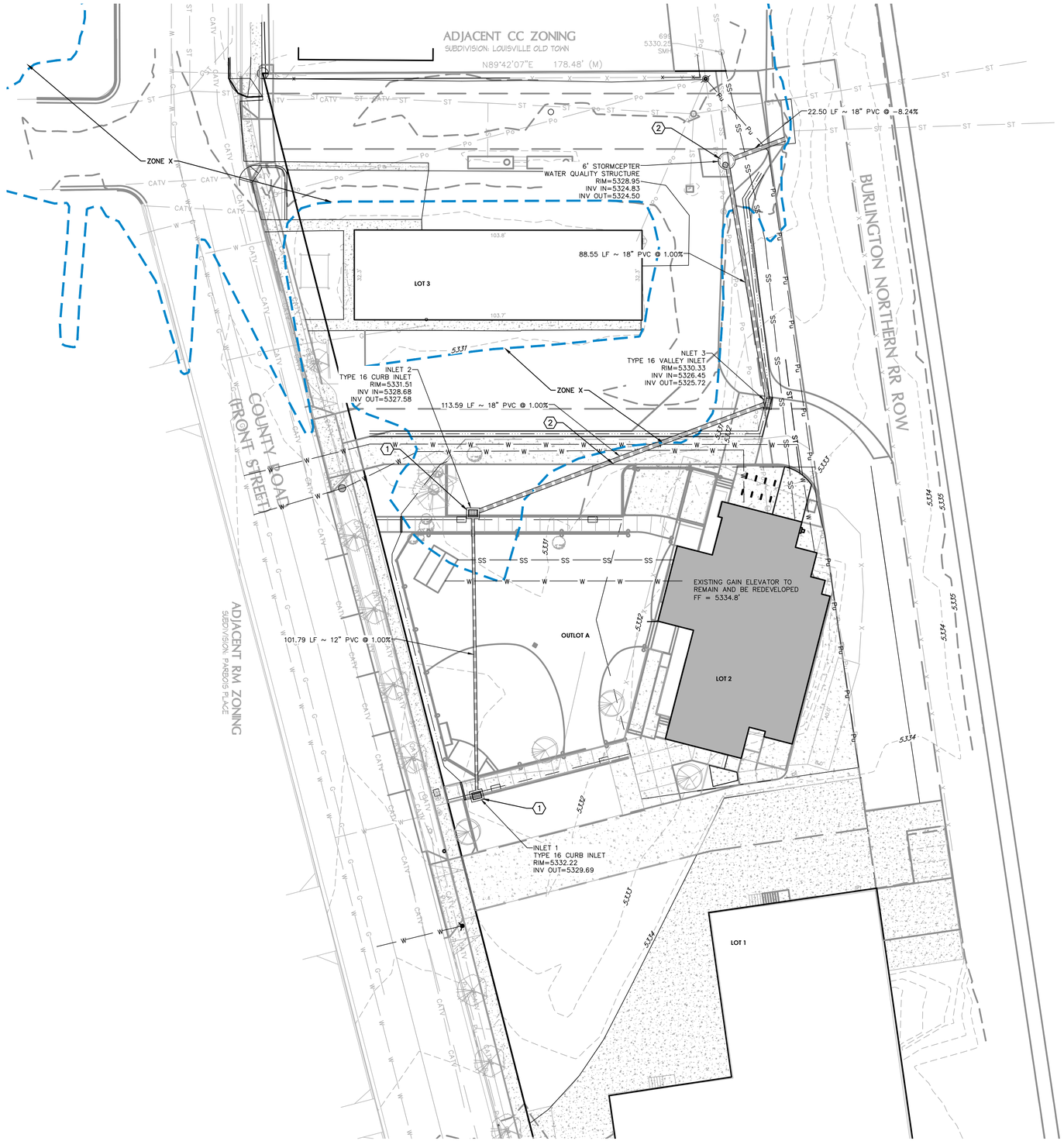
**TURNING ANALYSIS**

Sheet

C-103

3 of 4 Sheets




## LEGEND

- EXISTING CONTOUR
- EXISTING SEWER CLEANOUT
- EXISTING WATER METER
- EXISTING STORM MANHOLE
- EXISTING WATER VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FIRE HYDRANT
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING SANITARY SEWER W/MANHOLE
- EXISTING WATER W/FIRE HYDRANT
- EXISTING STORM SEWER W/MANHOLE
- PROPOSED WATER W/FIRE HYDRANT
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED GAS SERVICE
- PROPOSED WATER METER

## KEYED NOTES ①

1. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE TIE IN. STEEL COVER TO BE REMOVED AND INLETS ALLOWED TO DRAIN.
2. PROPOSED PHASE 2 STORM SEWER IMPROVEMENT. PARKING LOT INLETS TO DRAIN INTO STORMCEPTER AND TIE INTO EXISTING TYPE R INLET.

N

Scale: 1" = 20'

0 10 20 40

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

520 & 540 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC – Louisville's Living Room LLC

PHASE I
FINAL PUD
AMENDMENT

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UTILITY PLAN PHASE 2

Sheet

C-201

4 of 4 Sheets

**Grain Yard - Southwest**
**View From East Side of Street**




**Grain Yard - Southwest**
**View From West Side of Street**




**Grain Yard - West**
**View From West Side of Street**




**Grain Yard - Northwest**
**View From West Side of Street**



**PARKING AGREEMENT**

This Parking Agreement is made and entered into on this 21 day of FEBRUARY, 2025, by and between:

RCC, LCC, owner of 500 County Rd, Louisville, CO 80027

LMS, LLC owner of 540 County Rd, Louisville, CO 80027

LLR, LLC, owner of 540 County Rd, Louisville, CO 80027

544CR, LLC, owner of 544 County Rd, Louisville, CO 80027

This Agreement is between the property owners of 500, 540, and 544 County Road. The purpose of this Agreement is to establish shared use of parking spaces among all businesses operating on the properties owned by the parties. This Agreement remains in effect unless terminated by one of the members of the agreement in writing.

**Owner of 500 County Rd, RCC, LLC:**
Signature: _____
Name: RANDALL C CARANCI
Date: 2-21-2025

**Owner 1 - 540 County Rd, LMS, LLC:**
Signature: _____
Name: J. ERIK HARTRONFT
Date: 2.21.25

**Owner 2 - 540 County Rd, LLR, LLC:**
Signature: _____
Name: JAMES DICKINSON
Date: 2/21/25

**Owner 1 - 544 County Rd, 544CR, LLC:**
Signature: _____
Name: RANDALL C CARANCI
Date: 2-21-2025

**Owner 2 - 544 County Rd, 544CR, LLC:**
Signature: _____
Name: J. ERIK HARTRONFT
Date: 2.21.25

04074731 01/29/2025 04:06 PM
RF: $93.00 Page 1 of 17
Recorded in Boulder County Colorado. Recorded as received.

# COMMON AREA USE, MAINTENANCE AND MANAGEMENT AGREEMENT (LOUISVILLE MILL SITE SUBDIVISION)

THIS COMMON AREA USE, MAINTENANCE, AND MANAGEMENT AGREEMENT ("**Agreement**") is made this 23rd day of January, 2025, by and between **R.C.C., LLC**, a Colorado limited liability company formerly known as **RCC LTD.,** a partnership ("**L1 Owner**") having an address of 441 Elk Trail, Lafayette, CO 80026 ("**L1 Owner**"), **LOUISVILLE MILL SITE LLC**, a Colorado limited liability company having an address of 950 Spruce Street, Suite 2C, Louisville, CO 80027 ("**L2 Owner**" and "**OA Owner**" or collectively "**L2/OA Owner**), and 544CR LLC, a Colorado limited liability company having an address of 950 Spruce Street, Suite 2C, Louisville, CO 80027 ("**L3 Owner**"). L1 Owner, L2/OA Owner, and L3 Owner may be collectively referred to as the "**Owners**" or individually as an "**Owner**."

**RECITALS:**

A. L1 Owner is the owner of certain real property located at 500 County Road, Louisville, Colorado,, more particularly described as Lot 1, Louisville Mill Site Subdivision, County of Boulder, State of Colorado ("**Lot 1**").

B. L2/OA Owner is the owner of certain real property located at 540 and 520 County Road, Louisville, Colorado, more particularly described as Lot 2 and Outlot A, Louisville Mill Site Subdivision, County of Boulder, State of Colorado ("**Lot 2**" and "**Outlot A**" respectively).

C. L3 Owner is the owner of certain real property located at 544 County Road, Louisville, Colorado, more particularly described as Lot 3, Louisville Mill Site Subdivision, County of Boulder, State of Colorado (the "**Lot 3**").

D. L1 Owner is also the Lessee under a lease for certain land adjacent to the Louisville Mill Site Subdivision which is owned by The Burlington Northern and Santa Fe Railway Company as shown on **Exhibit B** attached hereto and incorporated herein by this reference (the "**BNSF Lease Area**").

E. Lot 1, Lot 2, Outlot A, Lot 3, and the BNSF Lease Area (for so long as any Owner under this agreement or its successors and/or assigns are lessee thereof) are collectively referred to as the "**Properties**." The legal description of the Properties are depicted on the plat shown on **Exhibit A** and incorporated herein by this reference.

F. The Owners wish to grant and receive a reciprocal perpetual easement for pedestrian and vehicular use, ingress and egress over, upon and across the parking lots, sidewalks, and other outdoor spaces within their respective owned and leased Properties generally accessible by the public shown on **Exhibit C** attached hereto and incorporated herein by this reference, or any future generally public spaces constructed, redesigned, or repurposed (the "**Common Area**"), and to grant to the other Owners a construction easement allowing the respective Owners to construct, maintain, replace, alter and repair the Common Areas, as more particularly set forth herein.

G. The Owners wish to grant and receive a reciprocal perpetual easement for providing utility and drainage facilities across and below their respective Properties, and to grant to the other Owners a construction easement allowing the respective Owners to construct, maintain, replace, alter and repair the utility and drainage easement areas, as more particularly set forth herein.

H. The Owners wish to establish certain rights relating to the use of Outlot 'A' located within the L2/OA Owner's Property, as more particularly set forth herein.

I. The Owners wish to establish certain rights related to reciprocal parking on their respective Properties, as more particularly set forth herein.

J. Additionally, the Owners desire to seek approval for a Planned Unit Development, Special Review Use, and other necessary approvals per the City of Louisville for improvements on each of the Properties, and the Owners agree to cooperate with each other regarding such approvals irrespective of which properties may be involved in such approvals.

NOW, THEREFORE, in exchange for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and the mutual covenants and promises of the parties hereto, the parties enter into this Agreement upon the following terms and conditions.

**AGREEMENT**

1. Recitals. The parties acknowledge that the foregoing recitals are true and correct and are incorporated herein by this reference.

2. Ingress and Egress Easements.

(a) Each of the Owners hereby grant to each of the other Owners, and their successors, assigns, tenants, their employees, customers and invitees a perpetual, non-exclusive easement appurtenant to the Owners' Properties over, upon and across the Common Area, for pedestrian and vehicular ingress and egress and required emergency access between the Properties as depicted in Exhibit C attached hereto and incorporated herein by this reference (the "**Common Area Easement**").

(b) The annual/monthly rental cost of the lease for the BNSF Lease Area shall be split evenly between the Owners of Lot 1, Lot 2, and Lot 3 and their successors and/or assigns. L1 Owner shall bill the other Owners for such cost once annually, no later than August 31 of each calendar year, and the Owners shall reimburse L1 Owner within 30 days of receipt of such rental invoice. If L1 Owner elects to discontinue the Lease for the BNSF Lease Area, L1 Owner shall notify all other Owners no less than 120 days prior to the discontinuance of the Lease to allow other Owners the opportunity to obtain the lease rights to the BNSF Lease Area. If L1 Owner becomes aware of the intent of BNSF, or any representative of the Lessor, to terminate the Lease Agreement for the BNSF Lease Area, L1 Owner shall notify all other Owners immediately.

(c) Each Owner shall be responsible for constructing improvements constituting Common Area within the property such Owner(s) own as required and approved by the City of Louisville at their own expense. However, if required Common Area improvements have not been necessary and/or provided on a given Property at such time that any of the Properties shall require access per this Agreement, the Owner of the Property requiring such access shall be responsible for construction the access improvements required by the City of Louisville at their expense, whether on their Property or another Owner's Property. Each Owner hereby grants to any other Owner and its successors and assigns a construction easement for the construction, repair, replacement and alteration of improvements within the Common Area and any related curbing, sidewalks and other similar improvements from time to time situated within the Common Area which they are necessary

or desirable to construct (the "**Construction Easement**"). Prior to beginning construction, The Owner making such improvements shall obtain the consent to its construction plans by the other affected Owners, which consent shall not be unreasonably conditioned, withheld, or delayed. If the non-construction Owners do not consent or deny consent to such plans within ten (10) days of receipt of notice by the constructing Owner, their consent will be deemed given. At such time that any other Property requires access by virtue of renovations, additions, and/or new construction valued greater than 50% of the value of the improvements on the Property as existing on the date of this Agreement, then the Owner of such Property is required to reimburse the Owner making the initial improvements one third of the cost of such access improvements actually paid by that Owner.

(d) No walls, fences or barriers of any kind shall be constructed or maintained in the Common Area which shall prevent or impair the use or exercise of any of the easements granted in this Agreement. The Common Area shall in no event be blocked, closed, altered, changed or removed and shall at all times remain in place as depicted in plans approved by the City of Louisville. There shall be maintained between the boundaries of the Properties a smooth and level grade transition to allow the use of the Common Area for pedestrian and vehicular ingress and egress. The only exception to this provision shall be (i) temporary barriers to the extent necessary for maintenance and repair of the Common Area, (ii) incidental encroachments which may occur as a result of the use of ladders, scaffolding, storefront barricades or similar facilities resulting in temporary obstruction of the Common Area, so long as their use is kept within reasonable requirements of construction work being expeditiously pursued, (iii) barriers required under applicable laws, rules, regulations or codes, and (iv) temporary closure of the Common Area Easement for construction activities on one or more of the Properties in which case the Parties agree to maintain legal access for operating businesses and required emergency access to all properties during the construction period.

(e) No facility on the Properties for vehicular drive-up or drive-through in which the stopping or standing of motor vehicles in line at a location for drop off and/or pickup is intended (as, for example, at a restaurant, car wash or bank) shall be assigned, constructed, used or operated in any manner on any of the Owners' Properties such that motor vehicles in line at such facility stop or stand onto any of the other Owners' Properties, and under no circumstances shall such stacking of vehicles extend onto the Common Area or otherwise interfere with the normal pattern and flow of pedestrian or vehicular traffic on and across the other Owners' Properties and/or the Common Area.

(f) Nothing in this Section 2 shall be deemed to create any easement for parking upon any of the Owners' properties, or within the Common Area. Owners and their customers, agents, guests, invitees, and licensees shall be required to park on such Owners' property.

3. Utility and Drainage Easements.

(a) Each of the Owners hereby grant to each of the other Owners, and their successors, and assigns, a perpetual, non-exclusive easement appurtenant to the Owners' Properties over, across and under the portion of the Owners' respective Properties as depicted in **Exhibit D** attached hereto and incorporated herein by this reference (the "**Utility and Drainage Easement Area**"), for locating utility service lines and storm water drainage and storm water quality facilities for the benefit of the Properties (the "**Utility and Drainage Easement**").

(b) At such time that any of the Properties shall require any utility service and/or drainage facilities to be placed within the Utility and Drainage Easement Area per this Agreement, the

Owner of the Property requiring such utilities and/or drainage shall be responsible for constructing the improvements as required at their expense. Each Owner hereby grants to any other Owner and its successors and assigns a construction easement for the construction, repair, replacement and alteration of such improvements within the Utility and Drainage Easement and any related surface improvements and other similar improvements from time to time situated within the Utility and Drainage Easement Area (the "**Construction Easement**"). Prior to beginning construction, The Owner making such improvements shall obtain the consent to its construction plans by the other affected Owners, which consent shall not be unreasonably conditioned, withheld, or delayed. At such time that any other Property requires the use of any of the previously constructed common utility service lines, equipment, etc. or increased stormwater drainage, by virtue of renovations, additions, and/or new construction, then the Owner of such Property is required to reimburse the Owner making the initial improvements one third of the cost of such utility(ies) or drainage facilities and similar improvements actually paid by that Owner.

4. Use of Outlot A and Other Provisions.

(a) L2/OA Owner hereby grants to each of the other Owners, and their successors, assigns, and to the benefit of their tenants, their employees, customers and invitees, a perpetual, non-exclusive license appurtenant to a portion of Outlot A located within Lot 2 (the "**License Area**"), for certain events and use as determined from time to time by L2/OA Owner and any of the other Owners. The boundaries of the License Area and schedule for the use of the License Area shall be determined at time of use and agreed to in a written License Agreement approved by L2/OA Owner, which approval shall not be unreasonably withheld, conditioned, or delayed. The Owner utilizing the License Area agrees that any alcohol consumed thereon shall be purchased from L2/OA Owner's tenant for the Property as long as that tenant (or L2/OA Owner) holds a liquor license for the License Area, and L2/OA Owner agrees that the cost to use the License Area shall not exceed $10 per event. Other specific provisions shall be enumerated in the License Agreement executed for each event.

(b) Potential Future Underground Parking Garage. L2/OA Owner hereby grants to L3 Owner, and their successors, assigns, a perpetual, non-exclusive easement appurtenant to the subsurface and areas of the surface necessary for access to Outlot A for purposes of constructing an underground parking garage. The Owners shall have shared rights to any parking created in this location pro rata in proportion to each Owner's contribution to the costs related to the construction of the parking garage. No surface parking shall be allowed on Outlot A. Any improvements, landscaping or other fixtures or property disturbed by the construction of the underground parking garage by L3 Owner on Outlot A shall be restored to the condition existing prior to underground parking construction. Parties shall endeavor to schedule the construction for the underground parking garage to primarily occur between August and April of the following year to minimize disruption of the business of L2/OA Owner's tenant. Parties shall determine an equitable compensation for loss of revenue for any of the businesses located on the Properties during construction. Parties shall agree to which parties to this agreement, or outside this agreement shall be responsible for such loss.

(c) Right of First Offer for Outlot A.

(i) Grant of Right of First Offer. Commencing on the Effective Date and subject to the terms and conditions hereinafter provided OA Owner hereby grants to each of the other Owners a continuing and exclusive right of first offer to purchase the Outlot A.

(ii) Offer Notice. If OA Owner desires to sell, offer to sell, or otherwise transfer all or any portion of Outlot A, OA Owner shall first make an offer of the Outlot A or any portion thereof to the other Owners as follows:

(1) OA Owner shall first provide written notice (each, an "**Offer Notice**") thereof to the other Owners stating: (i) its bona fide intention to sell the Outlot A or a portion thereof; (ii) a description of the Outlot A or portion thereof to be offered or sold together with any other real or personal property owned or controlled by OA Owner that is a part of the subject offer or proposed sale (collectively, the "**Offered Property**"); and (iii) the price and terms upon which OA Owner proposes to offer the Offered Property. Such price cannot exceed a 3rd party appraiser's valuation by more than 10%.

(2) The other Owners (or any of the them individually) may elect to acquire all of the Offered Property identified in an Offer Notice in accordance with the terms contained in an Offer Notice by providing written notice (an "**Election Notice**") to OA Owner, within fifteen (15) days after receipt of the Offer Notice, of the other Owners' willingness to enter into a contract for the purchase of the Offered Property upon the terms in the Offer Notice. The other Owners' failure to deliver an Election Notice within such fifteen-day period the other Owners shall be deemed to have rejected the Offered Property. If multiple other Owners elect to acquire the Offered Property, they shall have the option to either: (a) acquire the party as tenants-in-common; or (b) upon the written request of either of the acquiring Owners provided to all Owners, elect to bid for Outlot A (the "**Bid Election Notice**"), in which case each of the acquiring owners shall submit a bid at or above the price in the Offer Notice within five (5) days to OA Owner, and the higher bid shall have the right to proceed with purchase of Outlot A under this Agreement.

(iii) Recurring Right. The rights of the other Owners hereunder with respect to the Outlot A are recurring rights, however, if the other Owners rejects the terms of any particular Offer Notice or otherwise fails to exercise its exclusive right of first offer with respect to a particular Offer Notice as provided herein then OA Owner shall be entitled to offer the applicable Outlot A to other prospective purchasers; provided however, if either: (a) OA Owner desires to offer the applicable Offered Property to a prospective purchaser on economic terms more favorable than those in the applicable Offer Notice by a factor of ten percent (10%) or more; or (b) OA Owner does not close on a sale of the applicable Offered Property within one hundred eighty (180) days of the other Owners' Election Notice, then The other Owners' right of first offer with respect to such portion of the Outlot A shall be re-instated and OA Owner shall be required to comply with the terms of this First Offer Agreement prior to sale of the such portion of the Outlot A.

(iv) Contract Format. Upon delivery of the other Owners' Election Notice to OA Owner, the other Owners and OA Owner shall use commercially reasonable efforts (each party to pay its own expenses incurred with respect thereto, including legal fees and costs) to prepare, execute and mutually deliver a purchase and sale agreement consistent with the offered terms and otherwise substantially consistent with the Offer Notice (each a "**Contract**") with respect to the Offered Property within twenty (20) days after OA Owner's receipt of the Election Notice.

(v) Closing. If The other Owners elects to purchase the Outlot A, the closing shall occur pursuant to the terms of the Contract.

5. Reciprocal Parking Provisions.

(a) Each of the Owners may grant to any or all of the other Owners, by separate agreement, an easement, license, or lease to park upon that Owner's property as deemed to be desirable by the parties.

6. Miscellaneous Provisions

(a) The easements herein above granted shall be used and enjoyed by the Owners respectively, and their respective successors, assigns, tenants, their employees, customers and invitees (collectively, "**Permittees**"), in such a manner so as not to unreasonably interfere with, obstruct or delay the conduct and operations of the business of any other Owner or its Permittees at any time conducted on its property, including, without limitation, public access to and from said business, and the receipt or delivery of merchandise in connection therewith. Once commenced, any construction undertaken in reliance upon the Construction Easement granted herein shall be diligently prosecuted to completion, so as to minimize any interference with the business of any Owner and its Permittees. Except in cases of emergency, the right of any Owner to enter upon the property of another Owner for the exercise of any right pursuant to the easements set forth, or to prosecute work on such Owner's own property if the same interferes with utility or drainage easements or easements of ingress, egress or access to or in favor of another party, shall be undertaken only in such a manner so as to minimize any interference with the business of the other Owner and its Permittees. In such case, no affirmative monetary obligation shall be imposed upon the other Owner(s), and the Owner undertaking such work shall, with due diligence, repair, at its sole cost and expense, any and all damage caused by such work and restore the affected portion of the property upon which such work is performed to a condition which is equal to or better than the condition which existed prior to the commencement of such work. In addition, the Owner undertaking such work shall pay all costs and expenses associated therewith and shall indemnify and hold harmless the other affected Owner(s) and its Permittees from all damages, losses, liens or claims attributable to the performance of such work.

(b) Once one of the Owners has constructed the applicable improvements within the Common Area and/or the Utility and Drainage Easement Area per City of Louisville approved plans, no Owner shall make any changes to the location or configuration of such improvements without the prior written consent of the other Owners, such consent not to be unreasonably withheld, conditioned or delayed.

7. Indemnification. Each Owner having rights with respect to an easement granted hereunder shall indemnify and hold the Owner whose property is subject to the easement harmless from and against all claims, liabilities and expenses (including reasonable attorneys' fees) relating to accidents, injuries, loss, or damage of or to any person or property arising from the exercise by an Owner of its easement rights granted hereunder or arising from the construction of the Easement Area as provided in this Agreement, which are caused by the negligent, intentional or willful acts or omissions of such Owner, its contractors, employees, agents, or others acting on behalf of such Owner.

8. Exculpation. Notwithstanding any other provisions of this Agreement, whether express or implied, or any obligation or duty at law or in equity, no members, officers, directors, stockholders, partners, managers, employees, affiliates, representatives or agents of any Owner (individually, a

"Covered Person" and, collectively, the "Covered Persons") shall be liable to any other party or person for any act or omission taken or omitted by a Covered Person in good faith reliance on the provisions of this Agreement, provided such act or omission does not constitute willful misconduct, gross negligence, or a knowing violation of law.

9. Maintenance and Repair. Each Owner shall maintain and repair those portions of the Common Area on their respective property in good condition and repair to permit the reasonable use of the Common Area Easement granted herein. Regular maintenance such as snow removal within the Common Area shall be split evenly between all Owners. The cost of any repairs to the Common Area shall be split evenly between all Owners. If maintenance and repairs are required for the utility and drainage facilities within the Utility and Drainage Easement Area, the cost of such repair and maintenance shall be split evenly between all Owners.

10. Insurance.

(a) Throughout the term of this Agreement, each Owner shall procure and maintain general and/or comprehensive public liability and property damage insurance against claims for personal injury (including contractual liability arising under the indemnity contained in paragraph 7 above), death, or property damage occurring upon such Owner's Property, with single limit coverage of not less than an aggregate of One Million Dollars ($1,000,000.00) including umbrella coverage, if any, and naming the other Owners (provided the Owner obtaining such insurance has been supplied with the name of such other Owners in the event of a change thereof) as additional insureds. Any insurance coverage required herein may be included in general or blanket policies of insurance. Each Owner shall furnish evidence of such insurance to another Owner within fifteen (15) days following written request.

(b) To the extent of insurance proceeds actually received, each Owner hereby waives and releases the other Owners from any and all liability (to each other and anyone claiming under any of them by subrogation or otherwise) for matters insured or required to be insured hereunder.

11. Non-Conflicting Uses. Nothing in this Agreement shall be construed to prevent an Owner from the reasonable use of the property owned by such Owner, provided such use does not interfere with the other Owners' rights hereunder.

12. Performance of Other Party's Obligations.

(a) In the event of an emergency requiring maintenance or repair to or of the Common Area or the Utility and Drainage Easement Area described herein, if the Owner who is responsible for such maintenance and repair (the "**Responsible Party**") does not, upon reasonable advance notice under the circumstances, undertake the same within a period of time that is reasonable under the circumstances or it does not appear that the Responsible Party will, or will be able to, undertake such maintenance or repair, the other Owner(s) may, at any of their option, perform such maintenance or repair and pay the costs associated therewith (subject to reimbursement from the Responsible Party as described below).

(b) In the event a failure by an Owner hereto to maintain or repair the easement area for which such party is responsible for maintenance and repair results in a material interference with the rights granted to the other Owners by this Agreement or with the use or operation of another

Owner's property, but does not result in an emergency, the other Owner(s) may notify the party in default in writing of such failure. In the event the Owner in default fails to remedy the default within ten (10) days after receipt of such notice or, if such default cannot reasonably be cured within ten (10) days, in the event the Owner in default fails to commence the cure of such default within such ten (10) day period and diligently pursue such cure to completion, the other Owner, or Owners may, at their option, perform the obligation which the Owner in default has failed to properly perform hereunder and pay any and all costs and charges associated therewith.

(c) In any event described in subparagraphs 12(a) or 12(b) above, the performing Owner(s) shall be entitled to recover from the Responsible Party the charges, fees, costs and expenses incurred by the performing Owner(s) in connection therewith (including reasonable attorneys' fees), together with interest thereon at a rate of fifteen percent (15%) per annum from the date of payment. Such charges, fees, costs, expenses and interest shall be paid by the other party within fifteen (15) days from receipt of a statement thereof from the performing Owner(s) (accompanied by reasonable documentation substantiating such statement).

(d) Notwithstanding the foregoing, in the event of (i) a blockage or material impairment of the easement rights, and/or (ii) the unauthorized parking of vehicles on any Owner's property, an Owner may immediately cure the same and be reimbursed by the other party upon demand for the reasonable cost thereof together with interest at the rate of fifteen percent (15%) per annum.

(e) In the event of a violation or threat thereof of any of the provisions of Section 2 of this Agreement, each Owner agrees that such violation or threat thereof shall cause the nondefaulting Owner(s) and/or its Permittees to suffer irreparable harm and such nondefaulting Owner(s) and its Permittees shall have no adequate remedy at law. As a result, in the event of a violation or threat thereof of any of the provisions of paragraphs 2 or 4 of this Agreement, the nondefaulting Owner(s), in addition to all remedies available at law or otherwise under this Agreement, shall be entitled to injunctive or other equitable relief to enjoin a violation or threat thereof of Section 2 of this Agreement. Notwithstanding anything to the contrary, however, in no event shall any Owner become liable to another Owner for, and each Owner hereby waives, consequential, indirect, incidental, punitive, special and/or other speculatory damages arising out of, relating to or in connection with any breach of this Agreement by another Owner.

13. Notices. All notices and demands which may or are to be required or permitted to be given by either party to the other hereunder shall be in writing. All notices and demands shall be sent by personal delivery, receipted overnight delivery, email (if provided), or registered or certified mail, postage prepaid, and to the applicable address below:

To L1 Owner:
R.C.C. LLC
441 Elk Trail
Lafayette, Colorado 80026
Attn: Randy Caranci
Email randy@carancicorp.com

To L2/OA Owner:
Louisville Mill Site, LLC
950 Spruce Street, Suite 2C
Louisville, Colorado 80027

Attn: Erik Hartronft and Caleb Dickinson
Email: erik@hapcdesign.com
caleb@foxpropertymgmt.com

To L3 Owner: 544CR LLC
950 Spruce Street, Suite 2C
Louisville, Colorado 80027
Attn: Erik Hartronft and Randy Caranci
Email: erik@hapcdesign.com
randy@carancicorp.com

Any Owner may at any time change its respective address by sending written notice of the change to the other Owners in the manner hereinabove prescribed. Notices shall be deemed to be given (a) upon receipt (or refusal thereof) if by personal delivery or email, (b) on the first (1st) business day after deposit with a receipted overnight delivery service, or (c) on the third (3rd) business day after mailing, if sent by registered or certified mail, postage prepaid.

14. Attorneys' Fees and Costs. In the event of any dispute arising out of this Agreement, or in the event of enforcement of any of the provisions of this Agreement, the prevailing party shall be entitled to recover its reasonable costs and attorneys' fees from the non-prevailing party.

15. Term and Amendment. This Agreement shall become effective upon its recordation in the Office of the Clerk and Recorder for Boulder County, Colorado, and shall run with the land, regardless of whether specifically mentioned in any subsequent deed or conveyance of all or a part of any of the Properties, and shall be binding on all persons subsequently acquiring all or a part thereof and any tenant or licensee. This Agreement may be amended or modified only by an instrument signed by all Owners. No amendment shall become effective prior to being recorded in the Office of the Clerk and Recorder for Boulder County, Colorado.

16. Applicable Law. This Agreement shall be construed and enforced under the laws of the State of Colorado.

17. Estoppel Certificates. Each Owner, within twenty (20) day of its receipt of a written request from another Owner, shall from time to time provide the requesting Owner, a certificate binding upon such Owner stating: (a) to the best of such Owner's knowledge, whether any party to this Agreement is in default or violation of this Agreement and if so identifying such default or violation; and (b) that this Agreement is in full force and effect and identifying any amendments to the Agreement as of the date of such certificate.

18. Severability. Invalidation of any term or provision of this Agreement, by judgment or court order, shall not affect any of the other provisions hereof which shall remain in full force and effect.

19. Entire Agreement. This Agreement contains all the provisions and terms between the Owners relating to the matters set forth herein, and supersedes all prior or contemporaneous agreement or understanding, written or oral, pertaining to the same.

20. Counterparts. This Agreement may be executed in one or more counterparts, each of which will be deemed an original, and all of which together will constitute one single document.

**[SIGNATURES ON FOLLOWING PAGE]**

IN WITNESS HEREOF, the foregoing instrument has been executed by the parties effective as of the date set forth above.

**L1 OWNER:**

**R.C.C., LLC**
a Colorado limited liability company formerly known as **RCC LTD.**

By: Randall C. Caranci, Manager

STATE OF COLORADO )
) ss
COUNTY OF Boulder )

The foregoing instrument was acknowledged before this 23rd day of January, 2025, by Randall C. Caranci, Manager of R.C.C. LLC, a Colorado limited liability company formerly known as RCC LTD., a partnership.

Witness my hand and official seal.

My commission expires: 3.1.2025

Notary Public

ANGELA MANSFIELD
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20134015234
MY COMMISSION EXPIRES MARCH 1, 2025

**L2/OA OWNER:**

**LOUISVILLE MILL SITE LLC,**
Colorado limited liability company

By: J. Caleb Dickinson, Manager

By: J. Erik Hartronft, Manager

STATE OF COLORADO )
) ss
COUNTY OF Boulder )

The foregoing instrument was acknowledged before this 23rd day of January 2025, by J. Caleb Dickinson, Manager of Louisville Mill Site LLC, a Colorado limited liability company.

Witness my hand and official seal.

My commission expires: 3.1.2025

ANGELA MANSFIELD
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20134015234
MY COMMISSION EXPIRES MARCH 1, 2025

Notary Public

STATE OF COLORADO )
) ss
COUNTY OF Boulder )

The foregoing instrument was acknowledged before this 23rd day of January 2025, by J. Erik Hartronft, Manager of Louisville Mill Site LLC, a Colorado limited liability company.

Witness my hand and official seal.

My commission expires: 3.1.2025

ANGELA MANSFIELD
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20134015234
MY COMMISSION EXPIRES MARCH 1, 2025

Notary Public

**L3 OWNER:**

**544CR LLC,**
a Colorado limited liability company

By: Randall C. Caranci, Manager

By: J. Erik Hartronft, Manager

STATE OF COLORADO )
) ss
COUNTY OF Boulder )

The foregoing instrument was acknowledged before this 23rd day of January, 2025, by Randall C. Caranci, Manager of 544CR LLC, a Colorado limited liability company.

Witness my hand and official seal.

My commission expires: 3.1.2025

ANGELA MANSFIELD
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20134015234
MY COMMISSION EXPIRES MARCH 1, 2025

Notary Public

STATE OF COLORADO )
) ss
COUNTY OF Boulder )

The foregoing instrument was acknowledged before this 23rd day of January, 2025, by J. Erik Hartronft, Manager of 544CR LLC, a Colorado limited liability company.

Witness my hand and official seal.

My commission expires: 3.1.2025

ANGELA MANSFIELD
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20134015234
MY COMMISSION EXPIRES MARCH 1, 2025

Notary Public

# EXHIBIT A

## Louisville Mill Site Subdivision Plat

## EXCERPT Boulder County Reception #03563028

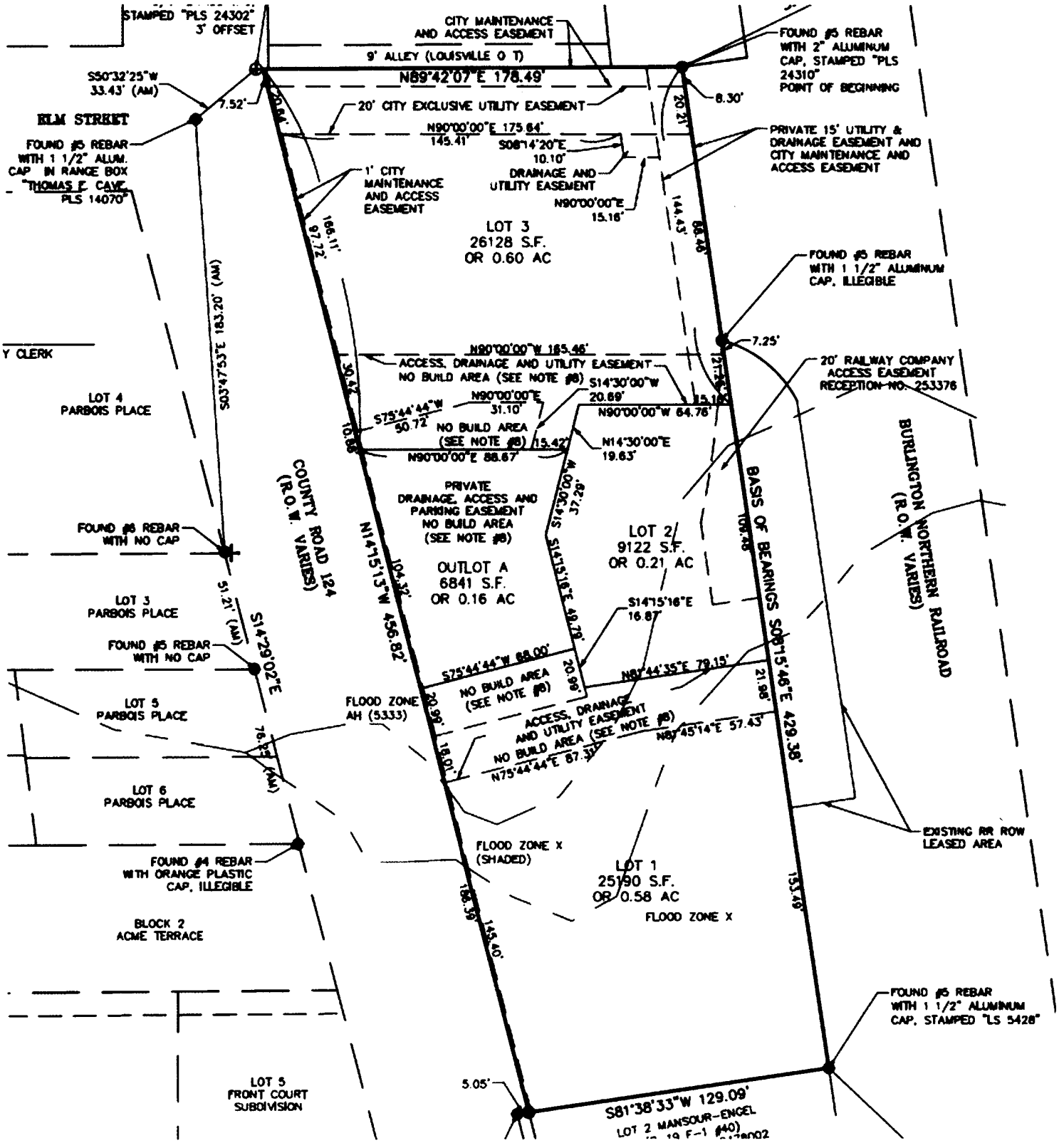



Exhibit A

**EXHIBIT B**

**Lease Exhibit – Caranci Inc. & BNSF Railway Company**

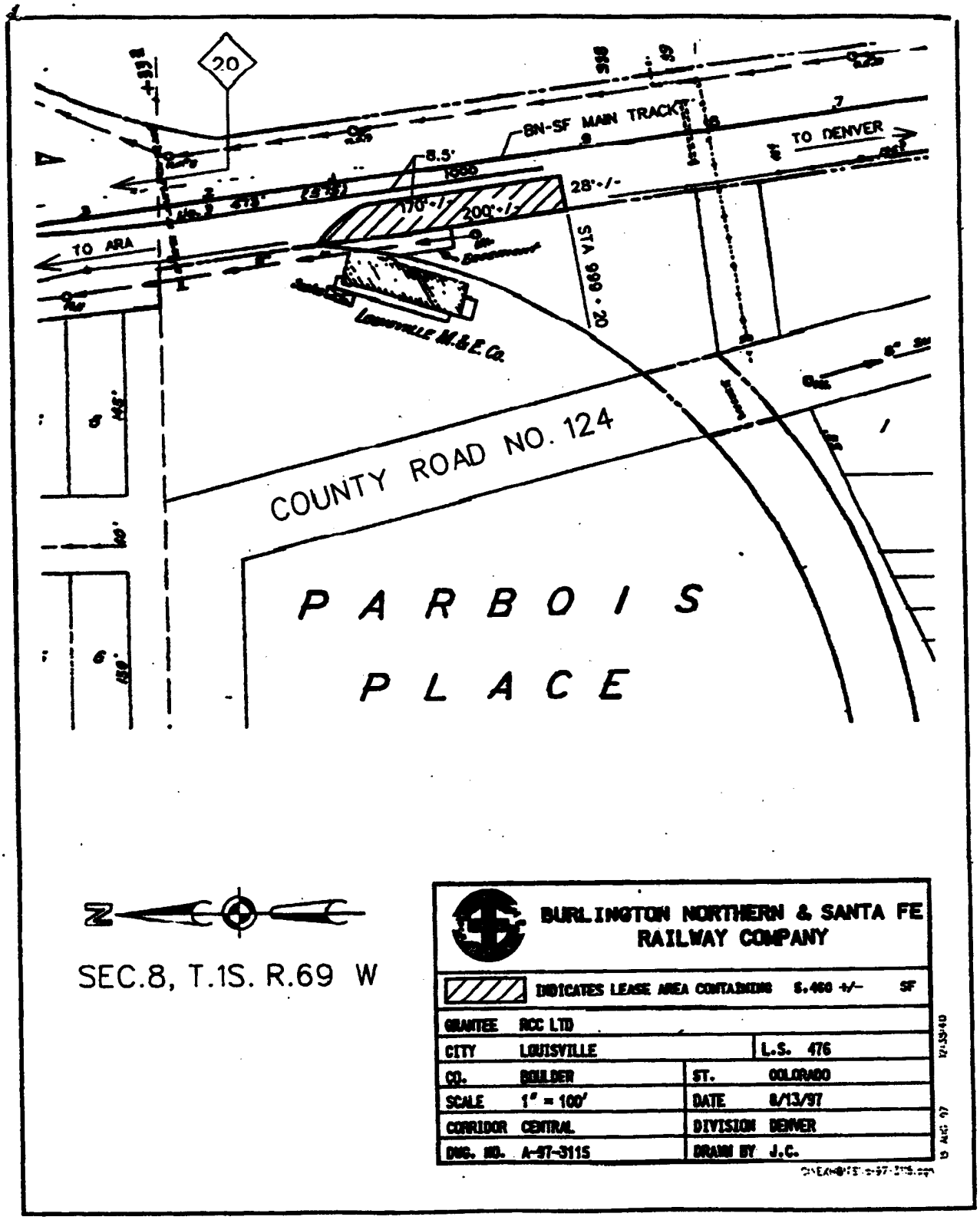



Exhibit B

# EXHIBIT C
## Common Area Easement Depiction

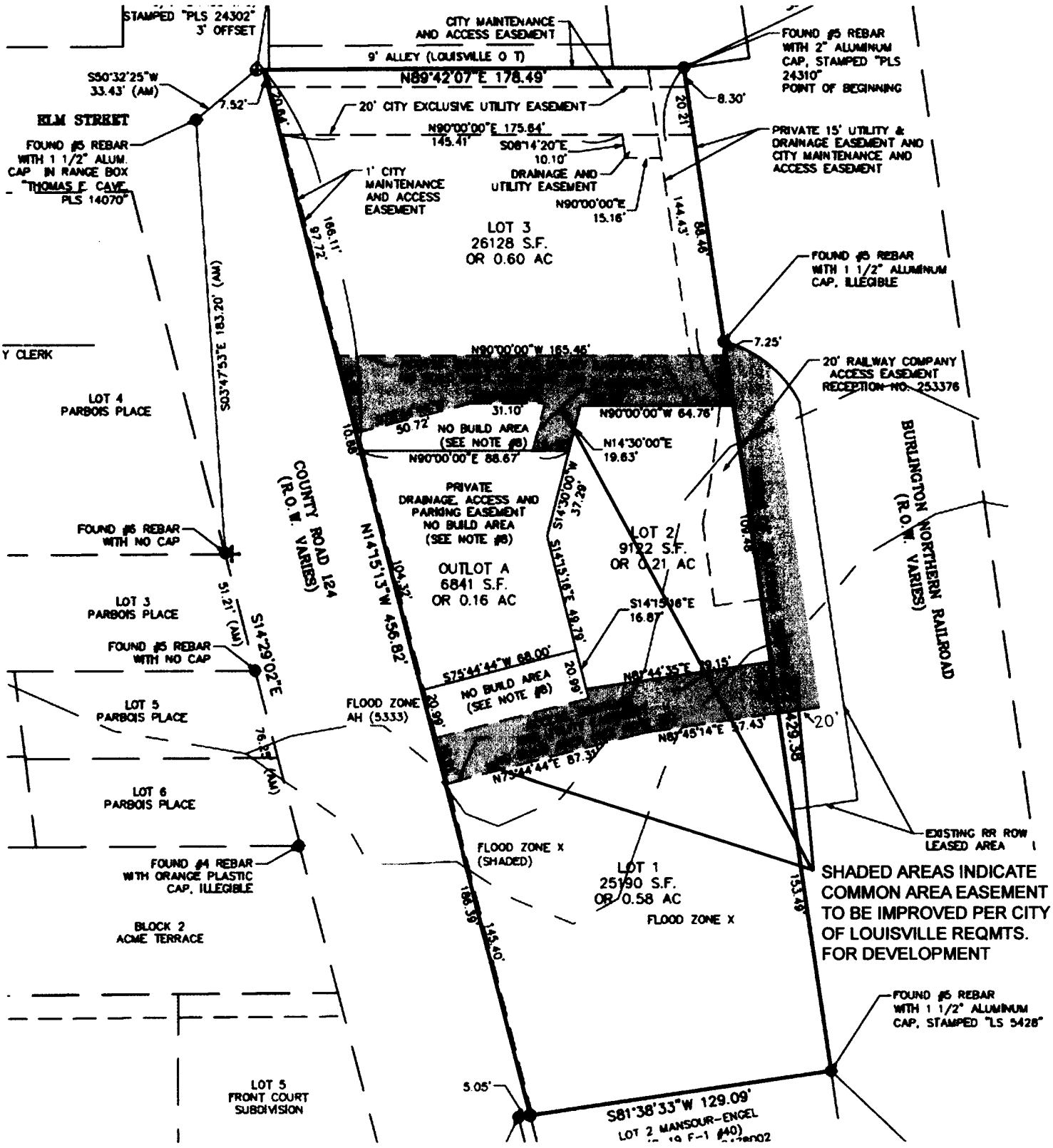



Exhibit C

# EXHIBIT D

## Utility and Drainage Easement

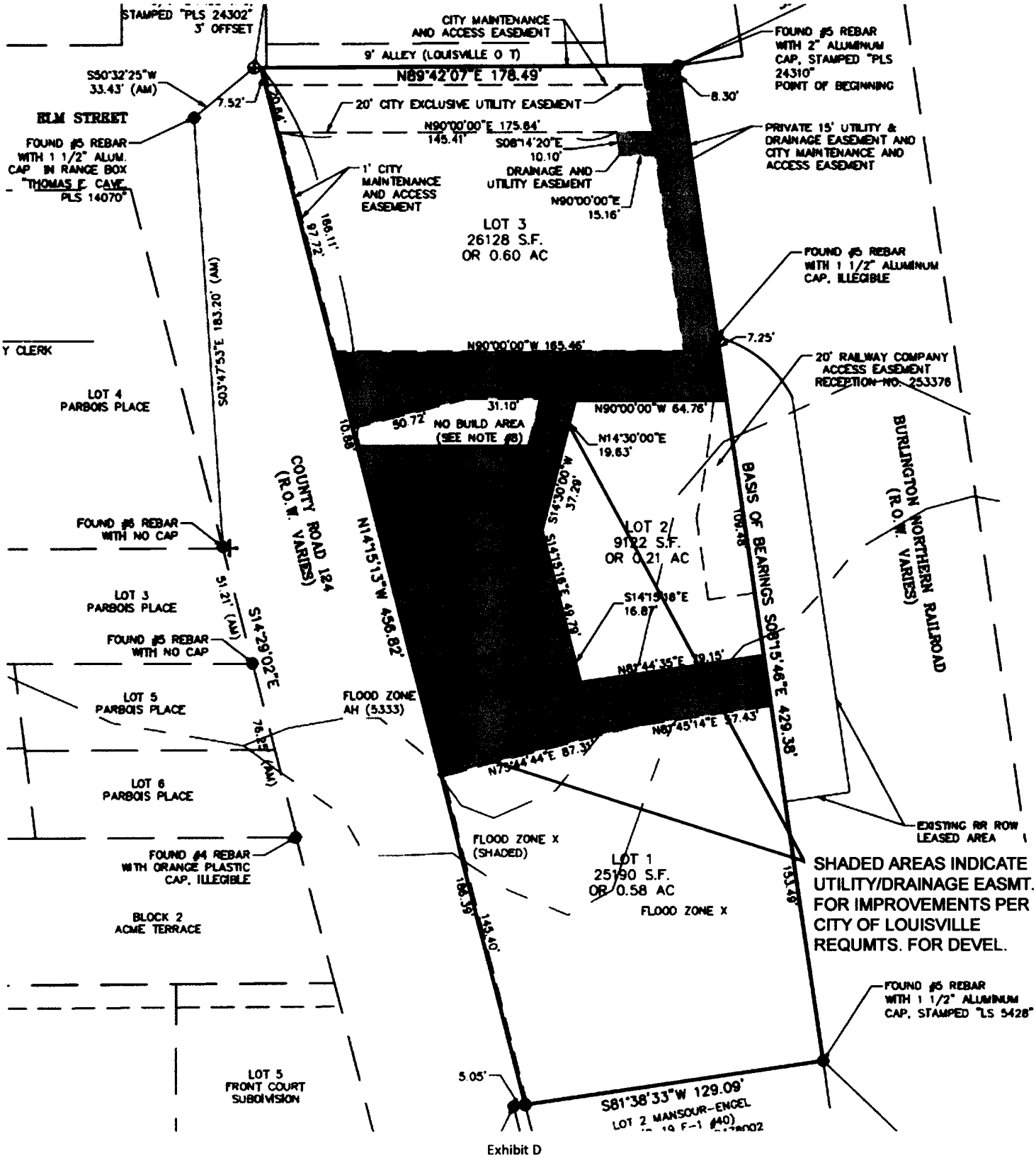



Exhibit D

## LEGAL DESCRIPTION (PER TITLE COMMITMENT)

LOT 1, LOUISVILLE MILL SITE SUBDIVISION, COUNTY OF BOULDER, STATE OF COLORADO.

## TITLE COMMITMENT NOTES

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SITESURVEYS LLC, FIRST AMERICAN TITLE COMMITMENT NO. 5509-4301016, EFFECTIVE DATE 08/19/2025 AT 8:00 A.M. WAS SOLELY RELIED UPON FOR INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY, AND ENCUMBRANCES OF RECORD IN THE PREPARATION OF THIS SURVEY.

THE FOLLOWING ITEMS ARE AS ENUMERATED IN SCHEDULE B-2 EXCEPTIONS. [SURVEYOR'S NOTES]

ITEMS 1-7 STANDARD EXCEPTIONS REFER TO TITLE COMMITMENT.

8- ANY WATER RIGHTS, CLAIMS OR TITLE TO WATER, IN, ON OR UNDER THE LAND, WHETHER OR NOT THE MATTERS EXCEPTED ARE SHOWN BY THE PUBLIC RECORDS. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

9- ANY INTEREST IN ALL OIL, GAS AND OTHER MINERALS AS RESERVED BY UNION PACIFIC COAL COMPANY IN DEED RECORDED AUGUST 31, 1905 IN BOOK 296 AT PAGE 53; TOGETHER WITH ANY RIGHTS OF INGRESS AND EGRESS THEREIN AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.
NOTE: REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT RECORDED MAY 17, 2002 AT RECEPTION NO. 2288491. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE, RAILROAD SHOWN]

10- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN EASEMENT DEED BY COURT ORDER IN SETTLEMENT OF LANDOWNER ACTION RECORDED MARCH 14, 2013 AT RECEPTION NO. 3297035. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

11- NOTES AND EASEMENTS AS SHOWN ON THE PLAT OF LOUISVILLE MILL SITE SUBDIVISION RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563028. [AFFECTS THE PROPERTY AND IS SHOWN]

12-COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS, IF ANY, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, (DELETING ANY RESTRICTIONS INDICATING ANY PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, HANDICAP, FAMILIAL STATUS OR NATIONAL ORIGIN) AS CONTAINED IN INSTRUMENT RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563028 AND ANY AND ALL AMENDMENTS AND/OR SUPPLEMENTS THERETO. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

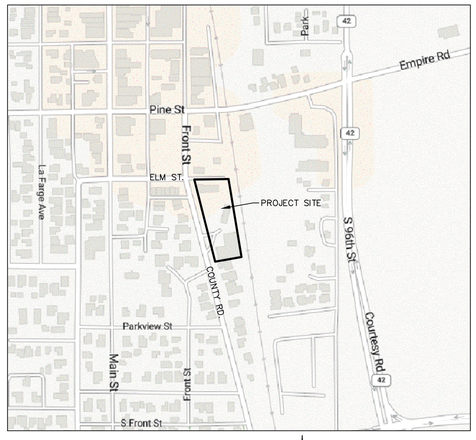
13- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN SUBDIVISION AGREEMENT RECORDED DECEMBER 13, 2016 3563035. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

14- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN FINAL P.U.D. LOUISVILLE MILL SITE REDEVELOPMENT RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563038. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

15- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN SPECIAL REVIEW USE LOUISVILLE MILL SITE REDEVELOPMENT RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563039. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

16- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN COMMON AREA USE, MAINTENANCE AND MANAGEMENT AGREEMENT RECORDED JANUARY 29, 2025 AT RECEPTION NO. 4074731. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

17- ANY EXISTING LEASES OR TENANCIES.




VICINITY MAP
N.T.S.

## LEGAL DESCRIPTION (PER TITLE COMMITMENT)

LOT 2 AND 3 AND OUTLOT A, LOUISVILLE MILL SITE SUBDIVISION, COUNTY OF BOULDER, STATE OF COLORADO.

## TITLE COMMITMENT NOTES

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SITESURVEYS LLC, FIRST AMERICAN TITLE COMMITMENT NO. 5509-4232694, EFFECTIVE DATE 01/13/2025 AT 8:00 A.M. WAS SOLELY RELIED UPON FOR INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY, AND ENCUMBRANCES OF RECORD IN THE PREPARATION OF THIS SURVEY.

THE FOLLOWING ITEMS ARE AS ENUMERATED IN SCHEDULE B-2 EXCEPTIONS. [SURVEYOR'S NOTES]

ITEMS 1-7 STANDARD EXCEPTIONS REFER TO TITLE COMMITMENT.

8- ANY WATER RIGHTS, CLAIMS OR TITLE TO WATER, IN, ON OR UNDER THE LAND, WHETHER OR NOT THE MATTERS EXCEPTED ARE SHOWN BY THE PUBLIC RECORDS. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

9- RESERVATIONS MADE BY THE UNION PACIFIC RAILWAY COMPANY IN DEED RECORDED AUGUST 31, 1905 IN BOOK 296 AT PAGE 53, PROVIDING SUBSTANTIALLY AS FOLLOWS: RESERVING UNTO THE COMPANY AND ITS ASSIGNS ALL COAL THAT MAY BE FOUND UNDERNEATH SURFACE OF LAND HEREIN DESCRIBED AND THE EXCLUSIVE RIGHT TO PROSPECT AND MINE FOR SAME, ALSO SUCH RIGHT OF WAY AND OTHER GROUNDS AS MAY APPEAR NECESSARY FOR PROPER WORKING OF ANY COAL MINES THAT MAY BE DEVELOPED UPON SAID PREMISES, AND FOR TRANSPORTATION OF COAL FROM SAME; AND ANY AND ALL ASSIGNMENTS THEREOF OR INTEREST THEREIN. REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT IN CONNECTION WITH THE ABOVE RESERVATION RECORDED MAY 17, 2002 AT RECEPTION NO. 2288491. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE, RAILROAD SHOWN]

10- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN EASEMENT DEED BY COURT ORDER IN SETTLEMENT OF LANDOWNER ACTION RECORDED MARCH 14, 2013 AT RECEPTION NO. 3297035. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

11- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN RESOLUTION NO. 30 SERIES 2015 RECORDED MAY 29, 2015 AT RECEPTION NO. 3448801 AND RE- RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563033. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

12- NOTES AND EASEMENTS AS SHOWN ON THE PLAT OF LOUISVILLE MILL SITE SUBDIVISION RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563028. [AFFECTS THE PROPERTY AND IS SHOWN]

13- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN SUBDIVISION AGREEMENT RECORDED DECEMBER 13, 2016 3563035. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

14- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN GRANT OF CONSERVATION EASEMENT IN GROSS RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563036. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE, LOT 2]

15- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN FINAL P.U.D. LOUISVILLE MILL SITE REDEVELOPMENT RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563038. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

16- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN SPECIAL REVIEW USE LOUISVILLE MILL SITE REDEVELOPMENT RECORDED DECEMBER 13, 2016 AT RECEPTION NO. 3563039. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

17- ANY EXISTING LEASES OR TENANCIES.

18- TERMS, AGREEMENTS, PROVISIONS, CONDITIONS, OBLIGATIONS, EASEMENTS, AND RESTRICTIONS, IF ANY, AS CONTAINED IN COMMON AREA USE, MAINTENANCE AND MANAGEMENT AGREEMENT RECORDED JANUARY 29, 2025 AT RECEPTION NO. 4074731. [AFFECTS THE PROPERTY BUT IS BLANKET IN NATURE]

## SURVEY NOTES

1. THE BASIS OF BEARINGS IS THE NORTH LINE OF LOT 3 BETWEEN THE FOUND MONUMENTS SHOWN HEREON AND BEARS S89°42'07"W, PER THE PLAT.
2. ORIGIN BENCH MARK: CITY OF LOUISVILLE LP5, FOUND 2.5" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E 1/16 CORNER OF SECTION 8 ELEVATION=5349.49' (NAVD88). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
3. THE SIZE AND TYPE OF MONUMENTS FOUND ARE SHOWN HEREON. ALL MONUMENTS AT GRADE UNLESS NOTED.
4. BUILDING MEASUREMENTS ARE AT GROUND LEVEL. ROOF OVERHANGS AND ARCHITECTURAL PROJECTIONS OF THE BUILDINGS ARE WITHIN THE BOUNDARY OF THE SITE BUT ARE NOT SHOWN ON THIS SURVEY UNLESS NOTED.
5. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED ON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVERED SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON. CRS-13-80-105 (3)(a)
6. FLOOD PLAIN DESIGNATION OF THE SURVEYED PROPERTY PER FIRM MAP NUMBER 08013C0582K, 008/15/2019 IS ZONE X, BEING AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. AREAS OF ZONE X SHADED AS SHOWN.
7. THE LOCATION OF THE ABOVE GROUND UTILITIES SHOWN HEREON ARE BASED ON THE FIELD SURVEY BY SITESURVEYS LLC. A PRIVATE UTILITY LOCATE WAS DONE BY UCS, UNDERGROUND CONSULTING SOLUTIONS ON 08/18/25. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON SAID SURVEY AND INFORMATION PROVIDED BY UNCC, CITY OF LOUISVILLE, XCEL AND QWEST MAPPING. SITESURVEYS LLC IS NOT RESPONSIBLE FOR UTILITY INFORMATION PROVIDED BY OTHERS. SITESURVEYS LLC RECOMMENDS THAT THE LOCATION OF THE UTILITIES BE FIELD VERIFIED PRIOR TO ANY DIGGING ON, OR ADJACENT TO THE SUBJECT PROPERTY.
8. LAND SURVEY PLATS OR PLATS, REFERENCED OR USED FOR THIS SURVEY: LS-13-0163, ALTA/ACSM SURVEY BY SCOTT COX & ASSOCIATES, PLS 24302;
9. ALL ADJOINING STREETS ARE PUBLIC.
10. NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS. NO OBSERVED EVIDENCE OF PROPOSED STREET RIGHT OF WAY LINES, RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS. NO RECORD OF OFFSITE EASEMENTS OR SERVITUDES BENEFITING THE SURVEYED PROPERTY.

## CERTIFICATION

TO: FIRST AMERICAN TITLE; LOUISVILLE MILL SITE LLC, A COLORADO LIMITED LIABILITY COMPANY

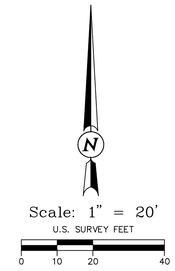
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1-5, 7(a)(c), 8, 9, 11(a)(b), AND 13 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED 08/26/2025.

COLORADO REGISTERED A. JOHN BURI 24302 9/3/25 PROFESSIONAL LAND SURVEYOR

A. JOHN BURI, PLS 24302
FOR AND ON BEHALF OF
SITESURVEYS LLC

## LEGEND

| | |
|---|---|
| | EXISTING DECIDUOUS TREE |
| 5475 | EXISTING CONTOUR |
| | EXISTING SWALE |
| ● | SET #5 REBAR WITH 1" RED PLASTIC CAP STAMPED PLS 24302 (P&C) (UNLESS NOTED) |
| | SET NAIL AND 1.5" ALUMINUM TAG STAMPED PLS 24302 (NAIL&TAG) AS NOTED |
| | FOUND MONUMENT AS NOTED |
| E | EXISTING ELECTRIC METER |
| | EXISTING MAILBOX |
| WV | EXISTING WATER VALVE |
| C | EXISTING CLEANOUT |
| G | EXISTING GAS METER |
| W | EXISTING WATER METER |
| | CONTROL POINT |
| | EXISTING POWER POLE |
| | EXISTING LIGHT POLE |
| | EXISTING SIGN |
| | EXISTING FIRE HYDRANT |
| | EXISTING SPRINKLER VALVE BOX |
| X X X | EXISTING FENCE |
| Pu Pu | EXISTING UNDERGROUND POWER LINE |
| Po Po | EXISTING OVERHEAD POWER LINE |
| G G G | EXISTING GAS LINE |
| SS SS | EXISTING SANITARY SEWER W/MANHOLE |
| W W W | EXISTING WATER W/FIRE HYDRANT |
| ST ST | EXISTING STORM SEWER W/MANHOLE |
| S08°15'46" 129.38' | RECORD COURSE PER PLAT |
| (M) | MEASURED COURSE PER THIS SURVEY |




# ALTA/NSPS LAND TITLE SURVEY
# LOCATED IN THE SE 1/4 OF SEC. 8, T1S R69W OF THE 6TH P.M.
# CITY OF LOUISVILLE
# COUNTY OF BOULDER
# STATE OF COLORADO
# 500, 540 ,544 COUNTY RD.


SITESURVEYS LLC
Land Surveyors
186 Monarch Court • Louisville, Colorado 80027
(303) 918-7831 • buri@sitesurveyscolo.com


| Designed by | Date | Scale | Drawing no. | Sheet |
|---|---|---|---|---|
| AJB | 09/03/25 | 1"=20' | 25438-2 | 1 |
| Drawn by JAS | Revision | Description | Date | Project no. |
| Checked by AJB | | | | 25438 |

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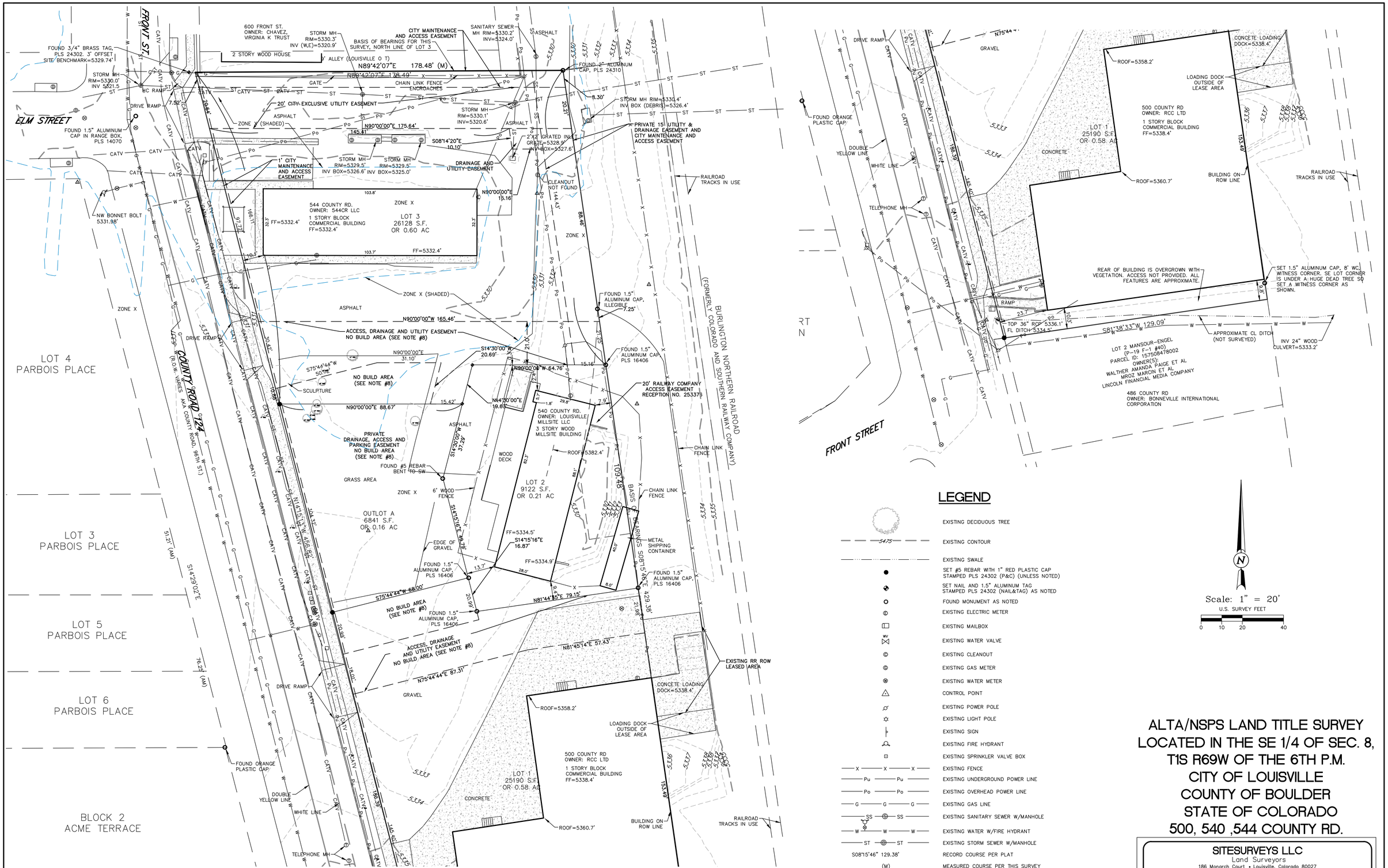


## LEGEND

- EXISTING DECIDUOUS TREE
- 5475 EXISTING CONTOUR
- EXISTING SWALE
- SET #5 REBAR WITH 1" RED PLASTIC CAP STAMPED PLS 24302 (P&C) (UNLESS NOTED)
- SET NAIL AND 1.5" ALUMINUM TAG STAMPED PLS 24302 (NAIL&TAG) AS NOTED
- FOUND MONUMENT AS NOTED
- EXISTING ELECTRIC METER
- EXISTING MAILBOX
- EXISTING WATER VALVE
- EXISTING CLEANOUT
- EXISTING GAS METER
- EXISTING WATER METER
- CONTROL POINT
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FIRE HYDRANT
- EXISTING SPRINKLER VALVE BOX
- EXISTING FENCE
- EXISTING UNDERGROUND POWER LINE
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS LINE
- EXISTING SANITARY SEWER W/MANHOLE
- EXISTING WATER W/FIRE HYDRANT
- EXISTING STORM SEWER W/MANHOLE
- S08°15'46" 129.38' RECORD COURSE PER PLAT
- (M) MEASURED COURSE PER THIS SURVEY

Scale: 1" = 20'
U.S. SURVEY FEET
0 10 20 40

# ALTA/NSPS LAND TITLE SURVEY
# LOCATED IN THE SE 1/4 OF SEC. 8, T1S R69W OF THE 6TH P.M.
# CITY OF LOUISVILLE
# COUNTY OF BOULDER
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| Designed by | Date | Scale | Drawing no. | Sheet |
|---|---|---|---|---|
| AJB | 09/03/25 | 1"=20' | 25438-2 | 2 |
| Drawn by: JAS | Revision | Description | Date | Project no. |
| Checked by: AJB | | | | 25438 |

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siteworks

# Phase I Drainage Report

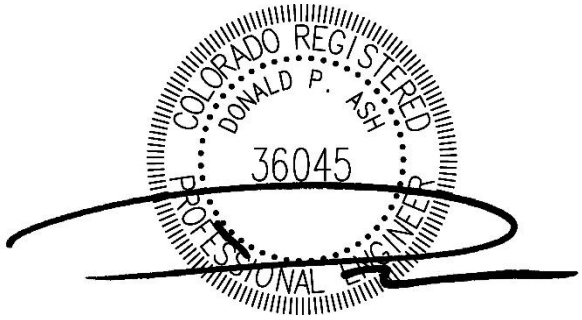
## Louisville Mill Site Redevelopment
## 540 County Road
## Louisville, CO

09/12/2025

siteworksstudio.com

## ENGINEER'S STATEMENT

I hereby certify that this Phase I Drainage Report for 540 County Road was prepared by me, or under my direct supervision, in accordance with sound engineering practice and all applicable state, federal and local regulations.




Donald P. Ash
Registered Professional Engineer
State of Colorado No. 36045

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# I. GENERAL LOCATION AND DESCRIPTION

## A. Location

1. This report is submitted as the Phase I Drainage Report of the existing and proposed conditions for the property located at 540 County Road in Louisville, Colorado.
2. The site is located in the southeast quarter of Section 8, Township 1 South, Range 69 West of the 6th Principal Meridian in the City of Louisville, Boulder County, State of Colorado.
3. The site is bounded by Burlington Northern Railway to the east, commercial lots to the south and north, County Road to the West, and residential lots on the west side of County Road. A Vicinity Map is included in Appendix A.

## B. Description of Property

1. The existing .58-acre site is currently developed with an existing mill building.
2. Existing ground cover consists of grass, a gravel driveway and existing mill building.
   The site generally flows to the north and surface drains into an existing asphalt parking lot and into a 2'x2' inlet located in Lot 3. Existing drainage patterns are shown on the Drainage Plan that is included with this report.
3. The United States Department of Agriculture (USGS) Natural Resources Conservation Service (NRCS) Soil Survey for the site identifies the majority of the existing site soils as Ascalon Sandy Loam (AcA) with a hydrologic soil group of B.
4. There are no major or manor drainageways located on or near the property.
5. There are no irrigation facilities located on or near the site.
6. The proposed land use will be commercial. A Planned Unit Development (PUD) Zoning overlay will control the specific zoning on the subject property.
7. There are no wetland areas located on the property.
8. There are no drainage easements that are affected by the proposed improvements.

## II. HISTORIC DRAINAGE

### A. Major Basin Description

1. This site is not located within any drainageways.
2. FEMA LOMR effective: March 8, 2018 reduced the mapped flooding potential on the site from Zone AH to Zone X (shaded) and the site is now mostly outside of any mapped flood zone.
3. Based on the FEMA Flood Insurance Rate Map (FIRM) - Map Number 08013C0582K dated August 15, 2019. The north of Outlot A is located in Zone X (shaded), areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage area less than 1 square mile. The entirety of Lot 2 is outside of any mapped floodplain.
4. The majority of the site generally slopes from the south to north to the northeast at an approximate slope of 1%-3%. Existing ground cover consists of grass, a gravel driveway and an existing mill building. The site drainage discharges via surface drainage to the asphalt drive on the south side of Lot 3, where it drains through the parking lot to the east and north into an existing 2'x2' graded inlet.
5. There are no irrigation ditches or facilities which will be affect by the proposed development.
6. There are no lakes or ponds which influence or may be influenced by the local drainage. There are no dams on or adjacent to the subject property.

### B. Sub-Basin Description

1. For the purposes of this report, the existing site has been broken into one (1) sub-basin, Basin H. Basin H consists of the entire site. Runoff from within this basin flows to the north where the site drainage discharges via surface drainage to the asphalt drive on the south side of Lot 3, where it drains through the parking lot to the east and north into an existing 2'x2' graded inlet.
2. There is no offsite drainage that affects the site
3. The runoff from the existing site is summarized in Table 1. Existing runoff calculations have been included in Appendix B.

# III. DRAINAGE DESIGN CRITERIA

## A. Development Criteria Reference and Constraints

1. A Preliminary Drainage Report was submitted by JVA Consulting Engineers, dated April 3, 2014. This report has been included in appendix E.
2. The site drainage was generally constrained by the existing conditions. Grading was constrained by the existing grades along the existing asphalt drives on lots 1 and 3, and the existing grain elevator. The site was also constrained by the existing curb and gutter elevations along County Road to the west.
3. There are no wetland areas located on the property.
4. The following reports, files and drawings form the basis of this report: 1) City of Louisville Municipal Code; 2) City of Louisville Manual of Design Criteria & Standard. 3) Urban Drainage and Flood Control District (UDFCD) Urban Storm Drainage Criteria Manual, Volumes 1-3 (USDCM). Relevant sections, as required, can be found in the Appendix located at the back of this report.
5. This drainage plan is in general conformance with the City of Louisville Manual of Design Criteria & Standard Specifications, the UD&FCD Storm Drainage Criteria Manual and the Stormwater Masterplan.
6. This report details the Phase 1 plan of the Mill site development and designs Lot 2 and Outlot A. A Phase 2 drawing has been included in this report in Appendix B, outlining the drainage plan for future development. Future development will connect the storm sewer on Outlot A to a stormcepter unit located on Lot 3, the stormcepter will provide water quality treatment for the entirety of the Mill Site Development.

## B. Hydrological Criteria

1. The design rainfall data used in this study was taken from the CRITERIA, Volume 2 – Chapter 5 – Rainfall, Section 2.0 – Rainfall Depth-Duration Frequency and Section 4.0 – Intensity-Duration Curves for Rational Method. One-hour rainfall depth was taken from Table 1 and used in conjunction with the intensity equation listed under Section 4.0. This was correlated to the Intensity-Duration Frequency Curve from Figure 1.

   As required in the CRITERIA, for all land uses, hydrologic information was developed for an initial storm return period of 2-years and major storm return period of 100-years. The criteria and methodology used in determining the storm runoff peaks and volumes were those outlined in the USDCM as directed by the CRITERIA.

2. Runoff calculations were obtained using the Rational Method as outlined in the Manual for basins having less than 130 acres.

   Rational Formula is:

   $$Q = CIA$$

Where: Q = Peak Discharge (cfs)
C = Runoff Coefficient (USDCM)
I = Rainfall Intensity (in/hr) (USDCM)
A = Drainage Basin Tributary Area (acres)

## C. Hydraulic Criteria

1. The proposed site ultimately drains to the north. The mill building and the road to the east of the mill building drain flow into rain gardens located on the north and south side of the mill building. The west portion of the side flows into a concrete drainage pan and swale and flows to the existing type R inlet located in Lot 3, north of the site.
2. Water quality volumes, discharges and storage calculations are based on the USDCM Volume 2, Storage. Detention and water quality facilities have been designed in accordance with the USDCM Volume 3, Best Management Practices. The UDFCD detention worksheets were used for calculations of the detention and water quality facilities.

## D. Adaptions from Criteria

1. There are no adaptions or variances requested from the Criteria.

# IV. DRAINAGE FACILITY DESIGN

## A. General Concepts

1. Developed runoff from the site drains either to the north to an existing storm sewer or to the west on to County Road. Runnoff from the roof will be drained in to two raingardens and treated for water quality.
2. Offsite basins will be unaffected by the redevelopement.
3. Proposed drainage patterns are shown on the Drainage Plan. Proposed runoff from the site is shown in Table 1.

## B. Specific Details

1. The Drainage Plan shows the proposed site plan, on-site grading and overland flow directions. Under the proposed conditions, the site will be broken into three (3) sub-basins, Basins A1 through A3 as well as two (2) off-site basins, Basins OS1 and OS2.

   Drainage from Basin A1 comprises of the western portion of the site. It includes lawn, the southern and northern parking spaces. Runoff from within this basin flows to the northwest corner of the southern parking lot via overland flow, into a swale running along the west edge of the site which eventually flows into the existing Type R inlet located in Lot 3. All runoff in this basin will drain into the gravel swale or concrete drain pan.

   Water quality for Basin A1 will be provided during the phase 2 improvements. Currently, the basin contains large amounts of landscaping and some existing asphalt parking areas. The imperviousness of the basin will increase slightly but the overall impact to the drainageway will be negligible. Therefore, water quality for this basin will be delayed until phase 2 to accommodate future improvements and increased impervious areas.

   Drainage from Basin A2 comprises of the east portion of the site and the north half of the Mill Building roof. Runoff from within this basin flows north into proposed Rain Garden 1 (RG-1) This rain garden has been designed to treat the Water Quality Capture Volume and pass the 100-year storm.

   Drainage from Basin A3 comprises the south half of the roof. Runoff from this site will be piped into Rain Garden 2 (RG-2). This rain garden has been designed to treat the Water Quality Capture Volume and pass the 100-year storm.

   Drainage from Basin OS1 comprises the west portion of the parking area of Lot 1. Runoff from this basin follows existing drainage patterns and flows into Basin A1 where is runoff follows the proposed routing for that basin.

Drainage from Basin OS2 comprises the east portion of the parking area of Lot 1. Runoff from this basin flows into Basin A2.

The existing and proposed conditions for the entire site were analyzed for the 5 and 100-year storm events. The results are shown in the following Table 1 and the relevant calculation sheets are provided in Appendix B.

**TABLE 1**
RUNOFF CALCULATIONS SUMMARY

| Drainage Basin | Area (acres) | $C_2$ | $C_{100}$ | 2-Year Peak Runoff (cfs) | 100-Year Peak Runoff (cfs) |
|---|---|---|---|---|---|
| Basin H | 0.58 | 0.22 | 0.59 | 0.25 | 2.22 |
| Basin A | 0.58 | 0.39 | 0.60 | 0.44 | 2.15 |
| Basin A1 | 0.34 | 0.53 | 0.73 | 0.26 | 1.28 |
| Basin A2 | 0.16 | 0.43 | 0.70 | 0.15 | 0.82 |
| Basin A3 | 0.03 | 0.80 | 0.90 | 0.06 | 0.23 |
| Basin OS1 | 0.21 | 0.63 | 0.81 | 0.33 | 1.36 |
| Basin OS2 | 0.05 | 0.73 | 0.84 | 0.10 | 0.35 |

2. The rain gardens have been designed for the Water Quality Capture Volume per the recommended approach in the USDCM and will accommodate the Water Quality Capture Volume (WQCV).

**TABLE 1**
DETENTION POND SUMMARY

| Pond | Basin Area (ac) | WQCV (CF) Needed | WQCV (CF) Provided |
|---|---|---|---|
| RG-1 | 0.16 | 170 | 180 |
| RG-2 | 0.03 | 44 | 50 |

3. Maintenance of the water quality rain garden will be provided by the property owner.

# V. SUMMARY

## A. Compliance with Standards

1. This drainage report and plan are in general conformance with the City of Louisville Municipal Code.
2. This drainage report and plan are in general conformance with the Town of Lyons Storm Drainage Criteria Addendum to Urban Drainage Storm Drainage Criteria Manuals, Volumes 1, 2 and 3 (CRITERIA)
3. This drainage report and plan are in general conformance with the Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual.

## B. Drainage Concept

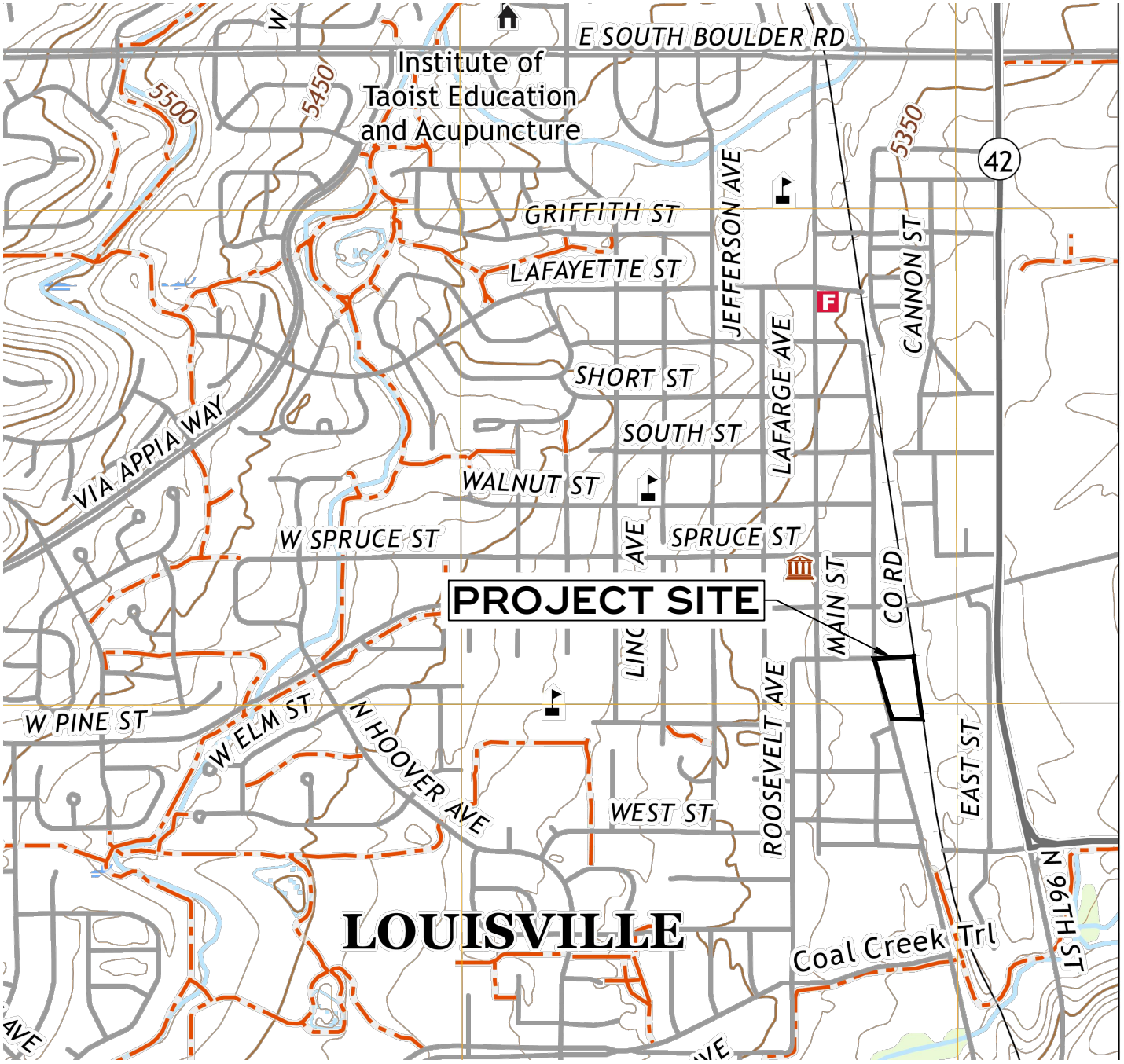
1. The primary consideration for this project was to design a drainage plan to offset the impact of the proposed construction. The drainage plan accommodates on-site runoff and off-site flows. The drainage will not negatively affect any upstream or downstream properties.
2. While this report is focused on the current redevelopment of Lot 2 and Outlot A, the drainage plan for the entire Mill Site development has also been included in a Phase 2 drawing, included in Appendix B. The Phase 2 drainage plan will include additional storm sewer lines to tie the parking lot cut off storm sewer to the existing type R inlet in the northeast corner of lot 3. Water quality will be provided in the form of a stormceptor that will treat runoff from Basins A1 and OS1

## VI. REFERENCES


1. Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual, Volumes 1-3, dated August 2018.
2. FEMA LOMR 17-08-0625P, City of Louisville, dated March 8, 2018.
3. Preliminary Drainage Report for Louisville Mill Site, by JVA Consulting Engineers, dated April 3, 2015.

# APPENDIX A

LOCATION MAP




1 LOCATION MAP

SCALE: 1" = 1000'

N

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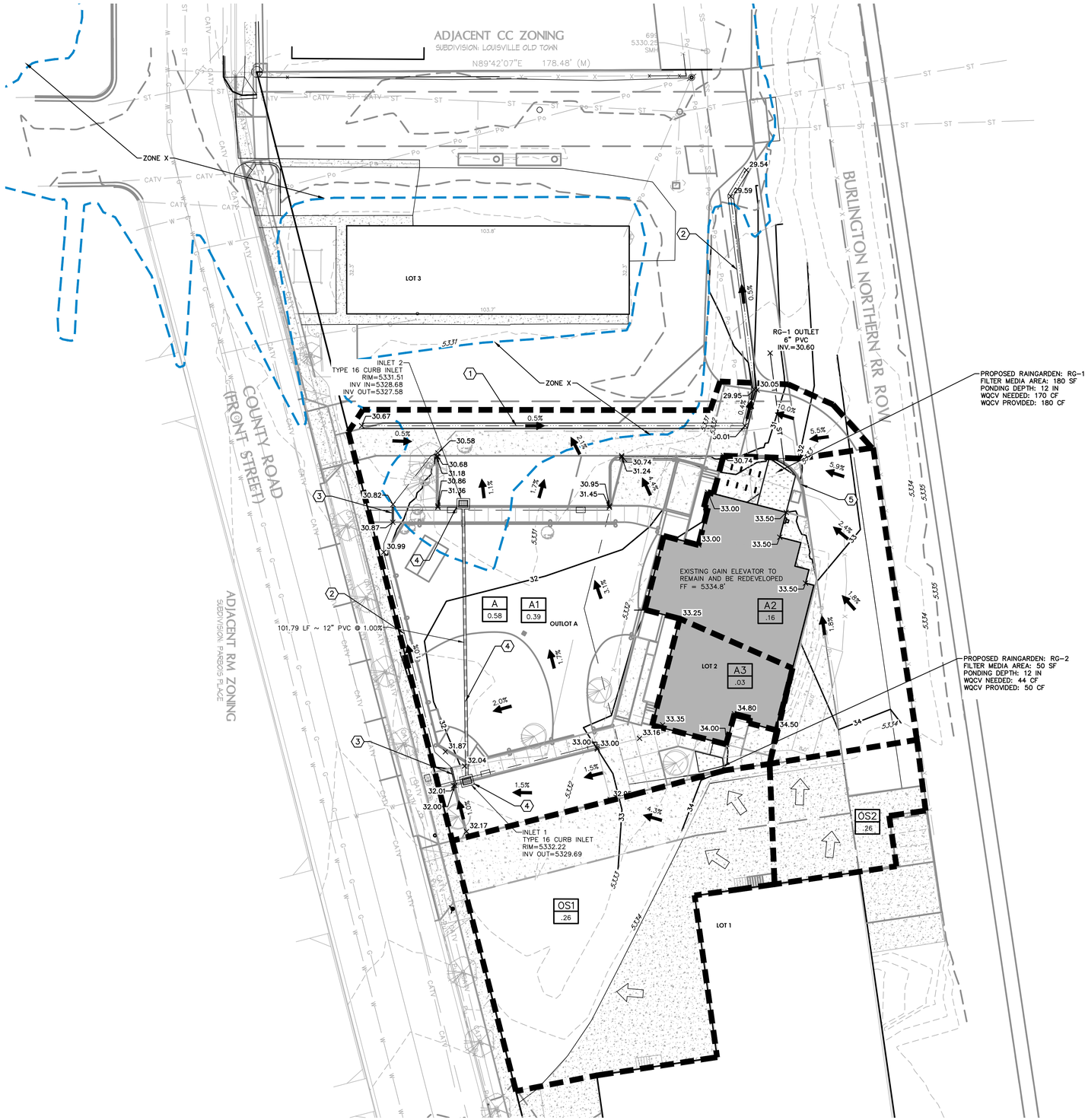
# Louisville Mill Site

540 County Road
Louisville, CO

Project: 25138A
File: 25138 Vicinity Map
Date: 05/16/25

## APPENDIX B

DRAINAGE PLAN




## LEGEND

| | |
|---|---|
| 5 | PROPOSED CONTOUR<br>ADD 5300 TO ALL CONTOURS |
| X 25.8 | PROPOSED SPOT ELEVATION<br>ADD 5300 TO ALL SPOT ELEVATIONS |
| X 25.8 | EXISTING SPOT ELEVATION |
| | PROPOSED FLOW DIRECTION |
| | HISTORIC SHEET FLOW |
| A / 1 | PROPOSED SUB-BASIN DESIGNATION<br>AREA IN ACRES |
| | PROPOSED BASIN BOUNDARY |

## GRADING NOTES

1. FLOOD INFORMATION: ACCORDING TO FEMA FLOOD INSURANCE MAP NO. 08013C0582K DATED 08/15/2019, THE NORTH OF OUTLOT A IS LOCATED IN ZONE X (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREA LESS THAN 1 SQUARE MILE. THE ENTIRETY OF LOT 2 IS OUTSIDE OF ANY MAPPED FLOODPLAIN.
2. BENCHMARK INFORMATION: CITY OF LOUISVILLE LP5, FOUND 2.5" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E ¼ CORNER OF SECTION 8 ELEVATION=5349.49' (NAVD88). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
3. THE LOCATION OF THE ABOVE GROUND UTILITIES SHOWN HEREON ARE BASED ON THE FIELD SURVEY BY SITESURVEYS LLC DATED 08/26/2015. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON SAID SURVEY AND INFORMATION PROVIDED BY OTHERS (WHICH MAY INCLUDE THE UTILITY OWNER OR UTILITY LOCATING SERVICES). SITEWORKS, LLC. IS NOT RESPONSIBLE FOR UTILITY INFORMATION PROVIDED BY OTHERS. SITEWORKS, LLC. RECOMMENDS THAT THE LOCATION OF THE UTILITIES BE FIELD VERIFIED PRIOR TO ANY DIGGING ON, OR ADJACENT TO THE SUBJECT PROPERTY.

## KEYED NOTES

1. PROPOSED 2' CONCRETE SWALE.
2. PROPOSED GRAVEL SWALE.
3. PROPOSED SIDEWALK CHASE.
4. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPEMENT. STEEL COVER TO GO OVER STORM SEWER INLETS TO PREVENT ANY DRAINAGE UNTIL FUTURE DEVELOPMENT.
5. PROPOSED 12" CURB CUT TO ALLOW RUNOFF TO DRAIN INTO RAINGARDEN THROUGH SLOTTED CURB.

N

Scale: 1" = 20'

0 10 20 40

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

520 & 540 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC - Louisville's Living Room LLC

PHASE I FINAL PUD AMENDMENT

PROJECT # 25138A
DATE: 09/12/2025
DRAWN BY: DRS
CHECKED BY: DPA
REVISIONS:

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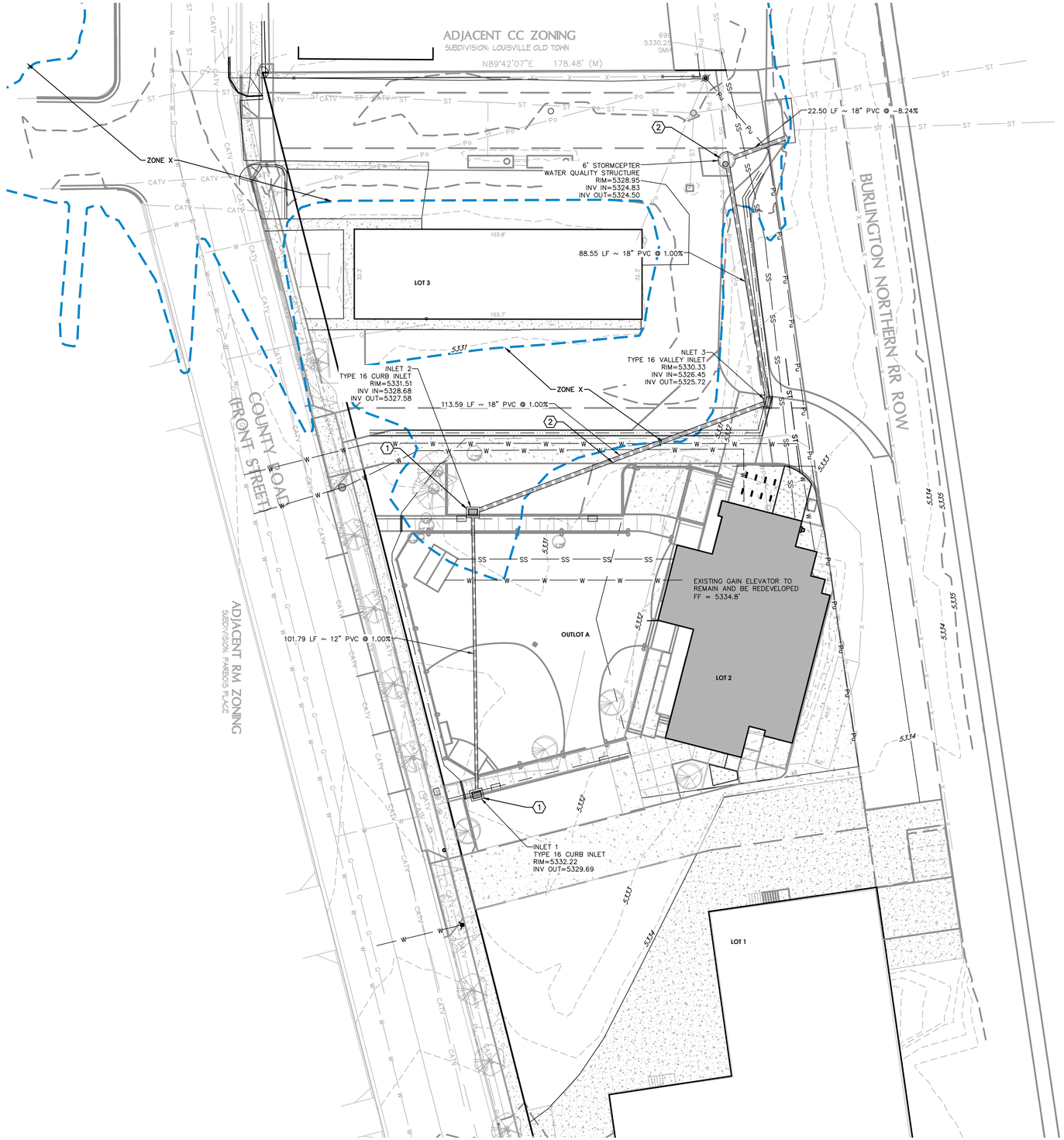
GRADING & DRAINAGE PLAN

Sheet
C-101
1 of 4 Sheets




## LEGEND

- EXISTING CONTOUR
- EXISTING SEWER CLEANOUT
- EXISTING WATER METER
- EXISTING STORM MANHOLE
- EXISTING WATER VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FIRE HYDRANT
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING SANITARY SEWER W/MANHOLE
- EXISTING WATER W/FIRE HYDRANT
- EXISTING STORM SEWER W/MANHOLE
- PROPOSED WATER W/FIRE HYDRANT
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED GAS SERVICE
- PROPOSED WATER METER

## KEYED NOTES ⟨1⟩

1. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE TIE IN. STEEL COVER TO BE REMOVED AND INLETS ALLOWED TO DRAIN.
2. PROPOSED PHASE 2 STORM SEWER IMPROVEMENT. PARKING LOT INLETS TO DRAIN INTO STORMCEPTER AND TIE INTO EXISTING TYPE R INLET.

Scale: 1" = 20'
0 10 20 40

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

520 & 540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Louisville's Living Room LLC

PHASE I
FINAL PUD
AMENDMENT

PROJECT # 25138A
DATE: 05/16/2025
DRAWN BY:
CHECKED BY:
REVISIONS:

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UTILITY PLAN PHASE 2

Sheet
C-201
4 of 4 Sheets

# APPENDIX C

HYDROLOGIC CALCULATIONS

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# Loisville Mill
540 County Road
Loisville, CO

Project #: 25138
Date: 3/18/2025
By: DRS

| Municipality: Boulder | Runoff Coefficients | | | | | | Initial Overland Time ($t_i$) $t_i=1.8(1.1-C_5)L^{1/2}S^{-1/3}$ | | | Travel Time ($t_t$) $t_t$=Length/(Velocity*60) | | | | | $t_c$ Computed | $t_c$ Urbanized Check | | $t_c$ Final | Rainfall Intensities (in/hr) | | | | Flow Rates (cfs) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parcel Name | Parcel Size (sf) | $C_2$ | $C_5$ | $C_{10}$ | $C_{100}$ | % Impervious | Overland Flow ($L_o$) (ft) | Slope (ft/ft) | $t_i$ (min) | Length (ft) | Slope (ft/ft) | Cv | Velocity (ft/s) | $t_t$ (min) | Time of Conc $t_i + t_t = t_c$ | Total Length (ft) | $t_c$=(L/180)+10 (min) | Minimum $t_c$=5 min | $I_2$ | $I_5$ | $I_{10}$ | $I_{100}$ | $Q_2$ | $Q_5$ | $Q_{10}$ | $Q_{100}$ |
| Basin H | 25,429 | 0.22 | 0.29 | 0.37 | 0.59 | 53.65 | 175.0 | 0.015 | 17.1 | 40 | 0.0200 | 7 | 0.99 | 0.7 | 17.8 | 215 | 11.2 | 11.2 | 2.01 | 2.69 | 3.36 | 6.41 | 0.25 | 0.46 | 0.73 | 2.22 |
| Basin A | 25,265 | 0.39 | 0.42 | 0.47 | 0.60 | 55.59 | 320.0 | 0.020 | 17.6 | 40 | 0.0200 | 7 | 0.99 | 0.7 | 18.3 | 360 | 12.0 | 12.0 | 1.95 | 2.61 | 3.26 | 6.23 | 0.44 | 0.64 | 0.89 | 2.15 |
| Basin A1 | 16,988 | 0.34 | 0.36 | 0.40 | 0.53 | 47.18 | 320.0 | 0.020 | 19.2 | 40 | 0.0150 | 7 | 0.86 | 0.8 | 20.0 | 360 | 12.0 | 12.0 | 1.95 | 2.61 | 3.26 | 6.23 | 0.26 | 0.37 | 0.51 | 1.28 |
| Basin A2 | 6,970 | 0.43 | 0.49 | 0.55 | 0.70 | 68.72 | 100.0 | 0.030 | 7.8 | 20 | 0.0150 | 7 | 0.86 | 0.4 | 8.2 | 120 | 10.7 | 8.2 | 2.26 | 3.03 | 3.79 | 7.24 | 0.15 | 0.24 | 0.34 | 0.82 |
| Basin A3 | 1,307 | 0.80 | 0.85 | 0.90 | 0.90 | 95.00 | 50.0 | 0.010 | 3.2 | 20 | 0.0150 | 7 | 0.86 | 0.4 | 3.6 | 70 | 10.4 | 5.0 | 2.63 | 3.53 | 4.41 | 8.41 | 0.06 | 0.09 | 0.12 | 0.23 |
| Basin OS1 | 9,148 | 0.63 | 0.66 | 0.70 | 0.81 | 83.33 | 100.0 | 0.030 | 5.5 | 20 | 0.0150 | 7 | 0.86 | 0.4 | 5.9 | 120 | 10.7 | 5.9 | 2.51 | 3.36 | 4.21 | 8.02 | 0.33 | 0.47 | 0.62 | 1.36 |
| Basin OS2 | 2,178 | 0.73 | 0.75 | 0.77 | 0.84 | 88.00 | 100.0 | 0.030 | 4.5 | 20 | 0.0150 | 7 | 0.86 | 0.4 | 4.9 | 120 | 10.7 | 5.0 | 2.63 | 3.53 | 4.41 | 8.41 | 0.10 | 0.13 | 0.17 | 0.35 |

# APPENDIX D

WATER QUALITY CALCULATIONS

# Site Layout

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road

**SITE LAYOUT INFO (User Input in Blue Cells)**

Water Quality Event (WQE) 0.60 inches

| Outfall ID | 1 | 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Tributary Area ($ft^2$) | 1,469 | 7,048 | | | | | | | | | | |
| Imperviousness (%) | 95.0% | 85.0% | | | | | | | | | | |
| MS4 Design Standard | WQCV | WQCV | | | | | | | | | | |
| SCM Type | BR | BR | | | | | | | | | | |

Notes:

**OUTFALL RESULTS**

| SCM Worksheet Name | BR_1 | BR_2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Untreated Area ($ft^3$) | 0 | 0 | | | | | | | | | | |
| Default WQCV ($ft^3$) | 44 | 170 | | | | | | | | | | |
| WQCV Reduction ($ft^3$) | 0 | 0 | | | | | | | | | | |
| Remaining WQCV ($ft^3$) | 44 | 170 | | | | | | | | | | |
| WQCV Reduction (%) | 0% | 0% | | | | | | | | | | |
| Design WQCV of SCM ($ft^3$) | 50 | 180 | | | | | | | | | | |
| Pollutant Removal ($ft^3$) | 0 | 0 | | | | | | | | | | |
| Untreated WQCV ($ft^3$) | 0 | 0 | | | | | | | | | | |

**TOTAL SITE RESULTS (Sums results from all Outfalls)**

| | | | | |
|---|---|---|---|---|
| Total Site Area | 8,517 | $ft^2$ | 0.20 | acres |
| Treated Area | 8,517 | $ft^2$ | 0.20 | acres |
| Untreated Area | 0 | $ft^2$ | 0.00 | acres |
| Total Site Imperviousness | 86.7% | % | | |
| Default WQCV | 214 | $ft^3$ | 0.005 | acre-feet |
| Remaining WQCV | 214 | $ft^3$ | 0.005 | acre-feet |
| WQCV Reduction | 0% | % | | |
| Design WQCV | 230 | $ft^3$ | 0.005 | acre-feet |
| Untreated WQCV | 0 | $ft^3$ | 0.000 | acre-feet |

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 2

## 1. Subsurface Exploration and Infiltration System Selection

A) Identify Site Constraints
- i) Is subgrade depth to bedrock < 3 feet?
- ii) Is subgrade depth to seasonal high groundwater table < 3 feet?

B) Identify Site Risks
- i) Are expansive/collapsible soils present?
- ii) Are highly concentrated pollutant sources present (hotspot)?
- iii) Is site located above contaminated soils or groundwater?
- iv) Is SCM located at top of steep slope? (> 3H:1V)
- v) Is SCM located adjacent to building, hardscape, or pavement?
- vi) Is SCM located above building foundation wall backfill?
- vii) Are there other concerns that indicate high risk for infiltration?

C) Preliminary Infiltration/Percolation Tests of underlying soils
- i) Were preliminary infiltration/percolation tests conducted?
- ii) Preliminary estimate of infiltration rate

$F_{prelim}$ = in/hr

D) Final Design Infiltrometer Test
- i) Were infiltrometer tests conducted?
- ii) Select type of infiltrometer test performed:
- iii) How many locations were tested?

$N_{Tests}$ =
- iv) Describe test locations relative to borings/pits
- v) What was the maximum infiltration rate tested?
- vi) What was the minimum infiltration rate tested?
- vii) Design Infiltration Rate

$F_{Max}$ = in/hr
$F_{Min}$ = in/hr
$F_{Design}$ = in/hr

E) Recommended Infiltration System

F) Select Infiltration System to use for Design

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 2

## 2. Inlet Design and Pretreatment

*Define inflow points for all areas tributary to the SCM below.*

A) Is RPA (GB/GS) used for Runoff Reduction upstream of SCM? NO

B) Inflow Points contributing to SCM (max 8)

| Inflow Design Point ID | 1 | 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tributary Area to Inflow Point ($ft^2$) | 2,415 | 4,632 | | | | | | |
| Imperviousness above Inflow Point (%) | 85.0% | 85.0% | | | | | | |
| Default WQCV for Inflow Point ($ft^3$) | 58 | 112 | | | | | | |
| WQCV Reduction above Inflow Point ($ft^3$) | 0 | 0 | | | | | | |
| Remaining WQCV at Inflow Point ($ft^3$) | 58 | 112 | | | | | | |
| Will pretreatment be provided with a Sedimentation MTD (HDS) | NO | NO | | | | | | |
| Paired Pretreatment HDS Worksheet Name | -- | -- | | | | | | |
| Sheet or Concentrated Flow | Conc | Sheet | | | | | | |

C) Sheet Flow

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Select sheet flow inflow feature | -- | Slotted | | | | | | |
| Is Concrete Edger used? | -- | -- | | | | | | |
| Spacing between slots, recommend ≤ 2 ft on center (ft) | -- | 0.50 | | | | | | |
| Slot Opening Length, recommend 1.5 (in) | -- | 1.50 | | | | | | |
| Select type of blind swale used to distribute flow | -- | -- | | | | | | |
| Select energy dissipation method for level spreader | -- | -- | | | | | | |
| Height of drop, recommend 2 to 3 (in) | -- | 2.00 | | | | | | |
| Is concrete mowing strip provided to facilitate maintenance? | -- | NO | | | | | | |

D) Concentrated Flow

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Select concentrated flow inflow feature | Downspout | -- | | | | | | |
| Is downspout extension needed to bridge backfill zone? | | -- | | | | | | |
| Depth of gutter flow line depression for curb opening, recommend 3 (in) | -- | -- | | | | | | |
| Curb opening inlet width (ft) | -- | -- | | | | | | |
| Height of drop to sediment pad/forebay, recommend ≥ 1 (in) | -- | -- | | | | | | |
| Select energy dissipation method for downspouts and/or curb openings. | | -- | | | | | | |
| Select energy dissipation method for swales, channels, and piped outfalls | -- | -- | | | | | | |

v) Forebay

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impervious area tributary to concentrated inflow location ($ft^2$) | -- | -- | | | | | | |
| Forebay Type (Concrete Sediment Pad sufficient for Imp Area ≤ 2 acre) | -- | -- | | | | | | |
| Minimum Forebay Volume ($ft^3$) | -- | -- | | | | | | |
| Design Forebay Volume ($ft^3$) | -- | -- | | | | | | |
| Maximum Forebay Depth (in) | -- | -- | | | | | | |
| Design Forebay Depth (in) | -- | -- | | | | | | |
| Rectangular Weir Notch Width to Empty Forebay in 5-minutes (in) | -- | -- | | | | | | |
| Design Notch Width (in) | -- | -- | | | | | | |
| Forebay Drain Time (minutes) | -- | -- | | | | | | |

*Provide pretreatment to remove coarse sediment, trash and debris. This is especially critical for roadway runoff to bioretention systems.*

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 2

## 3. Design Storage Volume

**Inflow Points above should be fully defined before proceeding below**

A) Contributing Watershed Area (including bioretention area) — Area = 7,048 ft²

B) Imperviousness of Tributary Area — i = 85.0%

C) Default WQCV — $V_{WQCV\ Default}$ = 170 ft³

D) WQCV Reduction resulting from Upstream RPA (GB/GS) — WQCV Reduction = 0 ft³

E) Remaining WQCV — $V_{WQCV\ Remaining}$ = 170 ft³

## 4. Bioretention System Basin Geometry

A) Mimimum Filter Media Surface Area — $A_{F\ Min}$ = 120 ft²

B) Design Filter Media Surface Area — $A_{F\ Design}$ = 180 ft²

C) WQCV Ponding Depth (recommend max. 12-inch) — $D_{WQCV}$ = 12.00 in

D) Media Surface Slope (typically flat or mild slope < 0.01 ft/ft) — $S_{Surface}$ = 0.000 ft / ft

E) Max. Side Slope (Z = 4:1 or flatter, horiz. dist per unit vertical) (Use "0" if bioretention has vertical walls) — Z = 0.00 ft / ft

F) Media Surface Length-to-Width Ratio — $R_{L/W}$ = 1.8

G) Calculated WQCV (based on $A_{F\ Design}$, $D_{WQCV}$, and Z) — $V_{WQCV\ Calculated}$ = 180 ft³

H) Design WQCV (based on actual design geometry) — $V_{WQCV\ Design}$ = 180 ft³

I) If basin geometry is irregular, design volume differs, or media pore space is being utilized, please provide description.

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 2

**5. Underdrain System, Impermeable Liner, and Geotextile**

A) Are underdrains provided?

B) Is a Drain Trench provided consistent with Figure 4-2?
- Trench Bottom Width ≥ 12 inches, Trench Depth ≥ 15 inches
- Drain gravel satisfies gradation specifications for AASHTO M 43 No. 8 coarse aggregate
- Filter sand above drain gravel satisfies gradation specifications for AASHTO M 43 fine aggregate
- Filter sand depth above drain trench ≥ 6 inches
- Filter sand extends ≥ 12 inches beyond trench top width

C) Select Factory-Slotted Pipe Size and Material

D) Does the specified pipe material meet the specifications for slot configurations shown in Table 4-6 and Figure 4-3.

E) Are cleanouts provided for inspection and maintenance?

F) Is an impermeable geomembrane liner provided?

G) Are details provided regarding sealing at underdrain penetrations similar to Figure 4-6?

H) Are geomembrane connections to vertical concrete surfaces consistent with Figure 4-7?

I) Do the plans specify thermal welding and air lance testing of joints?

**6. Bioretention Media**

A) Depth of Media (18-inch minimum, 36-inch when trees planted) $D_{Media}$ = in

B) Do construction documents specify media testing requirements?

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

| | |
|---|---|
| **Designer:** | **DRS** |
| **Company:** | **Siteworks, LLC** |
| **Date:** | **September 12, 2025** |
| **Project:** | **Louisville Mill Site Redevelopment** |
| **Location:** | **540 County Road** |
| **Outfall ID:** | **2** |

| | |
|---|---|
| | |

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 2

**7. Vegetation**

A) Select the method of vegetation planting (pulldown list).
Consult with vegetation specialist to consider shade, heat island effects, application of deicers in the watershed, and other site-specific factors.

B) Has a landscape/vegetation management plan been developed?

C) Describe vegetation/landscaping considerations:
- Stability issues (steep slopes, high erosion potential)?
- Topsoil management (assessment, stockpiling, and placement)?
- Community benefits with place-making approach?
- Biodiversity of the site including pollinator species?
- Environmental stewardship through conservation?
- Inundation frequency and depth impacts on vegetation?
- Required maintenance activities and intervals?

**8. Irrigation**

A) How will irrigation be provided for vegetation establishment?

**9. Outlet**

A) Underdrain Orifice Diameter for 12-hour drain time

i) Underdrain Orifice Invert Depth
(distance from filter media surface to orifice invert)

y = in

ii) Calculated Underdrain Orifice Diameter
Simplified Equation (when not using MHFD-Detention)
MHFD-Detention Calculation (if used)

$Dia._{Simplified}$ = in
$Dia._{MHFD\text{-}Detention}$ = in

iii) Underdrain Orifice Diameter specified on construction plans

Orifice $Dia._{Design}$ = in

B) Describe Underdrain Orifice Outlet Configuration.

C) Describe Outlet Structure(s) for events larger than WQCV.
(full-spectrum detention, overflow spillway, etc.)

Notes:

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 1

## 1. Subsurface Exploration and Infiltration System Selection

A) Identify Site Constraints
- i) Is subgrade depth to bedrock < 3 feet? — NO
- ii) Is subgrade depth to seasonal high groundwater table < 3 feet?

B) Identify Site Risks
- i) Are expansive/collapsible soils present?
- ii) Are highly concentrated pollutant sources present (hotspot)?
- iii) Is site located above contaminated soils or groundwater?
- iv) Is SCM located at top of steep slope? (> 3H:1V)
- v) Is SCM located adjacent to building, hardscape, or pavement?
- vi) Is SCM located above building foundation wall backfill?
- vii) Are there other concerns that indicate high risk for infiltration?

C) Preliminary Infiltration/Percolation Tests of underlying soils
- i) Were preliminary infiltration/percolation tests conducted?
- ii) Preliminary estimate of infiltration rate — $F_{prelim}$ = ____ in/hr

D) Final Design Infiltrometer Test
- i) Were infiltrometer tests conducted?
- ii) Select type of infiltrometer test performed:
- iii) How many locations were tested? — $N_{Tests}$ =
- iv) Describe test locations relative to borings/pits
- v) What was the maximum infiltration rate tested? — $F_{Max}$ = ____ in/hr
- vi) What was the minimum infiltration rate tested? — $F_{Min}$ = ____ in/hr
- vii) Design Infiltration Rate — $F_{Design}$ = ____ in/hr

E) Recommended Infiltration System

F) Select Infiltration System to use for Design

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 1

## 2. Inlet Design and Pretreatment

*Define inflow points for all areas tributary to the SCM below.*

A) Is RPA (GB/GS) used for Runoff Reduction upstream of SCM? NO

B) Inflow Points contributing to SCM (max 8)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Inflow Design Point ID | 1 | | | | | | | |
| Tributary Area to Inflow Point ($ft^2$) | 1,469 | | | | | | | |
| Imperviousness above Inflow Point (%) | 95.0% | | | | | | | |
| Default WQCV for Inflow Point ($ft^3$) | 44 | | | | | | | |
| WQCV Reduction above Inflow Point ($ft^3$) | 0 | | | | | | | |
| Remaining WQCV at Inflow Point ($ft^3$) | 44 | | | | | | | |
| Will pretreatment be provided with a Sedimentation MTD (HDS) | | | | | | | | |
| Paired Pretreatment HDS Worksheet Name | | | | | | | | |
| Sheet or Concentrated Flow | Conc | | | | | | | |

C) Sheet Flow

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Select sheet flow inflow feature | -- | | | | | | | |
| Is Concrete Edger used? | -- | | | | | | | |
| Spacing between slots, recommend ≤ 2 ft on center (ft) | -- | | | | | | | |
| Slot Opening Length, recommend 1.5 (in) | -- | | | | | | | |
| Select type of blind swale used to distribute flow | -- | | | | | | | |
| Select energy dissipation method for level spreader | -- | | | | | | | |
| Height of drop, recommend 2 to 3 (in) | -- | | | | | | | |
| Is concrete mowing strip provided to facilitate maintenance? | -- | | | | | | | |

D) Concentrated Flow

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Select concentrated flow inflow feature | Downspout | | | | | | | |
| Is downspout extension needed to bridge backfill zone? | NO | | | | | | | |
| Depth of gutter flow line depression for curb opening, recommend 3 (in) | -- | | | | | | | |
| Curb opening inlet width (ft) | -- | | | | | | | |
| Height of drop to sediment pad/forebay, recommend ≥ 1 (in) | -- | | | | | | | |
| Select energy dissipation method for downspouts and/or curb openings. | Concrete | | | | | | | |
| Select energy dissipation method for swales, channels, and piped outfalls | -- | | | | | | | |

v) Forebay

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impervious area tributary to concentrated inflow location ($ft^2$) | -- | | | | | | | |
| Forebay Type (Concrete Sediment Pad sufficient for Imp Area ≤ 2 acre) | -- | | | | | | | |
| Minimum Forebay Volume ($ft^3$) | -- | | | | | | | |
| Design Forebay Volume ($ft^3$) | -- | | | | | | | |
| Maximum Forebay Depth (in) | -- | | | | | | | |
| Design Forebay Depth (in) | -- | | | | | | | |
| Rectangular Weir Notch Width to Empty Forebay in 5-minutes (in) | -- | | | | | | | |
| Design Notch Width (in) | -- | | | | | | | |
| Forebay Drain Time (minutes) | -- | | | | | | | |

*Provide pretreatment to remove coarse sediment, trash and debris. This is especially critical for roadway runoff to bioretention systems.*

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

| | |
|---|---|
| **Designer:** | **DRS** |
| **Company:** | **Siteworks, LLC** |
| **Date:** | **September 12, 2025** |
| **Project:** | **Louisville Mill Site Redevelopment** |
| **Location:** | **540 County Road** |
| **Outfall ID:** | **1** |

**3. Design Storage Volume**

**Inflow Points above should be fully defined before proceeding below**

A) Contributing Watershed Area (including bioretention area) — Area = 1,469 ft²

B) Imperviousness of Tributary Area — i = 95.0%

C) Default WQCV — $V_{WQCV\ Default}$ = 44 ft³

D) WQCV Reduction resulting from Upstream RPA (GB/GS) — WQCV Reduction = 0 ft³

E) Remaining WQCV — $V_{WQCV\ Remaining}$ = 44 ft³

**4. Bioretention System Basin Geometry**

A) Mimimum Filter Media Surface Area — $A_{F\ Min}$ = 28 ft²

B) Design Filter Media Surface Area — $A_{F\ Design}$ = 50 ft²

C) WQCV Ponding Depth (recommend max. 12-inch) — $D_{WQCV}$ = 12.00 in

D) Media Surface Slope (typically flat or mild slope < 0.01 ft/ft) — $S_{Surface}$ = 0.000 ft / ft

E) Max. Side Slope (Z = 4:1 or flatter, horiz. dist per unit vertical) (Use "0" if bioretention has vertical walls) — Z = 0.00 ft / ft

F) Media Surface Length-to-Width Ratio — $R_{L/W}$ = 2

G) Calculated WQCV (based on $A_{F\ Design}$, $D_{WQCV}$, and Z) — $V_{WQCV\ Calculated}$ = 50 ft³

H) Design WQCV (based on actual design geometry) — $V_{WQCV\ Design}$ = 50 ft³

I) If basin geometry is irregular, design volume differs, or media pore space is being utilized, please provide description.

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 1

## 5. Underdrain System, Impermeable Liner, and Geotextile

A) Are underdrains provided? — YES

B) Is a Drain Trench provided consistent with Figure 4-2?
- Trench Bottom Width ≥ 12 inches, Trench Depth ≥ 15 inches
- Drain gravel satisfies gradation specifications for AASHTO M 43 No. 8 coarse aggregate
- Filter sand above drain gravel satisfies gradation specifications for AASHTO M 43 fine aggregate
- Filter sand depth above drain trench ≥ 6 inches
- Filter sand extends ≥ 12 inches beyond trench top width

C) Select Factory-Slotted Pipe Size and Material

D) Does the specified pipe material meet the specifications for slot configurations shown in Table 4-6 and Figure 4-3.

E) Are cleanouts provided for inspection and maintenance?

F) Is an impermeable geomembrane liner provided?

G) Are details provided regarding sealing at underdrain penetrations similar to Figure 4-6?

H) Are geomembrane connections to vertical concrete surfaces consistent with Figure 4-7?

I) Do the plans specify thermal welding and air lance testing of joints?

## 6. Bioretention Media

A) Depth of Media (18-inch minimum, 36-inch when trees planted) — $D_{Media}$ = in

B) Do construction documents specify media testing requirements?

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

| | |
|---|---|
| **Designer:** | **DRS** |
| **Company:** | **Siteworks, LLC** |
| **Date:** | **September 12, 2025** |
| **Project:** | **Louisville Mill Site Redevelopment** |
| **Location:** | **540 County Road** |
| **Outfall ID:** | **1** |

| | |
|---|---|
| | |

# Bioretention System (BR)

SCM Design, Version 4.00 (April 2024)

**Designer:** DRS
**Company:** Siteworks, LLC
**Date:** September 12, 2025
**Project:** Louisville Mill Site Redevelopment
**Location:** 540 County Road
**Outfall ID:** 1

**7. Vegetation**

A) Select the method of vegetation planting (pulldown list).
Consult with vegetation specialist to consider shade, heat island effects, application of deicers in the watershed, and other site-specific factors.

B) Has a landscape/vegetation management plan been developed?

C) Describe vegetation/landscaping considerations:
- Stability issues (steep slopes, high erosion potential)?
- Topsoil management (assessment, stockpiling, and placement)?
- Community benefits with place-making approach?
- Biodiversity of the site including pollinator species?
- Environmental stewardship through conservation?
- Inundation frequency and depth impacts on vegetation?
- Required maintenance activities and intervals?

**8. Irrigation**

A) How will irrigation be provided for vegetation establishment?

**9. Outlet**

A) Underdrain Orifice Diameter for 12-hour drain time

i) Underdrain Orifice Invert Depth
(distance from filter media surface to orifice invert)

y = 3.0 in

ii) Calculated Underdrain Orifice Diameter
Simplified Equation (when not using MHFD-Detention)
MHFD-Detention Calculation (if used)

Dia. $_{Simplified}$ = 0.25 in
Dia. $_{MHFD\text{-}Detention}$ = in

iii) Underdrain Orifice Diameter specified on construction plans

Orifice Dia. $_{Design}$ = in

B) Describe Underdrain Orifice Outlet Configuration.

C) Describe Outlet Structure(s) for events larger than WQCV.
(full-spectrum detention, overflow spillway, etc.)

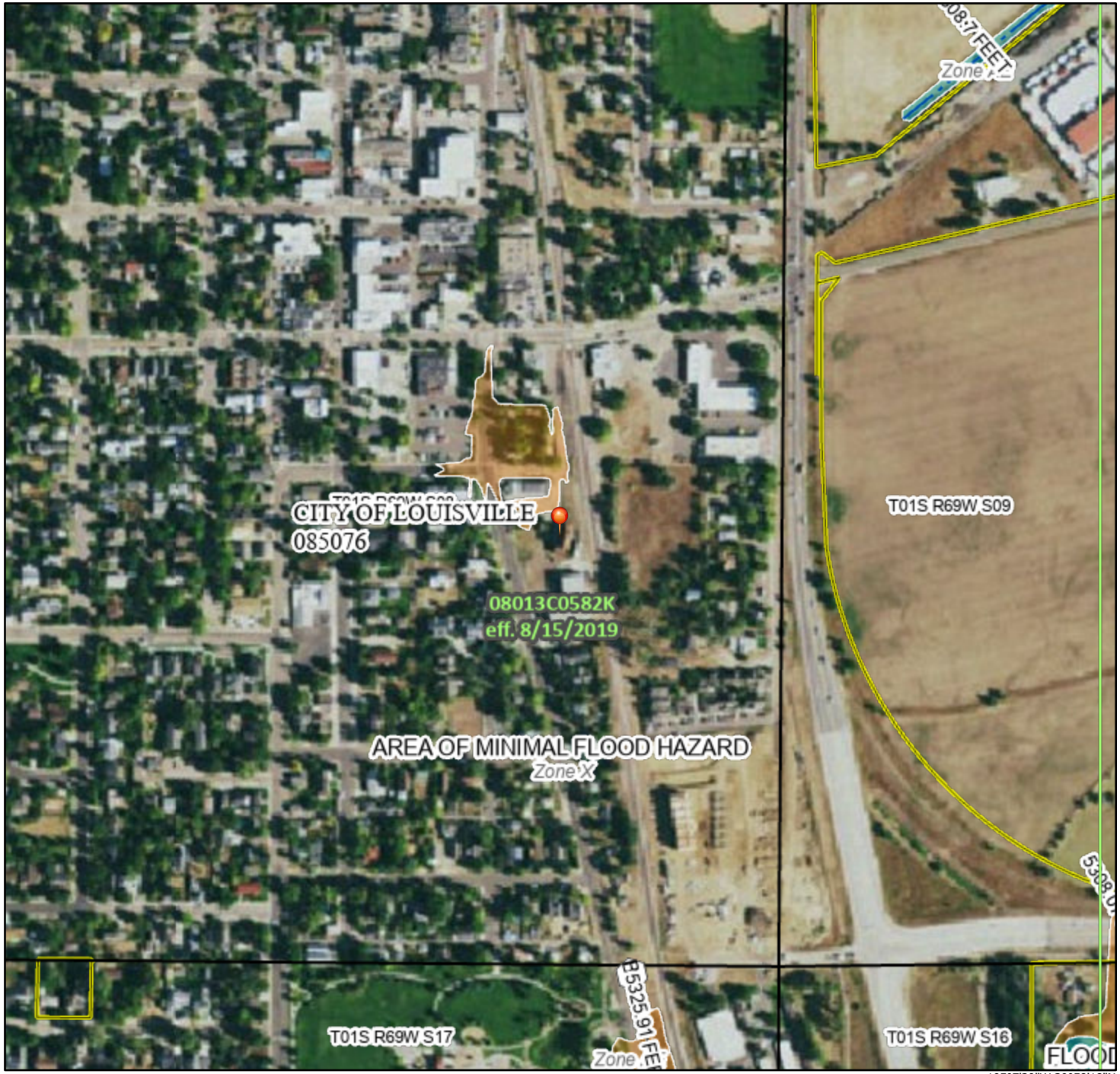
Notes:

## APPENDIX E

RELEVANT DOCUMENTS

# National Flood Hazard Layer FIRMette

105°8'7"W 39°58'45"N




105°7'30"W 39°58'18"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

*Basemap Imagery Source: USGS National Map 2023*

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/16/2025 at 4:56 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# Federal Emergency Management Agency

Washington, D.C. 20472

October 25, 2017

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Bob Muckle
Mayor, City of Louisville
749 Main Street
Louisville, CO 80027

IN REPLY REFER TO:
Case No.: 17-08-0625P
Community Name: City of Louisville, CO
Community No.: 085076
Effective Date of
This Revision: March 8, 2018

Dear Mayor Muckle:

The Flood Insurance Study report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed that provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Denver, Colorado, at (303) 235-4830, or the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

Sincerely,

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

List of Enclosures:

Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map
Annotated Flood Insurance Study Report

cc: The Honorable Deb Gardner
Chair, Boulder County
Board of Commissioners

The Honorable Christine Berg
Mayor, City of Lafayette

Mr. Robert Zuccaro, AICP
Planning & Building Safety Director
City of Louisville

Ms. Varda Blum, CFM
Floodplain Program Manager
Boulder County

Mr. Aaron Asquith P.E.
City Engineer
City of Lafayette

Ms. Deb Ohlinger, P.E. CFM
Project Engineer
Olsson Associates

# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT

| COMMUNITY AND REVISION INFORMATION | | PROJECT DESCRIPTION | BASIS OF REQUEST |
|---|---|---|---|
| COMMUNITY | City of Louisville<br>Boulder County<br>Colorado | CHANNELIZATION | HYDRAULIC ANALYSIS<br>HYDROLOGIC ANALYSIS<br>UPDATED TOPOGRAPHIC DATA |
| | COMMUNITY NO.: 085076 | | |
| IDENTIFIER | Lafayette-Louisville Boundary Area Drainage Improvements Project | APPROXIMATE LATITUDE AND LONGITUDE: 39.982, -105.120<br>SOURCE: USGS QUADRANGLE DATUM: NAD 83 | |

| ANNOTATED MAPPING ENCLOSURES | | | ANNOTATED STUDY ENCLOSURES |
|---|---|---|---|
| TYPE: FIRM* | NO.: 08013C0601J | DATE: December 18, 2012 | DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2012 |
| TYPE: FIRM* | NO.: 08013C0582J | DATE: December 18, 2012 | PROFILES: 381P-383P |
| | | | SUMMARY OF DISCHARGES TABLE: 4 |

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map

**FLOODING SOURCES AND REVISED REACHES** See Page 2 for Additional Flooding Sources

Drainageway A-2 - From the confluence with Drainageway A to approximately 1,170 feet upstream of the confluence with Drainageway A

**SUMMARY OF REVISIONS**

| Flooding Source | Effective Flooding | Revised Flooding | Increases | Decreases |
|---|---|---|---|---|
| Drainageway A-2 | Zone X (unshaded) | Zone AE | YES | NONE |
| | No BFEs* | BFEs | YES | NONE |
| | Zone AE | Zone X (unshaded) | NONE | YES |
| | Zone AH | Zone X (shaded) | NONE | YES |

* BFEs - Base Flood Elevations

## DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

# LETTER OF MAP REVISION
# DETERMINATION DOCUMENT (CONTINUED)

## OTHER FLOODING SOURCES AFFECTED BY THIS REVISION

**FLOODING SOURCE AND REVISED REACH**

Drainageway A-2 - From the confluence with Drainageway A to approximately 1,170 feet upstream of the confluence with Drainageway A
Drainageway A - From the confluence with Drainageway 7 to approximately 800 feet upstream of the confluence with Drainageway A-2

**SUMMARY OF REVISIONS**

| Flooding Source | Effective Flooding | Revised Flooding | Increases | Decreases |
|---|---|---|---|---|
| Drainageway A-2 | BFEs* | No BFEs | NONE | YES |
| | Zone A | Zone AE | NONE | YES |
| | Zone X (shaded) | Zone X (unshaded) | NONE | YES |
| Drainageway A | Zone X (shaded) | Zone X (unshaded) | NONE | YES |
| | Zone AH | Zone X (unshaded) | NONE | YES |
| | Zone AE | Zone X (unshaded) | NONE | YES |
| | Zone X (shaded) | Zone AE | YES | YES |
| | No BFEs | BFEs | YES | NONE |
| | BFEs | No BFEs | NONE | YES |

* BFEs - Base Flood Elevations

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

# LETTER OF MAP REVISION
# DETERMINATION DOCUMENT (CONTINUED)

## OTHER COMMUNITIES AFFECTED BY THIS REVISION

**CID Number:** 080023 **Name:** Boulder County, Colorado

| AFFECTED MAP PANELS | AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT |
|---|---|
| TYPE: FIRM* NO.: 08013C0601J DATE: December 18, 2012<br>TYPE: FIRM* NO.: 08013C0582J DATE: December 18, 2012 | DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2012<br>PROFILES: 381P-386P<br>SUMMARY OF DISCHARGES TABLE: 4 |

**CID Number:** 080026 **Name:** City of Lafayette, Colorado

| AFFECTED MAP PANELS | AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT |
|---|---|
| TYPE: FIRM* NO.: 08013C0601J DATE: December 18, 2012 | DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2012<br>PROFILES: 384P<br>SUMMARY OF DISCHARGES TABLE: 4 |

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

# LETTER OF MAP REVISION
# DETERMINATION DOCUMENT (CONTINUED)

## COMMUNITY INFORMATION

### APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

### COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

# LETTER OF MAP REVISION
# DETERMINATION DOCUMENT (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Jeanine D. Petterson
Director, Mitigation Division
Federal Emergency Management Agency, Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267
(303) 235-4830

## STATUS OF THE COMMUNITY NFIP MAPS

We are processing a revised FIRM and FIS report for Boulder County in our countywide format; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which present information from the effective FIRMs and FIS reports for your community and incorporated communities in Boulder County, were submitted to your community for review on February 16, 2017. We will incorporate the modifications made by this LOMR into the countywide FIRM and FIS report before they become effective.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

# LETTER OF MAP REVISION
# DETERMINATION DOCUMENT (CONTINUED)

## PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp

LOCAL NEWSPAPER

Name: *The Daily Camera*
Dates: November 1, 2017 and November 8, 2017

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/national-flood-insurance-program.

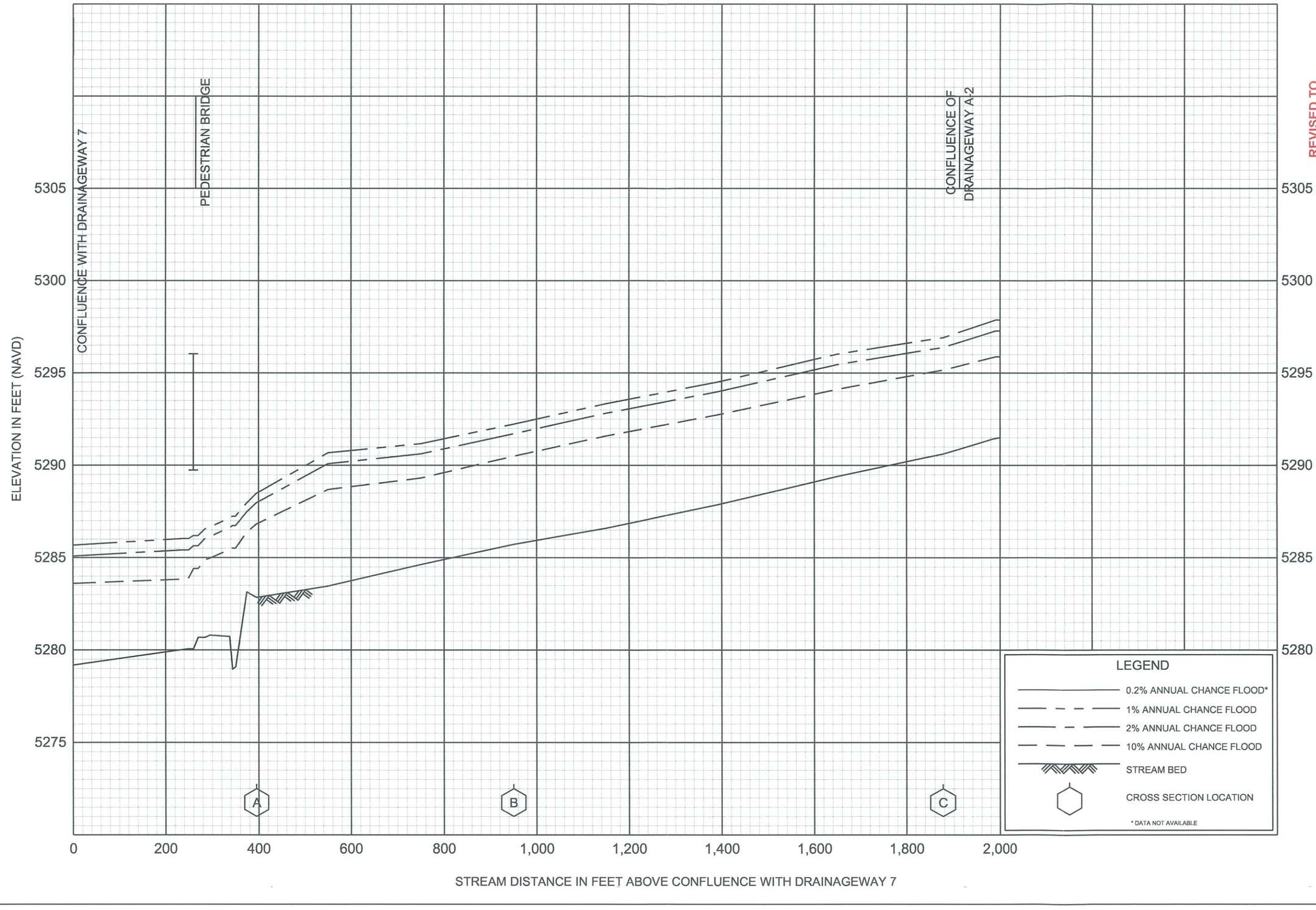
Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Table 4 - Summary of Discharges (Continued)

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Percent Annual Chance | 2-Percent Annual Chance | 1-Percent Annual Chance | 0.2-Percent Annual Chance |
|---|---|---|---|---|---|
| Drainageway A | | | | | |
| Upstream of Confluence with Drainageway 7 | 1.39 | 400 | 724 | 894 | __[1] |
| Upstream of Confluence with Drainageway A-2 | 1.13 | 157 | 281 | 367 | __[1] |
| Drainageway A-2 | | | | | |
| Upstream of Confluence with Drainageway A | 0.21 | 266 | 457 | 566 | __[1] |
| Drainageway 7-2 | | | | | |
| Upstream of Confluence with Drainageway 7 | 0.39 | 181 | 315 | 383 | __[1] |
| Drainageway 7 | | | | | |
| Upstream of Confluence with Coal Creek | 1.92 | 647 | 1,238 | 1,544 | __[1] |

[1] Data Not Available

REVISED TO
REFLECT LOMR
EFFECTIVE: March 8, 2018




REVISED TO REFLECT LOMR EFFECTIVE: March 8, 2018

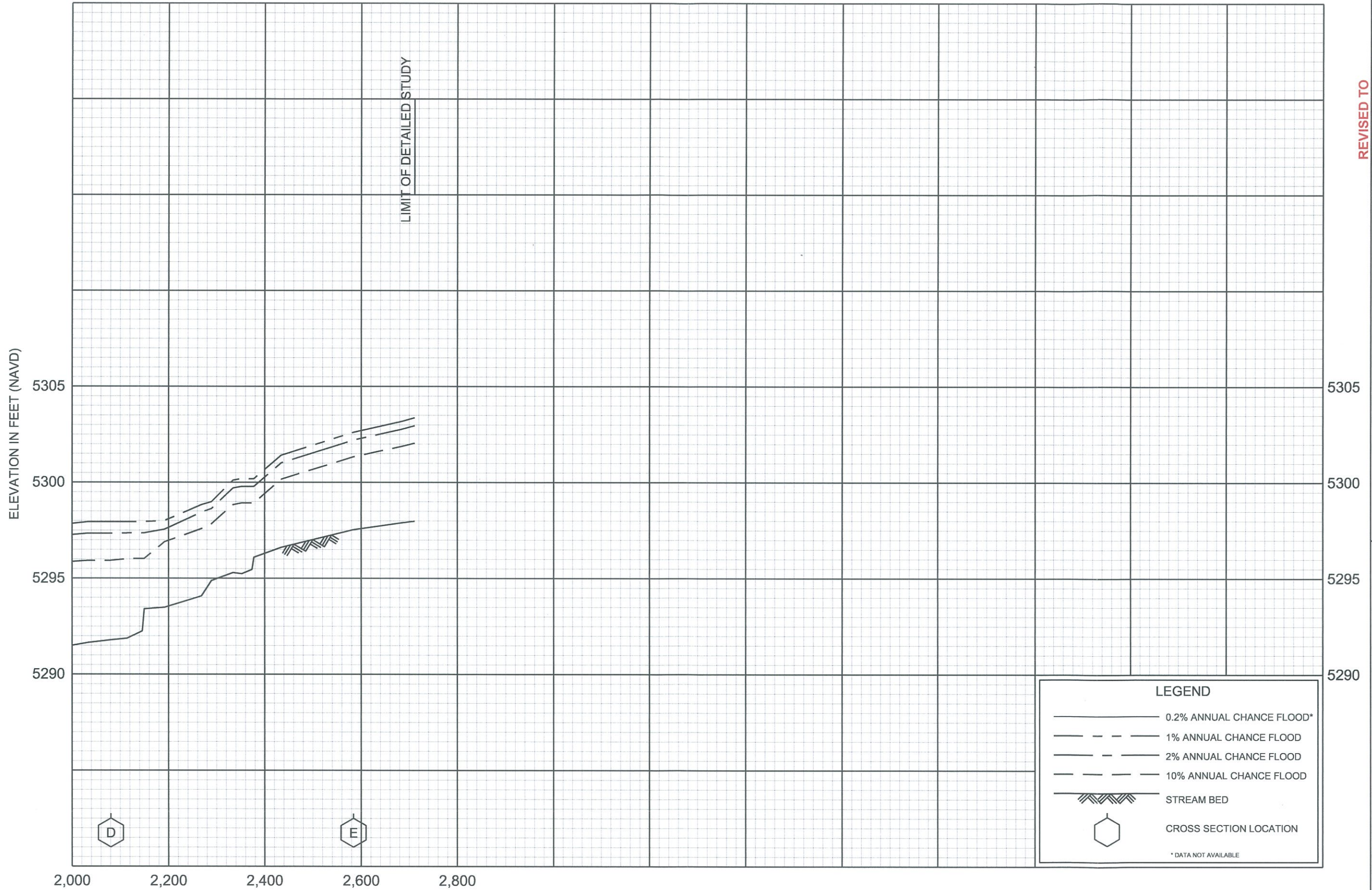
# FLOOD PROFILES

## DRAINAGEWAY A

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

381P

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REFLECT LOMR
EFFECTIVE: March 8, 2018

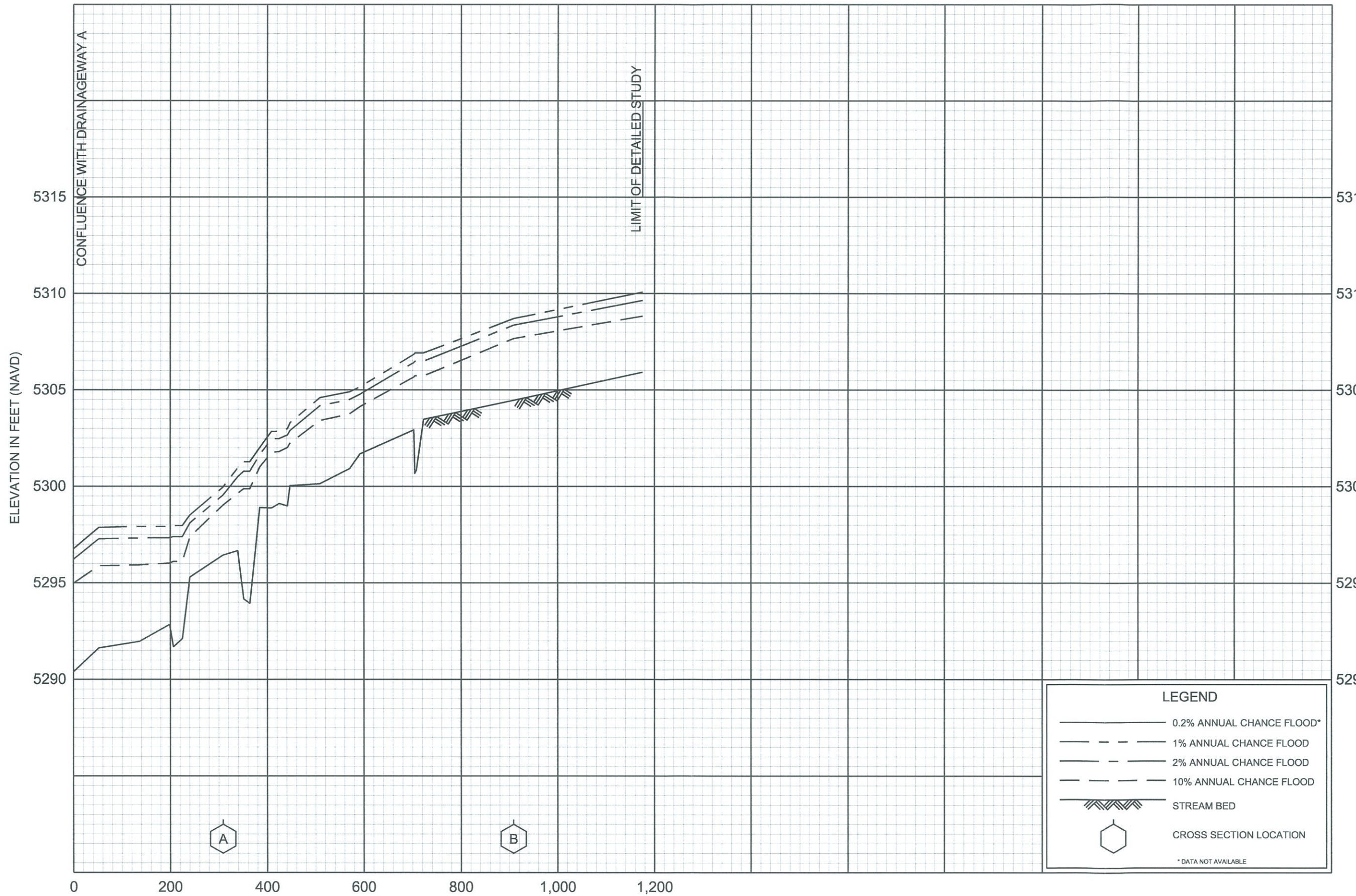
# FLOOD PROFILES

## DRAINAGEWAY A

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

382P

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EFFECTIVE: March 8, 2018

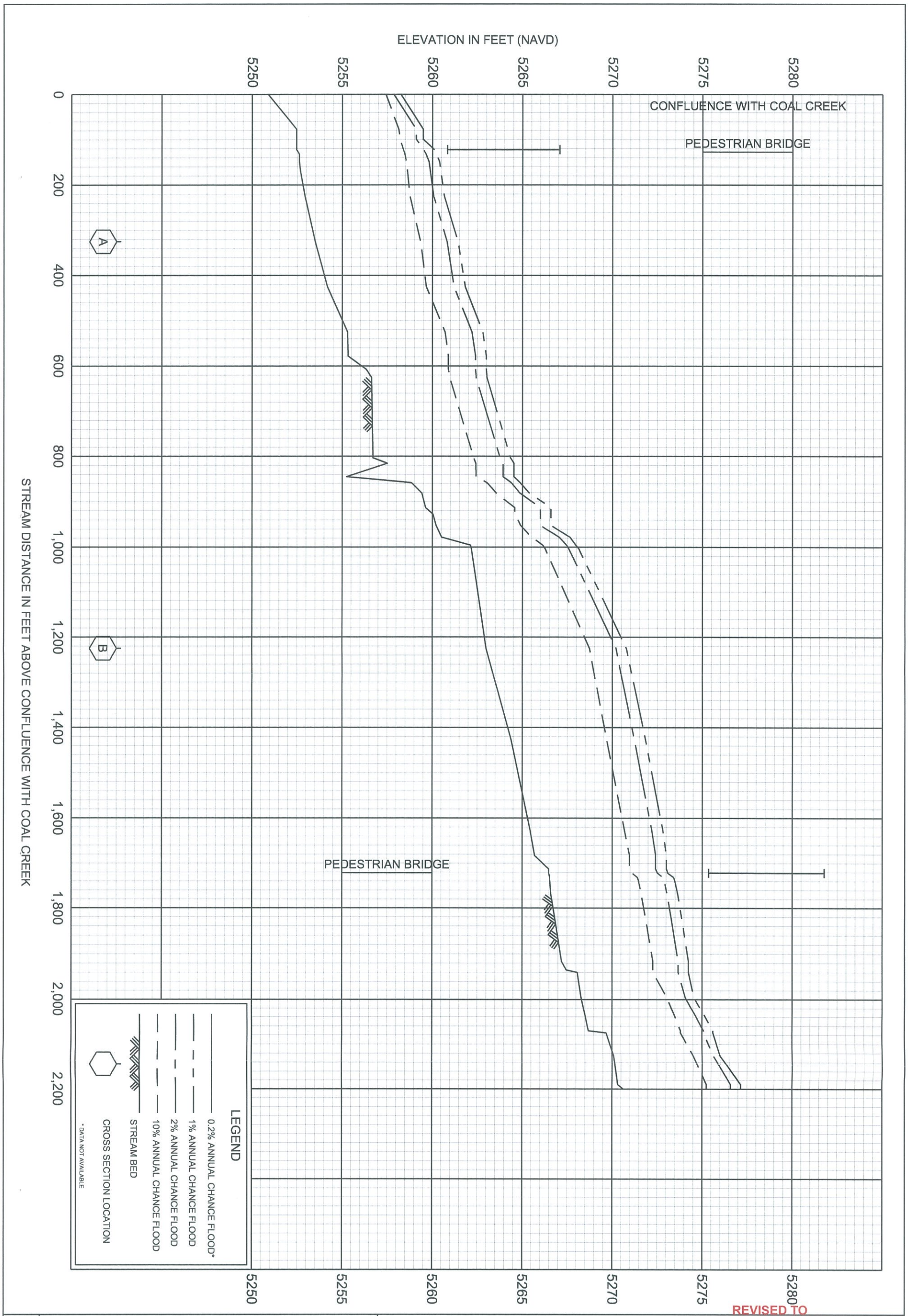
# FLOOD PROFILES

## DRAINAGEWAY A-2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

383P




384P

FEDERAL EMERGENCY MANAGEMENT AGENCY

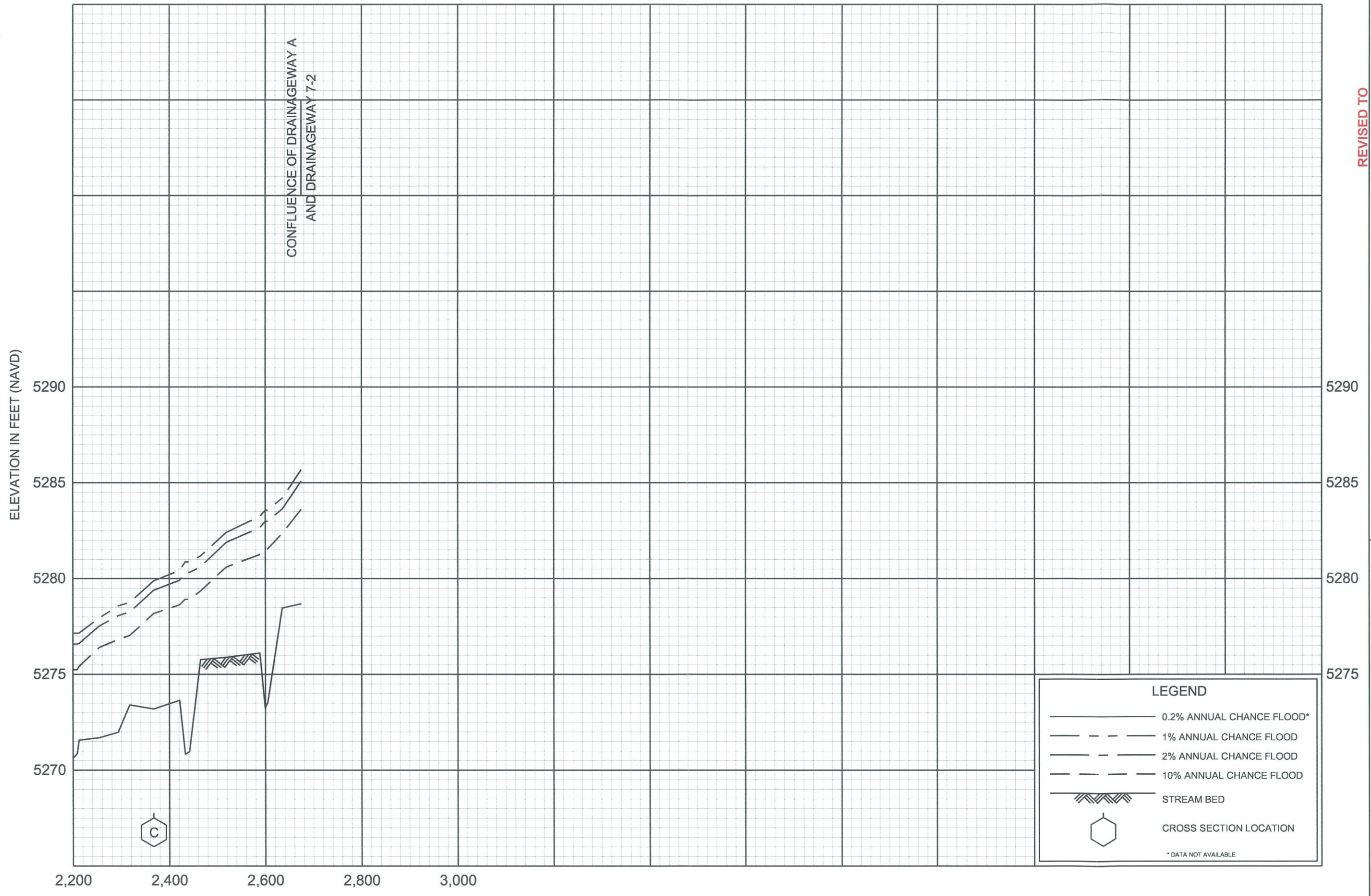
BOULDER COUNTY, CO

AND INCORPORATED AREAS

FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: March 8, 2018

DRAINAGEWAY 7




REVISED TO
REFLECT LOMR
EFFECTIVE: March 8, 2018

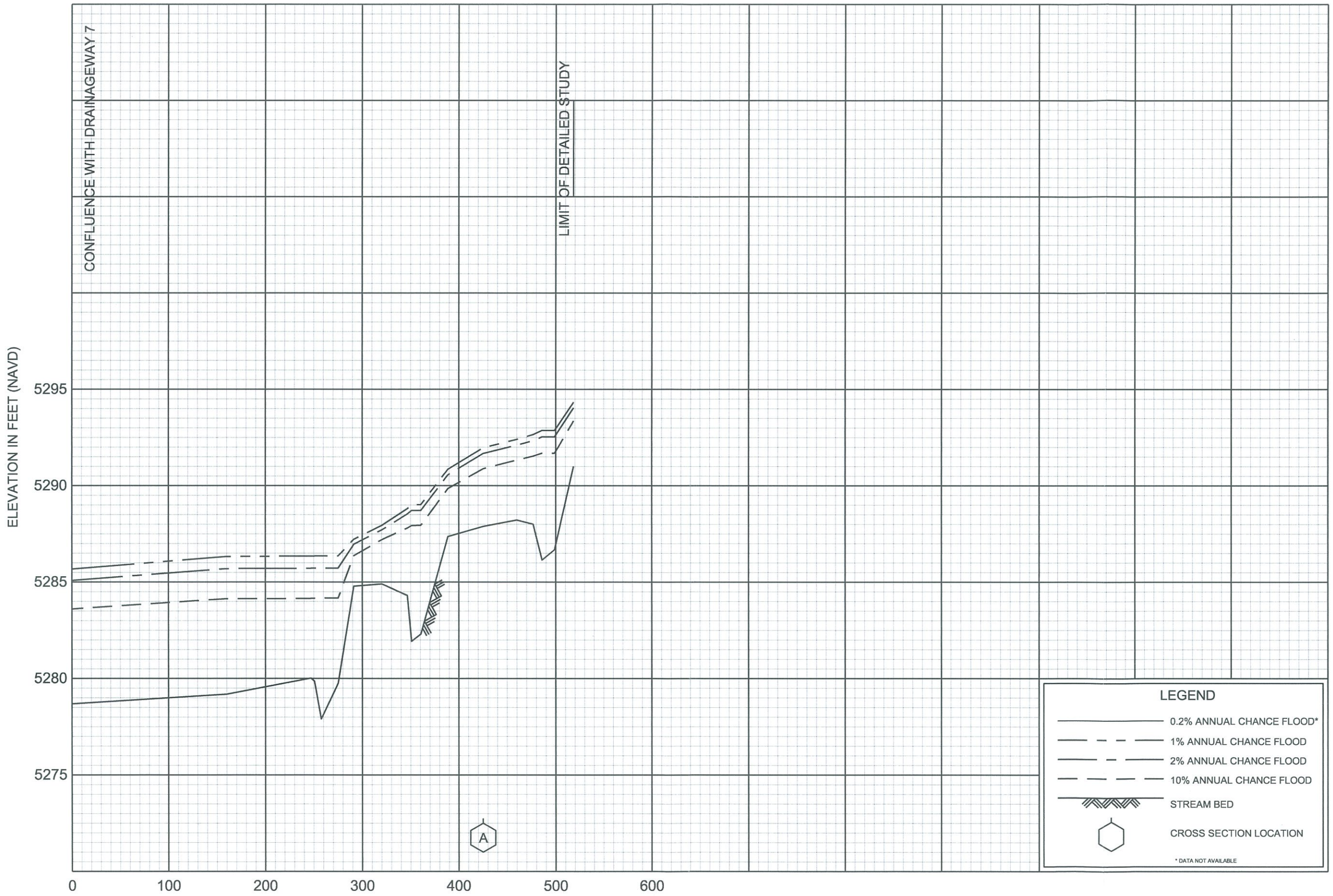
# FLOOD PROFILES

## DRAINAGEWAY 7

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

385P

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EFFECTIVE: March 8, 2018

# FLOOD PROFILES

DRAINAGEWAY 7-2

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

386P

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 SOUTH, RANGE 69 WEST.

SOUTH BOULDER ROAD
SUNSET DRIVE
LONGS PEAK DRIVE
CENTENNIAL DRIVE
COTTONWOOD DRIVE
CIRCLE DRIVE
VIA ROMA
VIA APPIA
VIA CAPRI
Goodhue Ditch
HARPER STREET
FRONT STREET
CANNON STREET
COURTESY ROAD
GRIFFITH STREET
MCKINLEY PLACE
GARFIELD COURT
LAFAYETTE STREET
CALEDONIA STREET
BURLINGTON NORTHERN AND SANTA FE RAILROAD
GRANT AVENUE
JEFFERSON AVENUE
SHORT STREET
SOUTH STREET
MAIN STREET
MCKINLEY AVENUE
WALNUT STREET
LEE STREET
GARFIELD AVENUE
SPRUCE STREET
LAFARGE AVENUE
PINE STREET
JOHNSON AVENUE
LINCOLN AVENUE
HUTCHINSON STREET
HOOVER AVENUE
MEAD COURT
ROOSEVELT AVENUE
COUNTY ROAD
EAST STREET
EMPIRE DR
JOINS PANEL 0601

**City of Louisville 085076**

**Boulder County Unincorporated Areas 080023**

**REVISED AREA**

Drainageway A
5302.6
ZONE AE
Drainageway A-2
5308.7
ZONE AE

$^{44}26^{000m}$N
$^{44}25^{000m}$N

Project Site

| SPECIAL FLOOD HAZARD AREAS | |
|---|---|
| | Without Base Flood Elevation (BFE) Zone A, V, A99 |
| | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | 0.2 % Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | Area with Reduced Flood Risk due to Levee See Notes. Zone X |

SCALE

Map Projection: Universal Transverse Mercator NAD 1983 UTM Zone 13N
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 62.5 125 250 Meters

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO
and Incorporated Areas

PANEL 582 OF 615

Panel Contains:

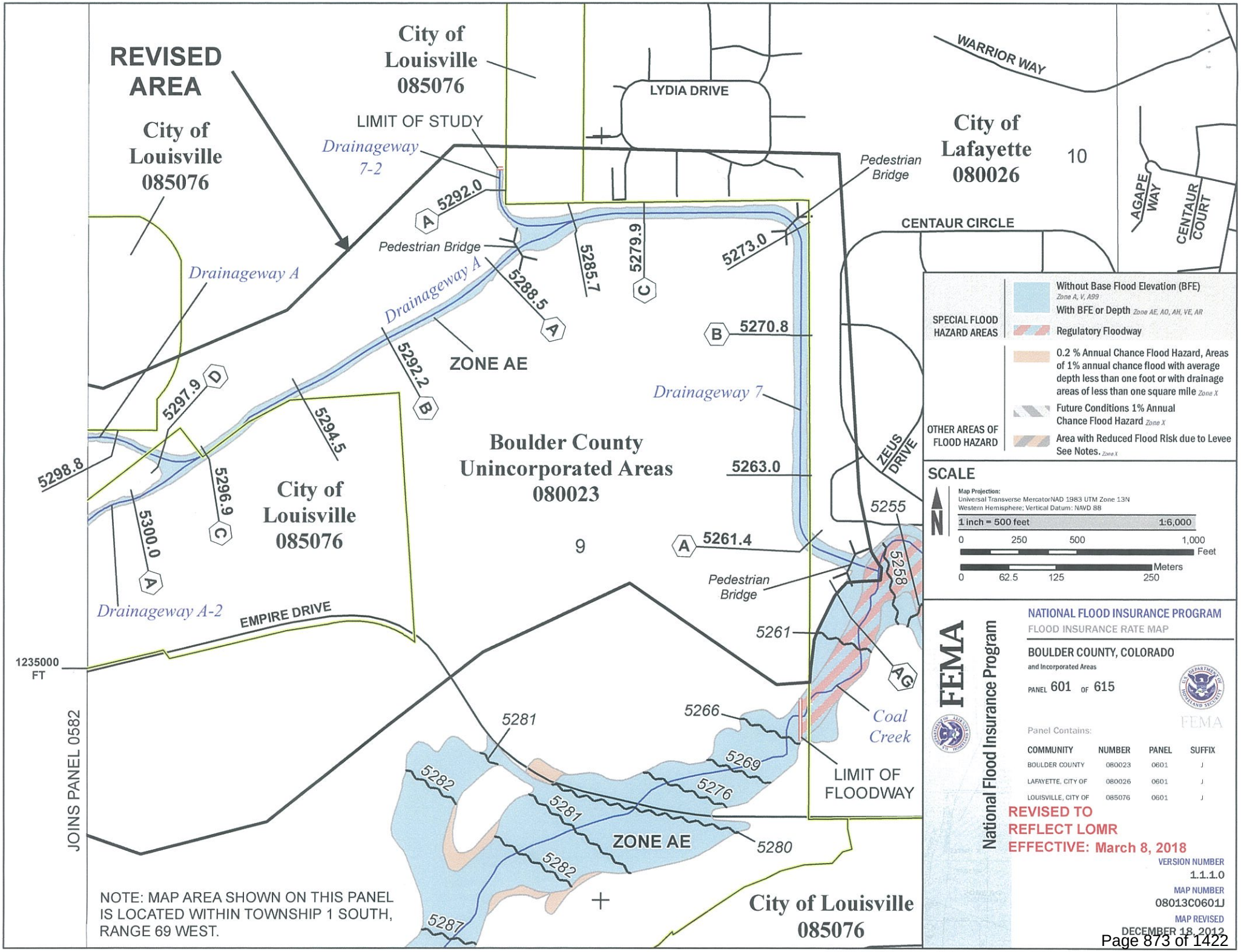
| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| BOULDER COUNTY | 080023 | 0582 | J |
| LAFAYETTE, CITY OF | 080026 | 0582 | J |
| LOUISVILLE, CITY OF | 085076 | 0582 | J |

REVISED TO REFLECT LOMR EFFECTIVE: March 8, 2018

VERSION NUMBER 1.1.1.0

MAP NUMBER 08013C0582J

MAP REVISED DECEMBER 18, 2012


REVISED AREA
City of Louisville 085076
City of Louisville 085076
LIMIT OF STUDY
Drainageway 7-2
LYDIA DRIVE
WARRIOR WAY
City of Lafayette 080026
10
AGAPE WAY
CENTAUR COURT
CENTAUR CIRCLE
Pedestrian Bridge
Drainageway A
Pedestrian Bridge
5292.0
A
5288.5
A
5285.7
5279.9
C
5273.0
B
5270.8
ZONE AE
5292.2
B
Drainageway 7
5297.9
D
5294.5
5298.8
5296.9
C
Boulder County Unincorporated Areas 080023
9
ZEUS DRIVE
5263.0
5255
5261.4
A
Pedestrian Bridge
5258
City of Louisville 085076
5300.0
A
Drainageway A-2
EMPIRE DRIVE
5261
AG
1235000 FT
JOINS PANEL 0582
5281
5266
Coal Creek
5269
5282
5276
5281
ZONE AE
5280
5282
LIMIT OF FLOODWAY
5287
City of Louisville 085076
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 SOUTH, RANGE 69 WEST.
SPECIAL FLOOD HAZARD AREAS
Without Base Flood Elevation (BFE) Zone A, V, A99
With BFE or Depth Zone AE, AO, AH, VE, AR
Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD
0.2 % Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
Future Conditions 1% Annual Chance Flood Hazard Zone X
Area with Reduced Flood Risk due to Levee See Notes. Zone X
SCALE
N
Map Projection:
Universal Transverse MercatorNAD 1983 UTM Zone 13N
Western Hemisphere; Vertical Datum: NAVD 88
1 inch = 500 feet 1:6,000
0 250 500 1,000 Feet
0 62.5 125 250 Meters
FEMA
National Flood Insurance Program
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
BOULDER COUNTY, COLORADO
and Incorporated Areas
PANEL 601 OF 615
FEMA
Panel Contains:
COMMUNITY NUMBER PANEL SUFFIX
BOULDER COUNTY 080023 0601 J
LAFAYETTE, CITY OF 080026 0601 J
LOUISVILLE, CITY OF 085076 0601 J
REVISED TO REFLECT LOMR EFFECTIVE: March 8, 2018
VERSION NUMBER 1.1.1.0
MAP NUMBER 08013C0601J
MAP REVISED DECEMBER 18, 2012

# T-3 BIORETENTION SYSTEMS

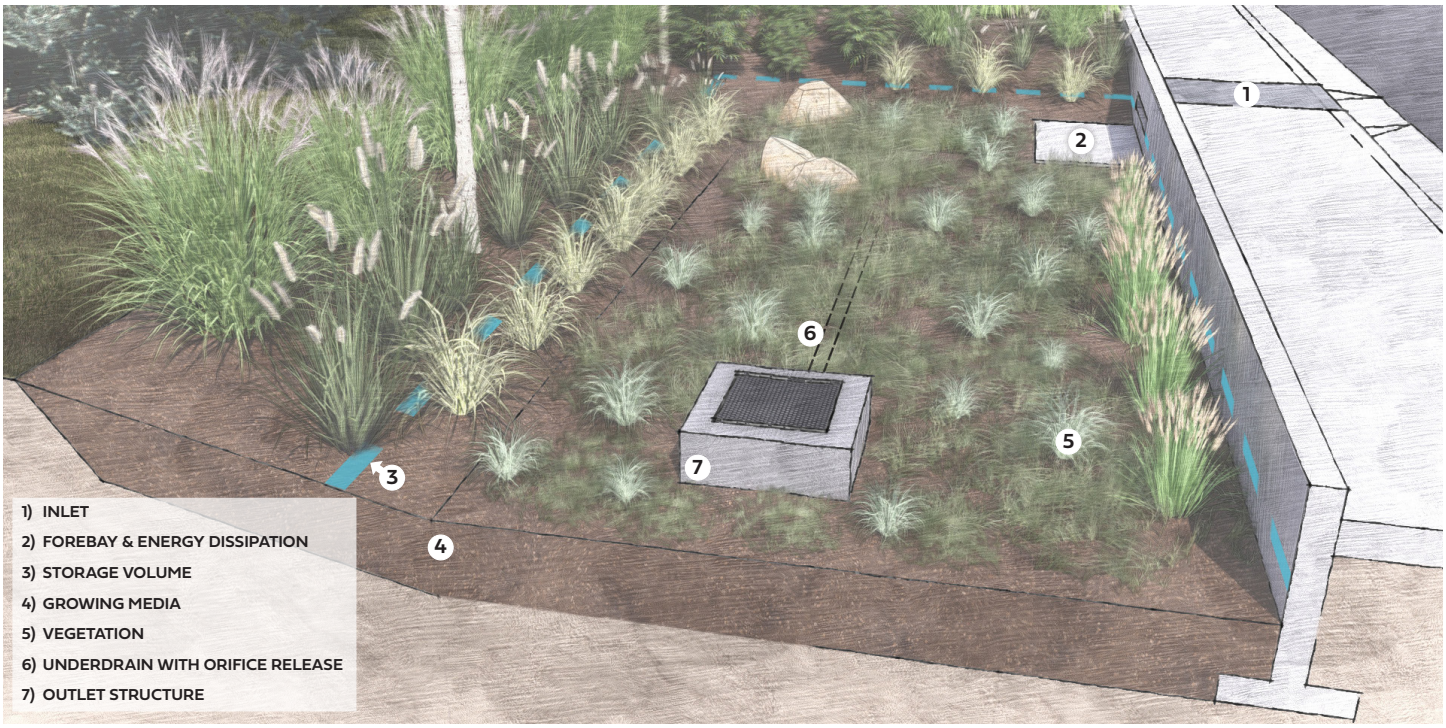



*Figure BR-1. Bioretention System Components*

## DESCRIPTION

Bioretention systems are vegetated, engineered, depressed landscape areas designed to capture and filter and/or infiltrate the water quality capture volume (WQCV). Engineered media and vegetation facilitate filtration, adsorption, absorption, and biological processes that retain stormwater pollutants and enhance infiltration capabilities. The terms porous landscape detention (PLD), rain garden, and bioretention are often used interchangeably in the MHFD region. The term rain garden is sometimes used to describe smaller engineered bioretention systems or non-engineered installations and when describing this SCM to the public. Bioretention can be configured in several ways in urban areas and may be described as streetside planters, curbside bioretention, bump-out stormwater planters. Ultra-urban adaptations of bioretention can also include tree trenches and tree pits (although not described in this fact sheet). Local jurisdictions may have additional or different requirements for various types of bioretention systems.

MHFD strongly encourages use of bioretention as a stormwater control measure (SCM) because properly designed, constructed and maintained bioretention systems provide effective stormwater treatment, reduce runoff volume and erosive flow rates, and provide community connection benefits and green space in the urban environment.

Bioretention systems can be designed to provide detention for events exceeding the WQCV by incorporating storage of the Excess Urban Runoff Volume (EURV) and 100-year detention storage volumes above the WQCV, with drain times and release rates in accordance with the *Storage* chapter.

TABLE BR-1. BR OVERVIEW

| BIORETENTION SYSTEMS | |
|---|---|
| **MS4 Permit Applicability (Dependent on design and level of treatment)** | |
| Meets Runoff Reduction Standard | Potential[1] |
| Meets WQCV Capture Standard | Yes |
| Meets Pollutant Removal Standard | Yes |
| **Typical Effectiveness for Targeted Pollutants** | |
| Sediment/Solids | High |
| Total Phosphorus | Low-Medium[1] |
| Total Nitrogen | Low-Medium[1] |
| Total Metals | High |
| Bacteria | Medium |
| **Common Applications** | |
| Runoff Reduction (General) | Potential[1] |
| Used for Pretreatment | No |
| Integrated with Flood Control | Yes |

[1] Depends on design including full-infiltration, partial infiltration or no-infiltration section.

## SCM COMPONENTS

The primary components of bioretention include inlet(s), energy dissipation and forebay(s), a surcharge volume, engineered media, vegetation, an underdrain (for no- or partial-infiltration designs), and an outlet structure (Figure BR-1). The primary outflow for the WQCV is typically an underdrain or infiltration into the underlying soil. When bioretention is designed to provide full spectrum detention, design the outlet to release the EURV and 100-year volumes in accordance with the EURV drain time and 100-year release rates. Even if the bioretention system is only designed to treat the WQCV, an emergency overflow (outlet or spillway) is necessary to safely convey flows from larger events.

See Section 3.0 *Site Assessment* and Section 4.0 *Filtration and Infiltration Systems* of this chapter for guidance and criteria on determining the appropriate type of bioretention system and designing underdrain and liner systems as needed based on site-specific conditions. Section 5.0 *SCM Inflow Features* and Section 6.0 *SCM Outflow Features* of this chapter provide guidance on creative ways to drain runoff into the SCM and release the treated runoff.

Check bioretention media sourcing and composition is important. MHFD recommends confirming the gradation and nutrient content in the field. The engineered media and vegetation are the core water quality treatment

TABLE BR-2. BR COMPONENTS

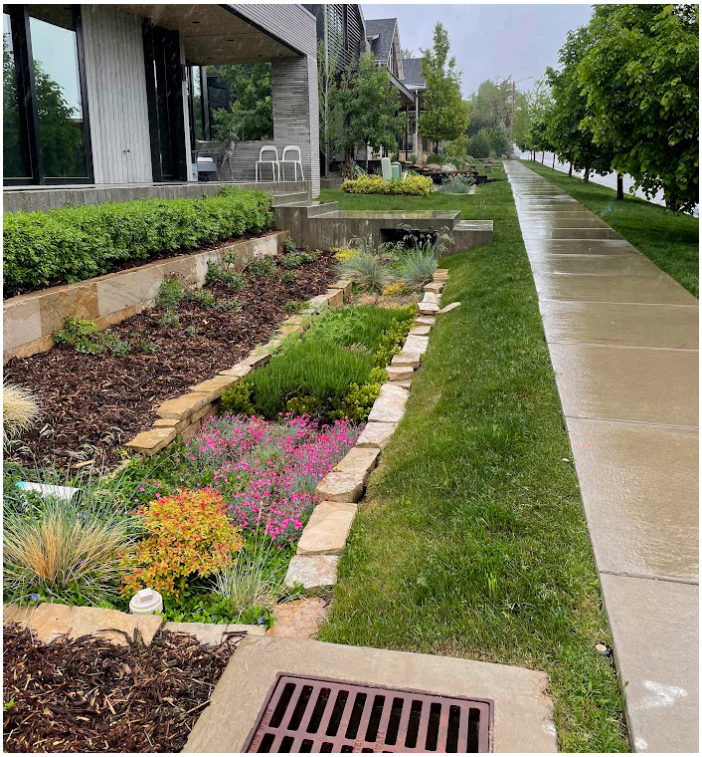
| COMPONENT | INTENT |
|---|---|
| Inlet | Allows stormwater to enter the SCM. |
| Forebay | Facilitates removal of trash and coarse sediments, providing pretreatment for the SCM. |
| Energy Dissipation | Minimizes potential for erosion of media surface. |
| Storage Volume | Provides temporary storage needed to attenuate design flows. |
| Engineered Media | Supports plant growth and reduces pollutants by filtering and through other biological treatment processes. |
| Vegetation | Helps maintain infiltration over time through root penetration of media, increases evapotranspiration and biological uptake of pollutants, aerates media, catalyzes soil ecology, and creates an attractive SCM. |
| Underdrain with Orifice Release | For partial and no infiltration systems, collects and slowly releases the WQCV over 12 hours to reduce erosion in the receiving stream and enhance treatment by increasing contact time with the media. |
| Outlet Structure | Safely conveys stormwater flows that exceed the design volume. For bioretention systems that detain the EURV and/or 100-year flow, surface outlet structures will have additional orifice controls for surface discharge rather than infiltration through the media. |

### BENEFITS OF BIORETENTION

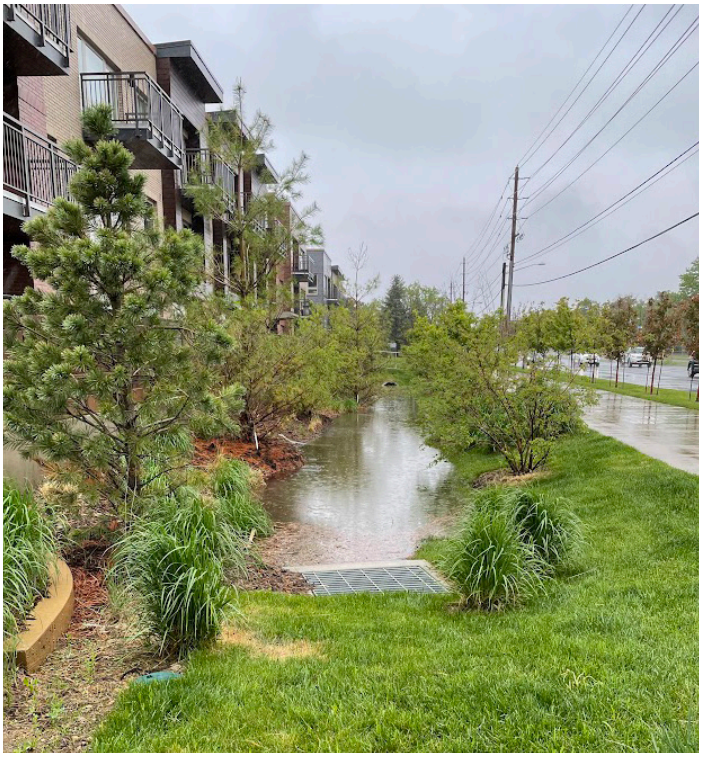
- When designed and constructed correctly, routine maintenance is straightforward consisting of sediment/debris removal from the forebay and vegetation management.
- Incorporates multiple treatment processes including sedimentation, filtering, adsorption, evapotranspiration, and biological uptake of constituents.
- Stormwater features are integrated with landscaping.
- Decreases urban heat island effects.
- Can be integrated into space-constrained urban areas in a variety of shapes and sizes.
- Avoids problems with clogging of small orifices common with some EDBs.

### LIMITATIONS OF BIORETENTION

- Vegetation requires management.
- Requires additional steps when near a building foundation or when expansive soils exist.
- In a developing or otherwise erosive watershed, sediment loads can clog the system.
- Trash and sediment can block inlets and cause bypass of flows, if not maintained.



*Photograph BR-1. This bioretention area treats runoff from the roof and lot, while serving as an aesthetically pleasing landscape feature. Photo: Wright Water Engineers.*



*Photograph BR-2. Bioretention system treating urban stormwater during runoff event. Photo: Wright Water Engineers.*

elements of bioretention. The media must balance good infiltration capabilities with properties needed to support vegetation. MHFD has conducted significant testing of different mixes for bioretention media to develop the recommended specifications in this fact sheet. Additionally, national research has included media amendments targeting specific pollutants (Tirpak et al. 2021, Pitt and Clark 2010, Clark and Pitt 2012, Erickson et al. 2012 & 2021, Hunt et al. 2012, Chandrasena 2014, Mohanty and Boehm 2015, O'Neil and Davis 2012a&b, Mohanty et al. 2018, Herrera 2020, among many others). This fact sheet focuses on a basic engineered media design suitable for broad use in the MHFD jurisdiction, but does not preclude consideration of media amendments designed to target specific pollutants, provided that they maintain the intended functions of MHFD's media.

Other bioretention design variations in the underdrain configuration, such as use of an upturned underdrain elbow to create an internal water storage zone (Brown et al. 2009) to reduce nitrogen, are discussed further in Section 4.3.3 of this chapter.

## SITE CONSIDERATIONS

Bioretention is an excellent choice for small sites because it treats the WQCV and serves as a landscape feature. It is typically a much better choice for small sites than an extended detention basin (EDB) because EDBs treating small drainage areas have outlet structures with small orifices that are prone to clogging. Bioretention can also be incorporated into larger sites and can be designed to provide full spectrum detention.

Bioretention systems typically are installed in locations such as:

- Plazas
- Parks
- Parking lot islands
- Street medians



*Photograph BR-3. Terraced bioretention SCM in recreation center parking lot. Photo: MHFD*

- Landscape areas between the road and a detached walk
- Planter boxes that collect roof drain flows

To avoid clogging of media, bioretention requires a stable watershed. When the watershed includes phased construction, sparsely vegetated areas, or steep slopes, consider another SCM that is less susceptible to clogging or provide pretreatment to facilitate sedimentation before runoff from these areas reaches the bioretention media surface. Additionally, bioretention is intended to dry out between runoff events; therefore, it should not be used when a baseflow is anticipated.

The surface of the bioretention media should be flat or at a mild slope. For this reason, bioretention can be more difficult to incorporate into steeply sloping terrain; however, terracing can be used to create flat areas suitable for bioretention even with sloped topography.

When bioretention areas are located adjacent to structures or infrastructure that could be adversely affected by infiltrating runoff or in areas with expansive soils, consult with a geotechnical engineer. A geotechnical engineer can evaluate the suitability of soils, identify potential impacts, and establish minimum distances or other physical barriers to implement between the bioretention system and structures. See Section 3.0 *Site Assessment* and Section 4.0 *Filtration and Infiltration Systems* for guidance and criteria on geotechnical considerations and testing requirements, underdrain and filter layers, perimeter barriers, and other aspects common to infiltration-based SCMs including bioretention.

## COMMUNITY VALUES

Bioretention provides opportunities to provide a high level of treatment for stormwater while also creating landscape features that add value to a site by enhancing the landscape aesthetics and experience. Bioretention areas that are an integral part of the site's landscape provide far more benefits than areas dedicated solely to stormwater treatment, such as small EDBs, because bioretention areas are multifunctional and can serve other purposes including meeting landscape area requirements, providing attractive pockets of interesting plants, aesthetic screening of parking lots, and others.

It is important to establish pre-design planning objectives to facilitate a successful design. At an early stage, determine the aesthetic design approach that best meets the overall project objectives. There are many opportunities for creativity in grading, plant selection, and design of inflow and outflow features for bioretention. Design approaches typically endeavor either to integrate the SCM into its surroundings with a "contextual design," or consciously contrast with the surroundings to highlight the SCM as a "stand-alone element," providing a counterpoint to the context of the site.

In a contextual design, the design responds to and builds on the character of the surroundings. Forms and shapes are related to and harmonious with surrounding structures and site improvements and fit into their environment through use of similar or complementary materials, scale, and design detailing. Materials used in this approach may directly reflect materials used in the surrounding architectural and engineering improvements. Coordinate design details for the bioretention area, such as concrete or stone edgers and retaining walls, with the surrounding site improvements to provide a unifying effect with the surroundings. Plant materials should also relate to surrounding landscape in overall character, massing, and degree of formal or naturalistic arrangement, while selecting drought-tolerant plants that will also thrive in the periodically wet environment.

A "stand-alone" or counterpoint design aims to create a feature that contrasts with its surroundings through uses of form, scale, materials, color, and other features. A counterpoint design can create a strong dramatic effect, but to be successful, it must be done in a way that creates an overall balanced site design.

Of these two approaches, contextual design is more common and is generally easier to accomplish. With either approach, the emphasis should be on creating a feature that adds value to the site while effectively treating the WQCV. Maintenance is critical for ensuring long-term function of bioretention and community acceptance, so planning for maintenance and selecting plants that are suitable for the hydrologic conditions in the SCM are important design aspects to avoid burdensome maintenance.

Appropriate plant selection enhances the community value of bioretention systems. Considerations for plant selection from a community-values perspective include:

- Select plants that thrive and perform over the long-term without excessive maintenance. For bioretention to be accepted by the community, it should be attractive (Davis, Traver and Hunt 2022), which requires healthy plants and routine maintenance.
- Select plants appropriate for the site's unique micro-climatic conditions and bioretention design features, construction techniques, and expected maintenance levels of service. Microclimate, including solar aspect, exposure to wind, and shading or sun reflections from adjacent buildings, can have a significant effect on the conditions that plants must tolerate. Visiting the site during different times of the day in summer months prior to design is very informative for understanding sun and shading as well as urban heat island effects.
- Small trees can provide significant added value to bioretention areas, including runoff reduction and mitigation of urban heat island effects. When considering trees for bioretention systems, assess the compatibility of different species with the hydrologic, soil, and solar aspect of the SCM. Healthy trees also require adequate above and belowground space (Davis et al. 2022). (See additional considerations for trees in the Design section of this fact sheet.)
- Use natives plant species when feasible. Native species tend to tolerate the region's hot summers and cold winters better than most non-natives. Native grasses have deep roots that can reach residual moisture in the bioretention media during times of drought.
- Select plants that are drought tolerant but that can also tolerate prolonged periods of inundation or media saturation, particularly during sequential storms.
- Consider planting vegetation in groupings or masses of single or similar species. Generally, large masses of plants grouped relatively close together create dense stands of vegetation that grow together to out-compete weed growth, while enhancing infiltration through root penetration that creates macropores as roots die and decay.

## MAINTENANCE

Routine maintenance of bioretention is similar to landscape maintenance, consisting of trash and sediment removal from the forebay and care for vegetation. Chapter 6 of this manual provides recommended maintenance practices for all SCMs. During design, consider the following during design to ensure ease of maintenance over the long-term:

- Consider how the SCM will be accessed for routine and restorative maintenance, what equipment will be required, and how routine maintenance activities can be performed in a way that minimizes impacts to vegetation.
- Understand the level of maintenance that will be needed over the long term. Bioretention features designed as aesthetic amenities in public areas may require more frequent maintenance than those with more naturalized designs in suburban settings. Do not select plantings that require frequent maintenance if the owner does not have the resources to perform such maintenance. Poorly maintained bioretention areas can become weedy eye sores that contribute to poor public acceptance.
- Make the bioretention surface area (bowl) as shallow as needed. Increasing the depth unnecessarily can create erosive side slopes and complicate maintenance. Shallow bioretention areas are also more attractive.
- The best surface cover for bioretention is full vegetation, in part because it reduces weeding and various mulch-related maintenance issues. Use rock mulch sparingly because it limits infiltration, is more difficult to maintain and can also increase urban heat island effects. Wood mulch handles sediment build-up better than rock mulch; however, wood mulch floats and can settle unevenly or clog the overflow depending on the configuration of the outlet. Some municipalities may not allow wood mulch for this reason. When specifying mulch, look for shredded varieties. Also, increase density of grasses at the interface of the forebay and vegetation to slow flows entering the basin.
- Provide pretreatment when it will reduce the extent and frequency of maintenance necessary to maintain function over the life of the SCM. Provide a forebay for any concentrated inflows. For small inflows, the forebay may consist of a pad for sediment accumulation and removal surrounded by grasses to help keep sediment from migrating onto the filter area.
- Note that research shows that deicers can cause reduced infiltration rates in media and soils with clay content (Sileshi, Pitt and Clark 2017). Understand the composition of the media and the underlying soils in this respect and develop the planting plan accordingly. Deicers in runoff can stress vegetation, which may result in increased maintenance and vegetation replacement requirements. Conifers are particularly sensitive to salt.
- Establishing healthy vegetation is critical for this SCM to properly function. Design and adjust the irrigation system (temporary or permanent) to provide appropriate water for the establishment and maintenance of selected vegetation.
- Consider maintenance access and requirements for tree pruning and frequency of raking, if trees are included in bioretention systems. Do not operate heavy equipment on the media surface (e.g., cherry picker lifts) for tree pruning.
- Do not put a filter sock on the underdrain. This is not necessary and can cause the underdrain to clog.
- Never use bioretention systems for snow storage. Designate a location for snow storage elsewhere.

## DESIGN PROCEDURES & CRITERIA

Criteria and guidance for bioretention components including inlets, forebays, underdrains, liners, and outlets are provided in the front section of this chapter. Reference this section for design of these specific features.

The SCM Design workbook, available at www.mhfd.org, is an Excel-based workbook that steps through the criteria listed below and performs design calculations for bioretention. Use this workbook to ensure designs meet criteria for treating the WQCV. Use a separate tool, MHFD-Detention, to develop and route storm hydrographs for a range of events through bioretention systems.

The following steps outline the design procedures and criteria for designing bioretention for water quality:

1. **Subsurface Exploration and Determination of a Full Infiltration, Partial Infiltration or No-Infiltration Section**: See Section 3.0 *Site Assessment* and Section 4.0 *Filtration and Infiltration Systems* of this chapter to determine the most appropriate type of filtration and/or infiltration system for the bioretention area based on site conditions.

2. **Inlet Design and Pretreatment**: See Section 5.0 *SCM Inflow Features* of this chapter for guidance and criteria for inlets, energy dissipation, and forebays. Provide pretreatment with a properly designed forebay or other device designed to remove coarse sediment, trash, and debris. Pretreatment of roadway runoff to remove sediment is especially critical for bioretention systems receiving roadway runoff.

   Where feasible, inlets set above the WQCV elevation will reduce maintenance requirements related to sediment deposition in the inflow pipe due to backwater conditions.

3. **Design Storage Volume**: Provide a storage volume equal to the WQCV[1] based on a 12-hour drain time, after accounting for runoff-reduction SCMs in the contributing watershed. Determine the required WQCV (watershed inches of runoff) using Equation 3-2 of Chapter 3 of this manual (for WQCV). Always size SCMs based on their tributary area. When sizing the basin for EURV or larger detention volumes, see the *Storage* chapter of Volume 2. Where needed to meet the required volume, also consider the available void storage capacity of the media at 15 percent.

4. **Bioretention System Basin Geometry**: Basin geometry considerations include surface area, filter surface slopes and ponding depth.

   - **Media Surface Area**: Equation BR-1 provides a minimum media surface area for the WQCV allowing for some of the volume to be stored beyond the flat area of the media (i.e., above the side slopes of the bioretention basin). Additional surface area beyond this minimum may be necessary to meet the maximum recommended ponding depth.

     $$A_F = 0.02 \cdot A \cdot I$$ **Equation BR-1**

     Where:

     $A_F$ = minimum filter area ($ft^2$)

     $A$ = area tributary to the SCM ($ft^2$)

     $I$ = imperviousness of tributary area draining to the SCM (percent expressed as a decimal)

     Use vertical walls or slope the sides of the basin to achieve the required volume. Side slopes should be no steeper than 4:1.

   - **Ponding Depths**: Maximum ponding depths vary depending on the bioretention design, with a maximum recommended WQCV ponding depth of 12 inches stored above the surface to minimize stress to vegetation for frequent inundation and to manage the hydraulic loading. When the bioretention basin is designed for the WQCV only, locate the overflow spillway crest at or above the elevation associated with the maximum ponding depth for the WQCV measured vertically from the flat filter media surface.

   - **Media Surface Slopes**: The media surface of the bioretention area typically should be flat. The exception to this is when a mild slope (e.g., < 1%) from the inlet to the outlet will help distribute runoff to the vegetation and reduce sediment deposited at the inlet. Linear systems, such as streetside stormwater planters, may benefit from a mild slope from inlet to outlet. When the flow path is long, consider level grade beams to maintain sheet flow. The intent is to fully use the filter area to avoid higher sediment deposition in lower areas of the basin.

[1] MHFD's standard design procedure is based on treatment of the WQCV, which corresponds to the Colorado's MS4 WQCV design standard. In some cases, bioretention systems may be designed to meet a volume reduction target, particularly where underlying soils allow for infiltration. In this case, conduct site-specific analysis to determine whether the volume reduction target can be met for site conditions.

TABLE BR-3. BIORETENTION MEDIA PROPERTIES

| SOIL PARAMETERS | TEST NAME | BIORETENTION MEDIA PROPERTIES |
|---|---|---|
| Texture/Gradation | ASTM D7928 Sedimentation (Hydrometer) Method | Particle Size Distribution:<br>70-80% Sand (0.05-2.0 mm diameter)<br>5-25% Silt (0.002-0.05 mm diameter)<br>5-15% Clay (<0.002 mm diameter)<br>Notes:<br>Sand, silt and clay percentages are by dry weight.<br>Particle sizes are based on the USDA soil classification system.<br>Distribution is measured after gravel > 2 mm is removed from sample. Media should have no more than 25% material > 2 mm.<br>Equivalent sieve sizes for the upper and lower limit of sand are #10 and #240, respectively. |
| Organic Matter | ASTM D2974 | 1-5% by dry weight |
| pH | ASA/AASHTO | 6.0 - 8.5 |
| Salinity/Salts (EC) dS/m or mmhos/cm | Saturated Paste | <3 |
| Nitrate Nitrogen (ppm) | ASA2 33-3 | <30 |
| Phosphorus (ppm) | Use Olsen when pH>6.2, otherwise use Mehlich-3 | Olsen: <20 or<br>Mehlich-3: <30 |

5. **Underdrain System, Impermeable Liner, and Geotextile Separator Fabric**: See Section 4.0 *Filtration and Infiltration Systems* of this chapter for guidance and criteria based on the type of filtration and infiltration system selected. Underdrain systems in bioretention basins consist of a slotted PVC pipe placed within a layer of drain gravel beneath the bioretention media. A 6-inch layer of sand is also specified above the drain gravel in Section 4.0. Research (Herrera 2020) indicates that a sand layer below the media can serve as a polishing layer for the effluent.

6. **Bioretention Media**: Provide a minimum of 18 inches of bioretention media to enable establishment of the roots of the vegetation. If trees are planted, increase the media depth to 36 inches.

   MHFD's bioretention media is intended to balance high infiltration capacity with properties needed to support healthy vegetation. Table BR-1 outlines recommended parameters for bioretention media. MHFD's media recommendation begins with topsoil that can be amended as needed, typically with sand, until it meets the specifications in Table BR-1. See Availability of Bioretention Media in the MHFD Region (MHFD 2023) for more information. It is important that the media contain organic material with living soil organisms such as earthworms, bacteria, and fungi to enhance agronomic and infiltration properties and create a healthy, living media. Do not add compost to the bioretention media; instead, other forms of organic matter such as mulch, peat or woodchips should be used if needed because they have lower nitrogen and phosphorus content and are more resistant to microbial degradation (Davis, Hunt and Traver 2022).

   The media texture in Table BR-1 has a slightly higher proportion of silts and clays and a lower sand percentage compared to prior MHFD media specifications. The purpose of this change is to increase moisture and nutrient holding capacity to aid in the establishment of a dense vegetation cover, which ultimately helps to sustain infiltration capacity.

   A high level of quality control for the media is critical. Quality control measures include reviewing media particle size distribution data, media chemistry data, and results of nutrient analysis to ensure that the media meets specifications. The media can either be sampled after delivery and prior to placement, or sampled by the supplier just prior to site delivery. In any case, the samples should be collected within several days of placement of the media so that the results are representative of the media placed.

7. **Vegetation**: The media must be vegetated. MHFD recommends drought-tolerant species that thrive in sandy soils. Approaches to vegetating bioretention areas can include planting sod-forming native grasses from seed, installing sand-grown sod, and/or planting container-grown plants or small trees. Consult with a vegetation specialist to understand which types of vegetation will be successful in a given location, considering shade, heat island effects, application of deicers in the watershed, and other site-specific factors. Recommendations for vegetation established from seed, planted in containers or plugs, and trees follow. While establishment from seed typically costs less than container-grown plants, container-grown plants establish more quickly and are less susceptible to being washed away during establishment. A mixture of container-grown plants and seed may help with initial vegetation cover and media stabilization.

   Table BR-4 provides a suggested seed mix for sites that typically will not need to be irrigated after the grass has been established, except for periods of extended drought. Guidelines for establishing vegetation from seed include:

   - Mix seed well and broadcast, followed by hand raking to cover seed .
   - Immediately after seeding, install a biodegradable 100-percent coconut erosion control blanket over the media to keep seed and media in place during runoff and irrigation events during establishment.
   - Consider seasonality when planting to ensure establishment. Both frequent storms and extended hot, dry periods can affect seed establishment.
   - Do not place seed when standing water or snow is present or if the ground is frozen.
   - Weed control is critical in the first two to three years, especially when starting with seed.

   When using sod, specify sand-grown sod which is available in Colorado, although not as common as conventional sod. Do not use conventional sod. Conventional sod is grown in clay soil that can seal the filter area, greatly reducing overall function of the SCM. Be aware that local jurisdictions may restrict use of turf varieties with high irrigation requirements (e.g., Kentucky bluegrass) and may require native grasses for water conservation reasons.

TABLE BR-4. NATIVE SEED MIX FOR BIORETENTION

| COMMON NAME | SCIENTIFIC NAME | VARIETY | PURE LIVE SEED (PLS) | |
|---|---|---|---|---|
| | | | POUNDS/ACRE | OUNCES/ACRE |
| Sand bluestem | *Andropogon hallii* | Garden | 3.5 | |
| Sideoats grama | *Bouteloua curtipendula* | Butte | 3 | |
| Prairie sandreed | *Calamovilfa longifolia* | Goshen | 3 | |
| Indian ricegrass | *Oryzopsis hymenoides* | Paloma | 3 | |
| Switchgrass | *Panicum virgatum* | Blackwell | 4 | |
| Western wheatgrass | *Pascopyrum smithii* | Ariba | 3 | |
| Little bluestem | *Schizachyrium scoparium* | Patura | 3 | |
| Alkali sacaton | *Sporobolus airoides* | | 3 | |
| Sand dropseed | *Sporobolus cryptandrus* | | 3 | |
| Pasture sage[1] | *Artemisia frigida* | | | 2 |
| Blue aster[1] | *Aster laevis* | | | 4 |
| Blanket flower[1] | *Gaillardia aristata* | | | 8 |
| Prairie coneflower[1] | *Ratibida columnifera* | | | 4 |
| Purple Prairie Clover[1] | *Dalea (Petalostemum) purpurea* | | | 4 |
| Sub-Totals: | | | 27.5 | 22 |
| **Total pounds/acre** | | | **28.9** | |

[1] Wildflower seed (optional) for a more diverse and natural look.

TABLE BR-5. CONTAINER-GROWN PLANTS AND PLUGS FOR BIORETENTION (SOURCE: CITY & COUNTY OF DENVER 2016)

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| Grasses | |
| Dancing Wind Big Bluestem | *Andropogon gerardii* 'Dancing Wind' |
| Windwalker Big Bluestem | Winter *Andropogon gerardii* 'P003S' |
| Feather Reed Grass | Winter *Calamagrostis x acutiflora* 'Karl Forester' |
| Tufted Hair Grass | *Deschampsia caespitosa* |
| Blonde Ambition Grama Grass | *Bouteloua gracilis* 'Blonde Ambition' |
| Hot Rod Switchgrass | *Panicum virgatum* 'Hot Rod' |
| Northwind Switchgrass | *Panicum virgatum* 'Northwind' |
| Prairie Sky | *Panicum virgatum* 'Prairie Sky' |
| Prairie Blues Little Bluestem | *Schizachirium scoparium* 'Prairie Blues' |
| Undaunted Ruby Muhly | *Muhlenbergia reverchoni* 'Undaunted' |
| Prairie dropseed | *Sporobolus heterolepis* |
| Herbaceous Perennials | |
| Pearly Everlasting | *Anaphalis margaritacea* |
| Prairie Bluebell | *Mertensia lanceolata* |
| Dakota Sunshine Sunflower | *Helianthus maximiliani* 'Dakota Sunshine' |
| Western Blue Flag Iris | *Iris missouriensis* |
| Rocky Mountain Gayfeather | *Liatris ligulistylis* |
| Wild Bergamont | *Monarda fistulosa* |
| Eastern Bergamont | *Monarda bradburiana* |
| Evening Primrose | *Oenothera fruticose* 'Fireworks' / Fyrveckeri |
| Husker Red Penstamon | *Penstemon digitalis* 'Husker Red' |
| Garden Phlox | *Phlox paniculate* 'Blue Paradise' |
| Border Phlox | *Phlox paniculate* 'David' |
| Prairie coneflower | *Ratibida pinnata* |
| Bluebird smooth aster | *Symphiotrichum laeve* 'Bluebird' smooth aster |
| Bulbs | |
| Blue Danube Wild Hyacinth | *Camassia leichtlinii* 'Blue Danube' |
| Shrubs | |
| Leadplant | *Amorpha canescens* |
| Prairie Snow White Cinquefoil | *Dasiphora* (Potentilla) *fruticosa* var. *dahurica* 'Prairie Snow' |
| Apache Plume | *Fallugia paradoxa* |
| Pawnee Buttes Sand Cherry | *Prunus besseyi* 'Pawnee Buttes' |
| Autumn Amber Skunkbush Sumac | *Rhus trilobata* 'Autumn Amber' |
| Glow Girl Spirea | *Spirea betulufolia* 'Tor Gold' |

When selecting a container-grown plant palette, consider water needs, exposure (sun/shade), plant height and spread, recommended container sizes, plant spacing and future maintenance requirements. Common container-grown plants or plugs suitable for bioretention systems in urban areas are listed in Table BR-3 (City and County of Denver 2016). Other drought-tolerant plants may also be considered.

When using an impermeable liner, select plants with diffuse (or fibrous) root systems, not taproots. Taproots can damage the liner and/or underdrain pipe.

Small trees may be considered in bioretention areas, provided that adequate media, irrigation, and space are available. Trees are generally better suited for larger bioretention areas. Recommendations for planting trees in bioretention areas include:

- Do not install trees in bioretention systems with an impermeable liner.
- Provide irrigation for trees.
- Consider planting trees on side slopes, above the more frequently inundated areas.
- Select trees that can withstand periods of inundation.
- Avoid conifers in areas exposed to deicing chemicals.
- Provide access for tree maintenance, which may include pruning, removal of bioretention media removal and replacement, tree removal and replacement, and incidental removal of other vegetation.
- Install trees at least 5 feet away from inlets, outlets, and underdrains because tree roots may obstruct inlets and outlets or damage the underdrain. Consider limiting the length of the underdrain to allow for placement of trees where desired.
- For deciduous trees, plan for additional seasonal maintenance to remove leaf litter and avoid media clogging.
- Avoid trees with fruit litter.
- Select shade-tolerant species for tree understory plants.
- When considering trees for bioretention systems located in easements, check local requirements regarding allowed vegetation types and replacement requirements.
- Be aware that some jurisdictions may not allow trees in bioretention.
- See Denver's Ultra-Urban Guidelines (Denver 2016) for tree pit/trench bioretention variations.

8. **Irrigation**: Irrigation is required for vegetation establishment, for supplemental water during extended dry periods, and may be needed on a routine basis depending on plant selection. During establishment, all plants should receive approximately 1 inch of moisture (combined rain and irrigation) per week for the first growing season to promote establishment. Some plants may require more than one growing season to become fully established. Providing a permanent irrigation system at the time of SCM installation provides greater flexibility in plant selection and aesthetics, even if regular irrigation is not routinely required after plant establishment.

   Install spray irrigation at or above the WQCV elevation when permanent irrigation is provided or place temporary irrigation on top of the bioretention media surface. Do not place sprinkler heads on the flat media surface as they can become buried over time. Remove temporary irrigation pipes that are laid on the surface once vegetation is established.

### VEGETATION ESTABLISHMENT AND INFILTRATION RATES

During vegetation establishment, water applied to bare media can mobilize and rearrange fine silt and clay particles on the surface to create a lower permeability layer. For this reason, vegetation is a critical component in maintaining infiltration in the bioretention system over time. When establishing vegetation from seed, install seed and blanket immediately after media is placed to reduce the mobilization of fines and facilitate germination of the seed.

If left in place, temporary irrigation will become buried over time and will be damaged during maintenance operations.

Adjust irrigation schedules during the growing season to provide the minimum amount of water necessary to maintain plant health, while maintaining free pore space for infiltration.

9. **Outlet**: For partial and no-infiltration configurations, drain the underdrain to the outlet structure and use an orifice plate to drain the WQCV over approximately 12 hours. Section 6.0 *SCM Outflow Features* of this chapter includes conceptual details for the underdrain and orifice outlet both for attenuating the WQCV and larger volumes. When designing for EURV and/or 100-year attenuation, flows greater than the WQCV are controlled and released at the outlet structure, rather than forced through the filter area of the bioretention basin. Provide a spillway for larger events that will convey overflows to the receiving drainage system without adversely affecting adjacent structures or infrastructure. Use the simplified equation in Section 6.1 of this chapter or the MHFD-Detention workbook to size the orifice. MHFD-Detention also aids with design of outlet controls for larger runoff events.

## CONSTRUCTION CONSIDERATIONS

Proper construction of bioretention areas involves careful attention to material specifications, final grades, and construction details. For a successful project, implement the following practices:

- Protect the bioretention area from excessive sediment loading during construction. This is the most common cause of clogging of bioretention systems. The portion of the site draining to the SCM must be stabilized before allowing flow into the bioretention area. This includes completion of paving operations.
- Avoid over-compaction of the bioretention area to preserve infiltration rates (for partial and full infiltration sections).
- Provide construction observation to ensure compliance with design specifications. It is important to avoid improper installation, particularly related to elevations of the inlet, underdrain and outlet. Observation/oversight is recommended for the following:
  - » Conformance of subgrade with design assumptions.
  - » Installation of impermeable liner (for no infiltration sections).
  - » Construction of underdrain and installation of media layer.
  - » Review of bioretention media test data to verify conformance with specifications prior to installation.
- Provide adequate construction staking to ensure that the site properly drains into the SCM, particularly with respect to surface drainage away from adjacent buildings.

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Boulder County Area, Colorado




May 15, 2025

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.




Map Scale: 1:725 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Boulder County Area, Colorado
Survey Area Data: Version 21, Sep 6, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| AcA | Ascalon sandy loam, 0 to 3 percent slopes | 1.7 | 100.0% |
| **Totals for Area of Interest** | | **1.7** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Boulder County Area, Colorado

## AcA—Ascalon sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 2swl3
*Elevation:* 3,870 to 5,960 feet
*Mean annual precipitation:* 12 to 16 inches
*Mean annual air temperature:* 46 to 57 degrees F
*Frost-free period:* 135 to 160 days
*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Ascalon and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Ascalon

#### Setting

*Landform:* Interfluves
*Landform position (two-dimensional):* Summit
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Wind-reworked alluvium and/or calcareous sandy eolian deposits

#### Typical profile

*Ap - 0 to 6 inches:* sandy loam
*Bt1 - 6 to 12 inches:* sandy clay loam
*Bt2 - 12 to 19 inches:* sandy clay loam
*Bk - 19 to 35 inches:* sandy clay loam
*C - 35 to 80 inches:* sandy loam

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 10 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Moderate (about 7.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 3e
*Land capability classification (nonirrigated):* 4c
*Hydrologic Soil Group:* B
*Ecological site:* R067BY024CO - Sandy Plains
*Hydric soil rating:* No

### Minor Components

#### Olnest

*Percent of map unit:* 10 percent
*Landform:* Interfluves
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* R067BY024CO - Sandy Plains
*Hydric soil rating:* No

#### Vona

*Percent of map unit:* 5 percent
*Landform:* Interfluves
*Landform position (two-dimensional):* Summit
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* R067BY024CO - Sandy Plains
*Hydric soil rating:* No

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CONSULTING ENGINEERS

# PRELIMINARY DRAINAGE REPORT

FOR THE

# LOUISVILLE MILL SITE

AT

# 500, 540, AND 544 COUNTY ROAD
# LOUISVILLE, COLORADO 80027

FOR

# LOUISVILLE MILL SITE, LLC

April 3, 2014
Revised September 30, 2014
Revised March 12, 2015

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March 12, 2015

Mr. Craig Duffin, Assistant City Engineer
City of Louisville – Engineering Development Review
749 Main Street
Louisville, CO 80027

RE: Preliminary Drainage Report
Louisville Mill Site
Louisville, CO 80027
JVA No. 2221c

Dear Craig:

The following *Preliminary Drainage Report* and enclosed drainage figures for this project have been prepared for the above referenced project. The stormwater report and figures have been produced in accordance with the "City of Louisville, Storm Drainage Design and Technical Criteria, 2013 Edition" and comply with provisions thereof. Revisions have been made to this report based on comments received from the Final PUD submittal on December 31, 2014.

It is our understanding that the information provided herein meets all requirements of the City of Louisville.

Please contact us if you have any questions regarding this submission.

Sincerely,
JVA, Inc.

Darren Stewart
Project Manager

Charlie R. Hager, IV, P.E.
Vice President

CONSULTING ENGINEERS

ENGINEER'S STATEMENT:

"I hereby certify that this report (plan) for the final drainage design of Louisville Mill Site was prepared by me (or under my direct supervision) in accordance with the provisions of City of Louisville Storm Drainage Design and Technical Criteria for the owners thereof."

Charlie R. Hager
Registered Professional Engineer
State of Colorado No. 37146

# PRELIMINARY DRAINAGE REPORT
# LOUSIVILLE MILL SITE

AT

500, 540, AND 544 COUNTY ROAD

LOUISVILLE, COLORADO 80027

FOR

## LOUISVILLE MILL SITE, LLC

**JVA, Inc.**
1319 Spruce Street
Boulder, CO 80302
phone (303) 444-1951
fax (303) 444-1957

JVA Project No. 2221c

April 3, 2014
Revised September 30, 2014
Revised March 12, 2015

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# PRELIMINARY DRAINAGE REPORT

## INTRODUCTION

### GENERAL LOCATION AND DESCRIPTION

Louisville Mill Site, LLC, is proposing the redevelopment of the existing historic Louisville Mill Site located at the southeast corner of the intersection of County Road and Elm Street in Louisville, Colorado. The subject property is approximately 1.54 acres of previously developed land located in the Southeast Quarter of the Southeast Quarter of Section 8, Township 1 South, Range 69 West of the 6th Principal Meridian in Boulder County, City of Louisville, State of Colorado. More specifically, the site is bound by County Road 124 to the west, a railroad right-of-way for BNSF Railway Company to the east, and residential properties to the north and south. A vicinity map is included in Appendix A of this report.

### PROPOSED PROJECT

The proposed development will include the preservation and restoration of the existing historic mill building, an addition to an existing warehouse building on the south side of the site, and a new commercial and office building on the north side of the site. The areas surrounding these buildings within the site will be redeveloped with parking, access drives, utility infrastructure and landscaping. The right-of-way along County Road will be redeveloped out to the edge-of-roadway and includes curb and gutter replacement, sidewalk replacement, site drive ramps, street lighting upgrades, and landscape improvements.

## HISTORIC DRAINAGE

### MAJOR DRAINAGE BASIN DESCRIPTION

The site's ultimate outfall is Coal Creek southeast of the property.

According to the FEMA Flood Insurance Rate Map Number 08013C0582J, dated December 18, 2012, the north end of the site is located within Flood Zone AH, with an elevation of NAVD88 5333. A portion of the referenced flood map is included in Appendix A.

### EXISTING SITE DRAINAGE AND FACILITIES

Stormwater detention and water quality enhancements are not provided in the existing condition. The existing site consists of a one story commercial building, the historic mill building and the existing warehouse building. The site generally lies between 5335 feet and 5330 feet on the NAVD88 datum with existing grades generally sloping south to north. The existing site is approximately 60% impervious, with pervious areas consisting of irrigated turf and landscape and gravel parking areas. An additional 0.48 acres of offsite flows enter the site from the railroad ROW to the east. Refer to the Historic Drainage Map (see enclosed Figure 1).

The soils found onsite are Ascalon sandy loam with a NRCS hydrologic soils group rating of B. Soils with a rating of B have a moderate infiltration rate when thoroughly wet and therefore have moderate runoff potential. A copy of the NRCS soils classification map is included in the Appendix.

Runoff from the site currently flows overland to the northeast corner of the site where an existing Type R curb inlet is located in the BNSF Railroad ROW and a small catch basin is located within the property limits. The catch basin is connected to a 54" diameter City storm drain that comes from County Road and has an outfall on the east side of Highway 42. The Type R inlet outlets into a ditch on the other side of the railroad. The Type R sits slightly above grade, therefore most likely only works in a ponding condition. Drainage flows from the existing Type R inlet are conveyed by open channel and culverts to State Highway 42, then is conveyed south by sheet flow through CDOT ROW to Coal Creek.

During smaller storm events, runoff is conveyed through the catch basin. Per discussions with City staff, this storm sewer system is planned to be improved to convey flood flows out of this area and under the railroad with work possibly starting in 2015.

## PROPOSED (REDEVELOPED) DRAINAGE

### DRAINAGE DESIGN CRITERIA

The proposed private storm drainage facilities for the project are designed to comply with the "City of Louisville, Storm Drainage Design and Technical Criteria," 2013 Edition, and the Urban Drainage and Flood Control District's Urban Storm Drainage Criteria Manual (USDCM), June 2001 Edition.

### HYDROLOGIC METHOD AND DESIGN STORM FREQUENCIES

Design storm recurrence intervals for this project are consistent with the City of Louisville requirements for residential and commercial areas: the minor or initial storm will be the 2-year event (for onsite private storm systems), and the major storm will be the 100-year event (for overland and street conveyance).

The Rational Method (Q=CIA) was used to determine the storm runoff (Q) from the site, with composite runoff coefficients (C) and contributing areas (A) given for design points in sub-basins. Intensities (I) were determined using the Time-Intensity-Frequency Curves for Louisville, Colorado (Table 2) and a calculated Time of Concentration ($t_c$). Post-development Time of Concentration calculations for each sub-basin, corresponding rainfall intensities, and composite runoff coefficients for each sub-basin are provided in the Appendix.

### PROPOSED SITE BASINS

The development is divided into four overall onsite basins that contribute to the primary storm drain system which provides water quality treatment. Two smaller basins flow offsite without water quality treatment. Three offsite basins east of the site currently flow across the existing site, and these will be routed to the proposed storm drainage system. As requested by the City as part of their flood improvement project, two 15-ft Type R curb inlets are proposed along the northern access drive. These inlets will be in a sump condition and connect directly to the existing 54" storm drain. As proposed, all basins free release runoff, undetained.

Basin Descriptions:

- Basin A: 0.06 acres – Basin A is located in the northern portion of the site and is comprised of an asphalt parking lot and landscaping. Runoff from this basin will flow overland to be captured by inlets and conveyed into the proposed storm drain system and water quality device.
- Basin B: 0.20 acres – Basin B consists of the roof drainage from the commercial building on Lot 3. This drainage will be connected directly to the proposed storm drainage system and water quality device.
- Basin C: 0.14 acres – Basin C consists of asphalt parking, sidewalks, roof drainage from the existing mill building and landscape areas. Runoff will be conveyed via curb inlet to the proposed storm sewer and water quality device.
- Basin D: 0.28 acres – Basin D is located on the western perimeter of the site adjacent to the public right-of-way. Runoff from the basin will flow overland into the right-of-way and into gutters on County Road. Flows will be intercepted by an existing Type R inlet at the corner of the existing north access to the property and County Road on the northern edge of the project.
- Basin E: 0.38 acres – Basin E is located in the southern end of the property and consists of asphalt parking, sidewalks, and roof drainage from the existing warehouse building and landscape areas. Runoff will be conveyed via curb and gutter to the Type 16 curb inlet and conveyed to the water quality device.
- Basin F: 0.18 acres – Basin F lies on the southern perimeter of the site and will maintain the historic drainage pattern that conveys flows south into an existing irrigation ditch. No changes are proposed in this basin as part of this development. Currently, the owner of 500 County Road is in contact with the irrigation ditch owner for approval.
- Basin G: 0.11 acres – Basin G lies north of the proposed building on Lot 3 and consists primarily of paved roadway. This basin will convey flow to the 2- 15-ft Type R inlets and directly into the existing 54" storm drain.
- Basin H: 0.20 acres – Basin H lies west of the mill building and consists of primarily landscaped areas. This basin will drain to an area drain that connects to the proposed storm sewer.
- Basin OS1: 0.24 acres – Basin OS1 is located on the southeast corner of the site in the railroad ROW. This area has historically drained through the property and consists of gravel parking and dirt and grass areas. This basin will be conveyed via curb and gutter curb inlet located in Basin E.
- Basin OS2: 0.07 acres – Basin OS2 is located on the eastern edge of the site in the railroad ROW. This area has historically drained through the property and consists of gravel parking and dirt and grass areas. This basin will be conveyed via curb and gutter to the Type 13 inlet at Design Point 8.

- Basin OS3: 0.15 acres – Basin OS3 is located on the northeast edge of the site in the railroad ROW. This area has historically drained through the property and consists of gravel parking and dirt and grass areas. This basin will be conveyed via a concrete pan to the Type 13 inlet at Design Point 9. The existing Type R inlet located in this basin is approximately 12-inches above grade and will only function in a flooding event. If this basin is developed for parking, improvements will incorporate this inlet and not negatively impact it's flood overflow functionality.

### RUNOFF AND STORMWATER QUALITY ENHANCEMENT/DETENTION FACILITIES

Due to the developed nature of the site, constraints of working around the historic grain elevator, limited amount of landscaped area, and location within the shallow flooding Zone, a water quality capture volume BMP and detention are not provided for the redevelopment project, as discussed with the City. An underground water quality unit (hydronic separator type) will be provided prior to connecting the proposed storm sewer to the existing City storm sewer to provide water quality for the developed site. This unit is located adjacent to an access road for maintenance access. The proposed project will increase imperviousness from 57% to 67%, therefore post developed flows will show a small increase from historic levels. The overall 10-year design flow rate from the site will increase from 4.4 cfs to 6.0 cfs. The overall 100-year design flow rate from the site will increase from 8.8 cfs to 11.2 cfs.

Water quality will be provided for the majority of the site as well as some off-site basins including Basins A, B, C, H, E, OS-1, OS-2 and OS-3 by an underground water quality unit (Contech CDS Unit). This unit will be sized to provide treatment for the 2-year developed storm event and bypass the 100-yr event.

As requested, detention and water quality capture volume calculations are provided for the developed site in the appendix for reference.

### STREETS

No street improvements are proposed with this development, however walks will be installed along the east side of County Road.

### OPEN CHANNEL FLOW

No open channel flow is proposed with this development.

### STORM SEWERS

All onsite inlets and storm pipes are designed to capture and carry the minor (2-year) and major (100-year) storm events to the existing storm sewer system.

## STORMWATER MANAGEMENT PLAN

The Stormwater Management Plan (SWMP) will be included in the final engineering plans, with all structural and non-structural Best Management Practices (BMP's) shown as required.

### STRUCTURAL BMP'S

Temporary structural erosion control features will be established during overlot grading and prior to the building construction. All erosion control measures will be maintained until vegetation becomes established. Vehicle tracking control and inlet protection BMP's will be included on the construction plans. Silt fencing will be installed at critical locations on the site with respect to current and proposed drainage.

### NON-STRUCTURAL BMP'S

Non-structural erosion controls, including project schedule, surface roughening and other pollution prevention measures, will be detailed in the construction activities of the SWMP. Permanent, perennial, native seeding will be established onsite in locations specified by the SWMP and Landscape Architect. The seed mix will be provided in the SWMP reference.

## WETLAND IMPACTS

No wetland impacts are proposed with this development.

## CONCLUSION

The drainage facilities for the development of the Louisville Mill Site have been designed in accordance with the City of Louisville, Storm Drainage Design and Technical Criteria, 2013 Edition. Stormwater detention and water quality enhancements are not provided in the existing condition. An underground treatment unit is proposed to provide water quality for the majority of the developed area. The proposed redevelopment will result in a small increase in flow rate as a result of increased imperviousness over the entirety of the site.

The drainage report for the redevelopment project is non-conforming to the City of Louisville Storm Drainage Design and Technical Criteria Manual. A variance from the City of Louisville Storm Drainage Design and Technical Criteria Manual is being requested for no onsite detention due to lack of landscaped areas, as well as the interest to preserve the historic mill site grounds. In addition, a variance is being requested for the release of runoff into the irrigation ditch from a portion of the existing warehouse building on Lot 1, preserving historic conditions. Currently, the owner of 500 County Road is requesting approval from the irrigation ditch owner to continue historic drainage conditions.

# REFERENCES


1. "City of Louisville, Storm Drainage Design and Technical Criteria," 2013 Edition.
2. "Urban Storm Drainage Criteria Manual," Urban Drainage and Flood Control District, Revised June 2001.

# APPENDIX A – SITE MAPS

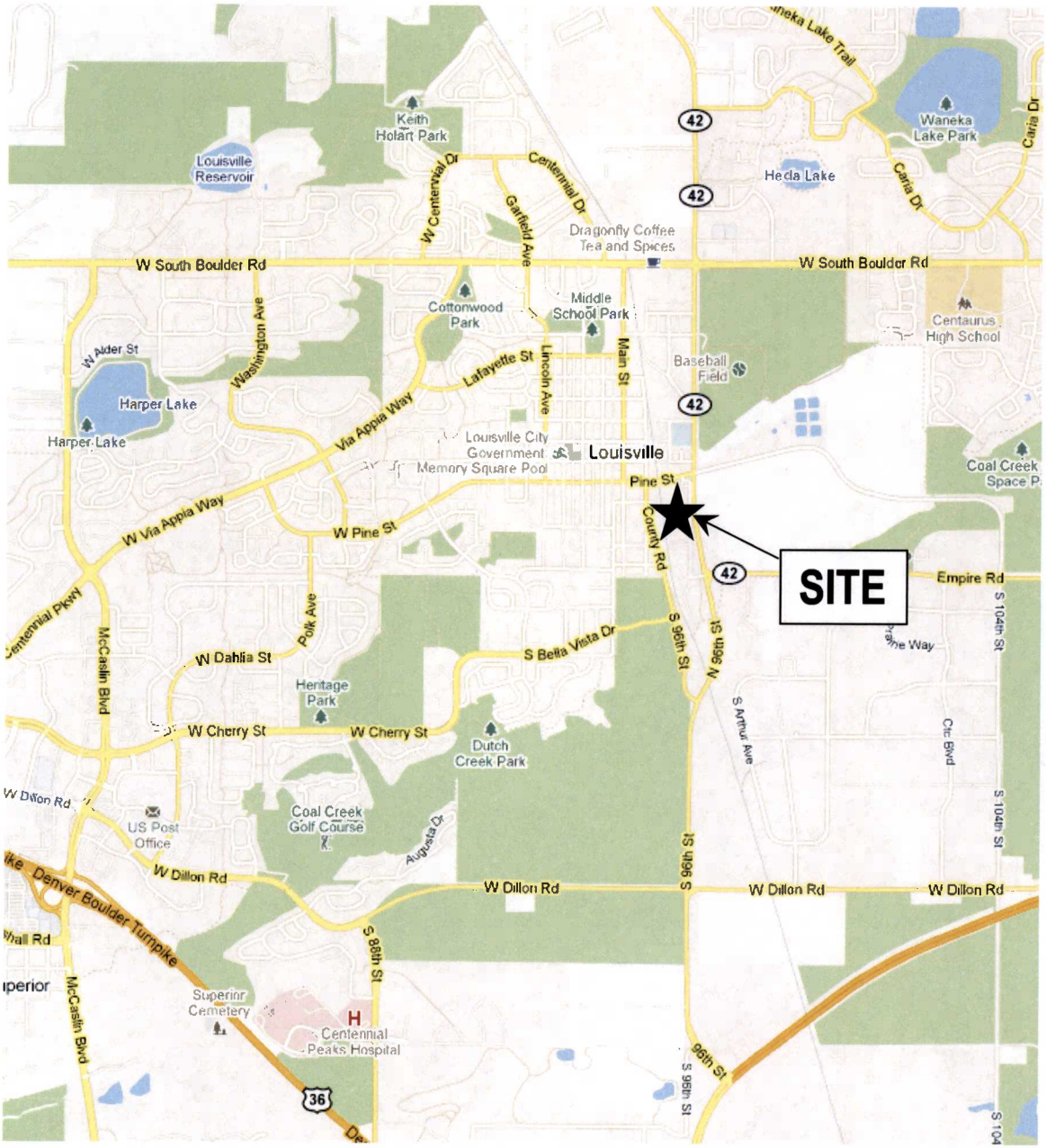
# LOUISVILLE MILL SITE

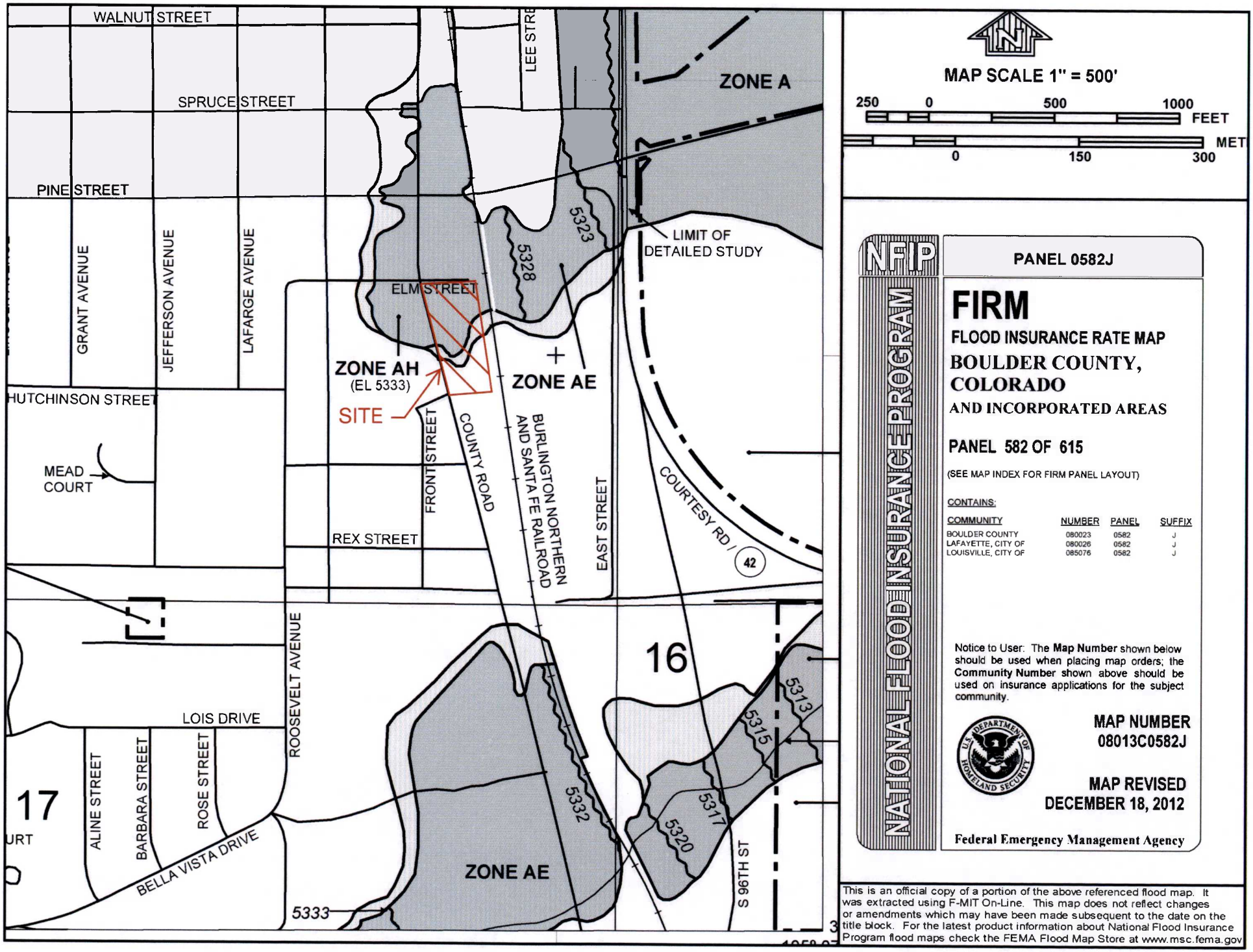
AT

500, 540, AND 544 COUNTY ROAD

LOUISVILLE, COLORADO 80027

## VICINITY MAP – NOT TO SCALE




WALNUT STREET
SPRUCE STREET
PINE STREET
GRANT AVENUE
JEFFERSON AVENUE
LAFARGE AVENUE
HUTCHINSON STREET
MEAD COURT
REX STREET
ELM STREET
FRONT STREET
COUNTY ROAD
BURLINGTON NORTHERN AND SANTA FE RAILROAD
EAST STREET
COURTESY RD
42
ROOSEVELT AVENUE
LOIS DRIVE
ALINE STREET
BARBARA STREET
ROSE STREET
BELLA VISTA DRIVE
S 96TH ST
LEE STREET
ZONE A
ZONE AH
(EL 5333)
ZONE AE
ZONE AE
SITE
LIMIT OF DETAILED STUDY
5323
5328
5332
5313
5315
5317
5320
5333
16
17
MAP SCALE 1" = 500'
250 0 500 1000 FEET
0 150 300 MET
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0582J
FIRM
FLOOD INSURANCE RATE MAP
BOULDER COUNTY, COLORADO
AND INCORPORATED AREAS
PANEL 582 OF 615
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
BOULDER COUNTY 080023 0582 J
LAFAYETTE, CITY OF 080026 0582 J
LOUISVILLE, CITY OF 085076 0582 J
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
08013C0582J
MAP REVISED
DECEMBER 18, 2012
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

# APPENDIX B– SOIL INFORMATION

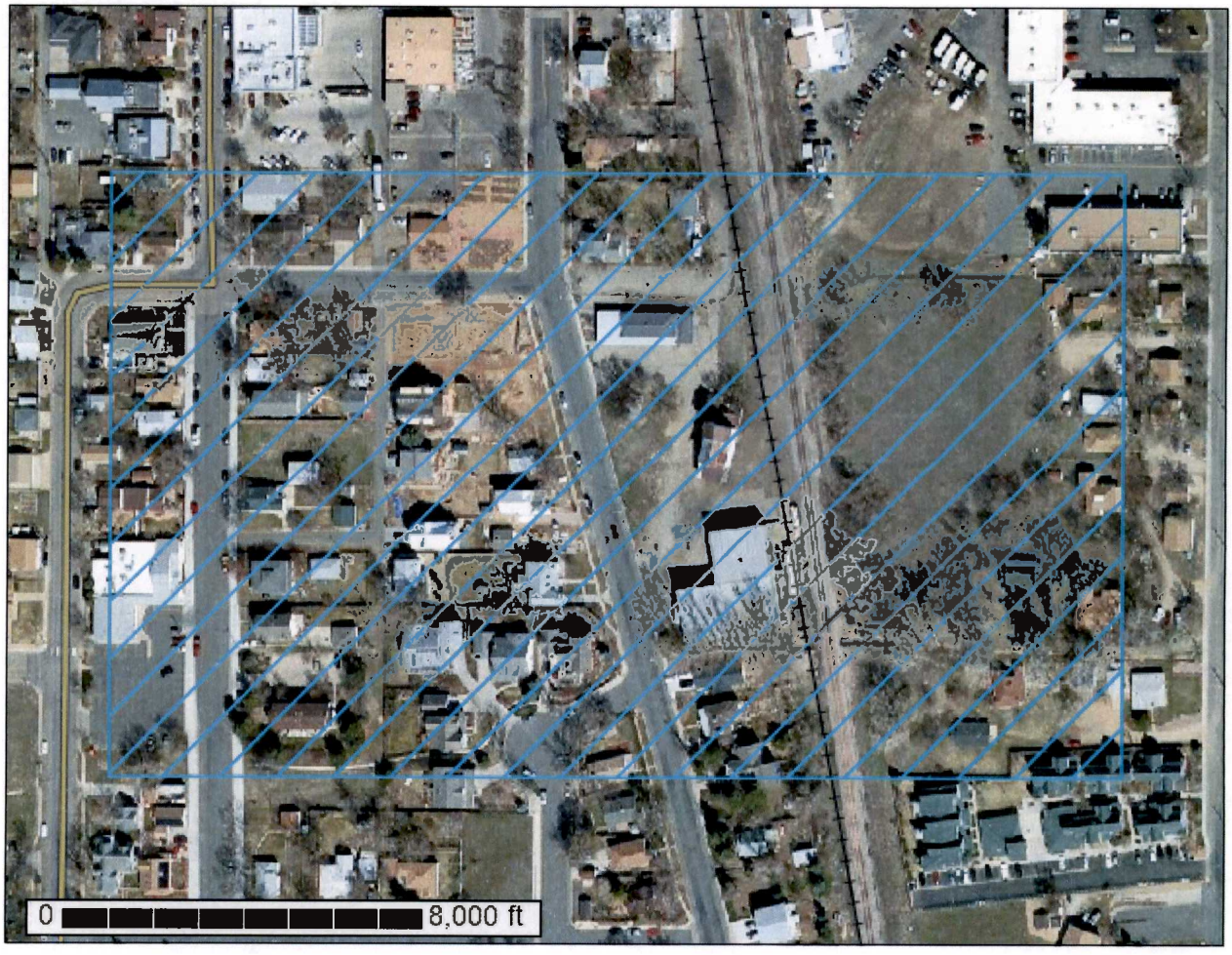
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Boulder County Area, Colorado




April 1, 2014

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


105° 7' 58" W
105° 7' 40" W
39° 58' 35" N
39° 58' 26" N
488660
488700
488740
488780
488820
488860
488900
488940
488980
489020
489060
4425150
4425110
4425070
4425030
4424990
4424950
4424910
Main
Front St
Elm
AcC
Elm St
AcA
Roosevelt
Main St
Map Scale: 1:1,910 if printed on A landscape (11" x 8.5") sheet.
N
0 25 50 100 150 Meters
0 50 100 200 300 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Boulder County Area, Colorado
Survey Area Data: Version 10, Dec 30, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 28, 2011—Aug 29, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Boulder County Area, Colorado (CO643) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| AcA | MLRA 67B - Ascalon sandy loam, 0 to 3 percent slopes | 15.6 | 87.2% |
| AcC | Ascalon sandy loam, 3 to 5 percent slopes | 2.3 | 12.8% |
| **Totals for Area of Interest** | | **17.9** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Boulder County Area, Colorado

## AcA—MLRA 67B - Ascalon sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Elevation:* 3,870 to 5,960 feet
*Mean annual precipitation:* 12 to 16 inches
*Mean annual air temperature:* 46 to 57 degrees F
*Frost-free period:* 135 to 160 days

### Map Unit Composition

*Ascalon and similar soils:* 85 percent

### Description of Ascalon

#### Setting

*Landform:* Paleoterraces, plains
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Wind-reworked alluvium and/or calcareous sandy eolian deposits

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 10 percent
*Maximum salinity:* Nonsaline (0.1 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 1.0
*Available water capacity:* Moderate (about 7.7 inches)

#### Interpretive groups

*Farmland classification:* Prime farmland if irrigated
*Land capability classification (irrigated):* 3e
*Land capability (nonirrigated):* 4c
*Hydrologic Soil Group:* B
*Ecological site:* Sandy Plains (R067BY024CO)

#### Typical profile

*0 to 6 inches:* Sandy loam
*6 to 12 inches:* Sandy clay loam
*12 to 19 inches:* Sandy clay loam
*19 to 35 inches:* Sandy clay loam
*35 to 80 inches:* Sandy loam

## AcC—Ascalon sandy loam, 3 to 5 percent slopes

### Map Unit Setting

*Elevation:* 4,900 to 5,500 feet
*Mean annual precipitation:* 12 to 18 inches
*Mean annual air temperature:* 48 to 52 degrees F
*Frost-free period:* 140 to 155 days

### Map Unit Composition

*Ascalon and similar soils:* 90 percent

### Description of Ascalon

#### Setting

*Landform:* Terraces
*Landform position (three-dimensional):* Side slope, tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Mixed loamy alluvium and/or eolian deposits

#### Properties and qualities

*Slope:* 3 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 10 percent
*Maximum salinity:* Nonsaline (0.0 to 2.0 mmhos/cm)
*Available water capacity:* Very high (about 16.5 inches)

#### Interpretive groups

*Farmland classification:* Prime farmland if irrigated
*Land capability classification (irrigated):* 3e
*Land capability (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Ecological site:* Sandy (R067XB026CO)

#### Typical profile

*0 to 8 inches:* Sandy loam
*8 to 19 inches:* Sandy clay loam, sandy loam
*19 to 60 inches:* Fine sandy loam, loamy fine sand, sandy loam

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# APPENDIX C – HYDROLOGY

TIME - INTENSITY - FREQUENCY TABULATION

| TIME OF CONCENT. (min) | INTENSITY - IN/HR | | | |
|---|---|---|---|---|
| | FREQUENCY -YEARS | | | |
| | 2 | 5 | 10 | 100 |
| 5 | 3.35 | 4.90 | 5.85 | 9.40 |
| 10 | 2.58 | 3.88 | 4.65 | 7.30 |
| 15 | 2.20 | 3.25 | 3.88 | 6.20 |
| 20 | 1.90 | 2.83 | 3.35 | 5.40 |
| 25 | 1.68 | 2.48 | 2.95 | 4.78 |
| 30 | 1.53 | 2.23 | 2.63 | 4.25 |
| 35 | 1.38 | 2.02 | 2.38 | 3.85 |
| 40 | 1.28 | 1.84 | 2.18 | 3.53 |
| 45 | 1.18 | 1.68 | 2.02 | 3.25 |
| 50 | 1.10 | 1.58 | 1.87 | 3.03 |
| 55 | 1.02 | 1.46 | 1.76 | 2.85 |
| 60 | 0.96 | 1.38 | 1.68 | 2.70 |

NOTE: 1. The minimum time-of-concentration for use with the Rational Method is 5 minutes.

2. Refer to Figure-1 for a plot of the data

3. Refer to Text Section 4.3 "Rational Method"

## RUNOFF COEFFICIENTS FOR RATIONAL METHOD

| LAND USE OR SURFACE CHARACTERISTICS | PERCENT IMPERVIOUS | FREQUENCY 2 | 5 | 10 | 100 |
|---|---|---|---|---|---|
| **Business:** | | | | | |
| Commercial Areas | 95 | .87 | .88 | .90 | .93 |
| Neighborhood Areas | 65 | .60 | .65 | .70 | .80 |
| **Residential:** | | | | | |
| Single-Family | 40 | .40 | .45 | .50 | .70 |
| Multi-Unit (detached) | 50 | .50 | .55 | .60 | .75 |
| Multi-Unit (attached) | 70 | .65 | .70 | .70 | .80 |
| 1/2 Acre Lot or Larger | 30 | .30 | .40 | .45 | .65 |
| Apartments | 70 | .65 | .70 | .70 | .80 |
| **Industrial:** | | | | | |
| Light Areas | 80 | .75 | .80 | .80 | .85 |
| Heavy Areas | 90 | .80 | .80 | .85 | .90 |
| **Parks, Cemetaries** | 7 | .15 | .25 | .35 | .60 |
| **Playgrounds** | 13 | .20 | .30 | .40 | .70 |
| **Schools** | 50 | .50 | .55 | .60 | .75 |
| **Railroad Yard Areas** | 40 | .40 | .45 | .50 | .70 |
| **Undeveloped Areas:** | | | | | |
| Historic Flow Analysis Greenbelts, Agricultural | 2 | .10 | .20 | .30 | .60 |
| Offsite Flow Analysis (when land use not defined) | 45 | .45 | .50 | .55 | .72 |
| **Streets:** | | | | | |
| Paved | 100 | .87 | .88 | .90 | .93 |
| Gravel | 7 | .15 | .25 | .35 | .65 |
| **Drives and Walks** | 96 | .85 | .87 | .90 | .92 |
| **Roofs** | 90 | .80 | .85 | .90 | .90 |
| **Lawns, Sandy Soil** | 0 | .00 | .10 | .20 | .50 |
| **Lawns, Clayey Soil** | 0 | .10 | .20 | .30 | .60 |

NOTE: These Rational Formula coefficients do not apply for larger basins where the time-of-concentration exceeds 60 minutes.

WRC, Inc.
Date: Dec, 1981

**Reference:** Urban Drainage & Flood Control District Rational Formula Procedure, Hydrology Research Program, August 1979.

# APPENDIX D – CALCULATIONS

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Job Name: Louisville Mill Site
Job Number: 2221c
Date: 9/3/14
By: MDE

# Louisville Mill Site

## Historic Runoff Coefficient & Time of Concentration Calculations

Location: Louisville
Minor Design Storm: 10
Major Design Storm: 100
Soil Type: C/D

$CA = KA + (1.31i3 - 1.44i2 + 1.135i + 0.12)$

$CCD = KCD + (0.858i3 - 0.786i2 + 0.774i + 0.04)$

$CB = (CA + CCD)/2$

Basin Design Data

| | I (%) = | 100% | 90% | 90% | 40% | 10% | 25% | 0% | 0% | | | I (%) | Runoff Coeff's | | | | Initial Overland Time ($t_i$) $t_i=0.395(1.1-C_5)L^{1/2}S^{-1/3}$ | | | Travel Time ($t_t$) | | | | | | $t_t$=Length/(Velocity x 60) | | $t_c$ Comp | tc Urbanized Check ON | | $t_c$ Final |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | $A_{paved\ streets}$ (sf) | $A_{drives/conc}$ (sf) | $A_{roof}$ (sf) | $A_{gravel}$ (sf) | $A_{plygnd}$ (sf) | $A_{art.\ turf}$ (sf) | $A_{tscape\ (B\ soil)}$ (sf) | $A_{tscape\ (C/D\ soil)}$ (sf) | $A_{Total}$ (sf) | $A_{Total}$ (ac) | Imp (%) | C2 | C5 | C10 | C100 | Upper most Length (ft) | Slope (%) | $t_i$ (min) | Length (ft) | Slope (%) | Type of Land Surface | $C_v$ | Velocity (fps) | $t_t$ (min) | Time of Conc $t_i + t_t = t_c$ | Total Length (ft) | $t_c$=(L/180)+ 10 (min.) | Min $t_c$ |
| H1 | 1 | | 2,840 | | | | | 325 | | 3,165 | 0.07 | 80.8% | 0.60 | 0.63 | 0.67 | 0.75 | 62 | 1.5% | 5.9 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 5.9 | 62 | 10.3 | 5.9 |
| H2 | 2 | | 3,570 | | 4,555 | | | 800 | | 8,925 | 0.20 | 56.4% | 0.38 | 0.43 | 0.49 | 0.62 | 125 | 2.2% | 10.5 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 10.5 | 125 | 10.7 | 10.5 |
| H3 | 3 | | | 6,525 | | | | 1,295 | | 7,820 | 0.18 | 75.1% | 0.54 | 0.58 | 0.62 | 0.71 | 119 | 2.0% | 8.3 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 8.3 | 119 | 10.7 | 8.3 |
| H4 OFF | 4 | | | | 19,812 | | | | | 19,812 | 0.45 | 40.0% | 0.28 | 0.35 | 0.42 | 0.58 | 420 | 2.0% | 22.4 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 22.4 | 420 | 12.3 | 12.3 |
| H4 ON | 5 | | 17065 | 10173 | 8,353 | | | 11,785 | | 47,376 | 1.09 | 58.8% | 0.40 | 0.45 | 0.50 | 0.63 | 313 | 1.8% | 17.4 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 17.4 | 313 | 11.7 | 11.7 |
| TOTAL SITE | | 0 | 23,475 | 16,698 | 32,720 | 0 | 0 | 14,205 | 0 | 87,098 | 2.00 | 56.5% | 0.38 | 0.43 | 0.49 | 0.62 | | | | | | | | | | | | | |

$I = (28.5\ P1) / ((10 + TC)\ 0.786)$

| | | | Runoff Coeff's | | | | Rainfall Intensities (in/hr) | | | | Area | | Flow Rates (cfs) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | Time of Conc (tc) | C2 | C5 | C10 | C100 | 2 | 5 | 10 | 100 | $A_{Total}$ (sf) | $A_{Total}$ (ac) | Q2 | Q5 | Q10 | Q100 |
| H1 | 1 | 5.9 | 0.60 | 0.63 | 0.67 | 0.75 | 3.11 | 4.47 | 5.44 | 8.75 | 3,165 | 0.07 | 0.14 | 0.21 | 0.26 | 0.48 |
| H2 | 2 | 10.5 | 0.38 | 0.43 | 0.49 | 0.62 | 2.55 | 3.66 | 4.46 | 7.16 | 8,925 | 0.20 | 0.20 | 0.33 | 0.45 | 0.91 |
| H3 | 3 | 8.3 | 0.54 | 0.58 | 0.62 | 0.71 | 2.79 | 4.00 | 4.87 | 7.83 | 7,820 | 0.18 | 0.27 | 0.41 | 0.54 | 1.00 |
| H4 OFF | 4 | 12.3 | 0.28 | 0.35 | 0.42 | 0.58 | 2.38 | 3.43 | 4.17 | 6.71 | 19,812 | 0.45 | 0.30 | 0.54 | 0.79 | 1.78 |
| H4 ON | 5 | 11.7 | 0.40 | 0.45 | 0.50 | 0.63 | 2.44 | 3.50 | 4.26 | 6.85 | 47,376 | 1.09 | 1.05 | 1.71 | 2.33 | 4.68 |
| | | | | | | | | | | TOTAL SITE | 87,098 | 2.00 | 1.96 | 3.20 | 4.37 | 8.84 |

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Job Name: Louisville Mill Site
Job Number: 2221c
Date: 3/12/15
By: MDE

# Louisville Mill Site

## Composite Runoff Coefficient Calculations

Location: Louisville
Minor Design Storm: 2
Major Design Storm: 100
Soil Type: C/D

CA = KA + (1.31i3 - 1.44i2 + 1.135i + 0.12)
CCD = KCD + (0.858i3 - 0.786i2 + 0.774i + 0.04)
CB = (CA + CCD)/2

Basin Design Data

| | I (%) = | 100% | 90% | 90% | 40% | 10% | 25% | 0% | 0% | | | I (%) | Runoff Coeff's | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | $A_{paved}$ streets (sf) | $A_{drives/conc}$ (sf) | $A_{roof}$ (sf) | $A_{gravel}$ (sf) | $A_{plygnd}$ (sf) | $A_{art. turf}$ (sf) | $A_{lscape (B soil)}$ (sf) | $A_{lscape (C/D soil)}$ (sf) | $A_{Total}$ (sf) | $A_{Total}$ (ac) | Imp (%) | C2 | C5 | C10 | C100 |
| A | 1 | | 2,550 | | | | | 195 | | 2,745 | 0.06 | 83.6% | 0.64 | 0.67 | 0.70 | 0.77 |
| B | 2 | | | 8,625 | | | | | | 8,625 | 0.20 | 90.0% | 0.73 | 0.75 | 0.77 | 0.83 |
| C | 3 | | 4,985 | | | | | 1,000 | | 5,985 | 0.14 | 75.0% | 0.54 | 0.57 | 0.62 | 0.71 |
| D | 4 | | 5,532 | | | | | 5,850 | | 11,382 | 0.26 | 43.7% | 0.30 | 0.37 | 0.43 | 0.59 |
| E | 5 | | 8,125 | 7,610 | | | | 945 | | 16,680 | 0.38 | 84.9% | 0.66 | 0.68 | 0.71 | 0.78 |
| F | 6 | | | 6,525 | | | | 1,345 | | 7,870 | 0.18 | 74.6% | 0.54 | 0.57 | 0.61 | 0.71 |
| G | 10 | | 4,395 | | | | | 275 | | 4,670 | 0.11 | 84.7% | 0.65 | 0.68 | 0.71 | 0.78 |
| H | 11 | | 2,370 | 3,435 | | | | 3,164 | | 8,969 | 0.21 | 58.3% | 0.39 | 0.45 | 0.50 | 0.63 |
| OS1 | 7 | | 2,965 | | 7,310 | | | | | 10,275 | 0.24 | 54.4% | 0.37 | 0.42 | 0.48 | 0.61 |
| OS2 | 8 | | 1,670 | | 1,355 | | | | | 3,025 | 0.07 | 67.6% | 0.47 | 0.51 | 0.56 | 0.67 |
| OS3 | 9 | | 225 | | 6,475 | | | | | 6,700 | 0.15 | 41.7% | 0.29 | 0.36 | 0.42 | 0.59 |

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Job Name: Louisville Mill Site
Job Number: 2221c
Date: 3/12/15
By: MDE

# Louisville Mill Site

## Time of Concentration Calculations

| | |
|---|---|
| Location: | Louisville |
| Minor Design Storm: | 2 |
| Major Design Storm: | 100 |
| Soil Type: | C/D |

| Sub-Basin Data | | | | Initial Overland Time ($t_i$) | | | Travel Time ($t_t$) $t_t$=Length/(Velocity x 60) | | | | | | $t_c$ Comp | tc Urbanized Check ON | | $t_c$ Final |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | $A_{Total}$ (ac) | C5 | Upper most Length (ft) | Slope (%) | $t_i$ (min) | Length (ft) | Slope (%) | Type of Land Surface | $C_v$ | Velocity (fps) | $t_t$ (min) | Time of Conc $t_i + t_t = t_c$ | Total Length (ft) | $t_c$=(L/180)+ 10 (min) | Min $t_c$ |
| A | 1 | 0.06 | 0.67 | 123 | 1.5% | 7.7 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 7.7 | 123 | 10.7 | 7.7 |
| B | 2 | 0.20 | 0.75 | 120 | 2.0% | 5.7 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 5.7 | 120 | 10.7 | 5.7 |
| C | 3 | 0.14 | 0.57 | 80 | 4.0% | 5.4 | 35 | 5.0% | Grassed waterway | 15 | 3.4 | 0.2 | 5.6 | 115 | 10.6 | 5.6 |
| D | 4 | 0.26 | 0.37 | 67 | 1.5% | 9.6 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 9.6 | 67 | 10.4 | 9.6 |
| E | 5 | 0.38 | 0.68 | 143 | 2.5% | 6.8 | 45 | 5.0% | Grassed waterway | 15 | 3.4 | 0.2 | 7.0 | 188 | 11.0 | 7.0 |
| F | 6 | 0.18 | 0.57 | 119 | 2.0% | 8.4 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 8.4 | 119 | 10.7 | 8.4 |
| G | 10 | 0.11 | 0.68 | 0 | 2.0% | 0.0 | 75 | 2.0% | Paved areas & shallow paved swales | 20 | 2.8 | 0.4 | 0.4 | 75 | 10.4 | 5.0 |
| H | 11 | 0.21 | 0.45 | 40 | 2.0% | 6.0 | 45 | 2.0% | Grassed waterway | 15 | 2.1 | 0.4 | 6.4 | 85 | 10.5 | 6.4 |
| OS1 | 7 | 0.24 | 0.42 | 114 | 0.5% | 16.7 | 117 | 1.0% | Paved areas & shallow paved swales | 20 | 2.0 | 1.0 | 17.7 | 231 | 11.3 | 11.3 |
| OS2 | 8 | 0.07 | 0.51 | 30 | 0.5% | 7.4 | 56 | 1.5% | Paved areas & shallow paved swales | 20 | 2.4 | 0.4 | 7.8 | 86 | 10.5 | 7.8 |
| OS3 | 9 | 0.15 | 0.36 | 130 | 2.0% | 12.3 | | | Paved areas & shallow paved swales | 20 | 0.0 | 0.0 | 12.3 | 130 | 10.7 | 10.7 |

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Job Number: 2221c
Date: 3/12/15
By: MDE

## Louisville Mill Site

## Developed Storm Runoff Calculations

Design Storm : **2 Year**

Point Hour Rainfall ($P_1$) : **0.96**

I = (28.5 P1) / ((10 + TC)^0.786)

| | Direct Runoff | | | | | | | Total Runoff | | | | Inlets | | | Pipe | | | | | Pipe/Swale Travel Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | Area (ac) | Runoff Coeff | tc (min) | C*A (ac) | I (in/hr) | Q (cfs) | Total tc (min) | ΣC*A (ac) | I (in/hr) | Q (cfs) | Inlet Type | Q intercepted | Q carryover | Pipe Size (in) or equivalent | Pipe Material | Slope (%) | Pipe Flow (cfs) | Max Pipe Capacity (cfs) | Length (ft) | Velocity (fps) | tt (min) | Total Time (min) |
| A | 1 | 0.06 | 0.64 | 7.70 | 0.04 | 2.86 | 0.12 | 7.70 | 0.04 | 2.86 | 0.12 | | | | | | | 0.1 | | | | | |
| B | 2 | 0.20 | 0.73 | 5.70 | 0.14 | 3.14 | 0.45 | 5.70 | 0.14 | 3.14 | 0.45 | | | | | | | 0.5 | | | | | |
| C | 3 | 0.14 | 0.54 | 5.60 | 0.07 | 3.16 | 0.23 | 5.60 | 0.07 | 3.16 | 0.23 | | | | | | | 0.2 | | | | | |
| D | 4 | 0.26 | 0.30 | 9.60 | 0.08 | 2.64 | 0.21 | 9.60 | 0.08 | 2.64 | 0.21 | | | | | | | 0.2 | | | | | |
| E | 5 | 0.38 | 0.66 | 7.00 | 0.25 | 2.95 | 0.74 | 7.00 | 0.25 | 2.95 | 0.74 | | | | | | | 0.7 | | | | | |
| F | 6 | 0.18 | 0.54 | 8.40 | 0.10 | 2.77 | 0.27 | 8.40 | 0.10 | 2.77 | 0.27 | | | | | | | 0.3 | | | | | |
| G | 10 | 0.11 | 0.65 | 5.00 | 0.07 | 3.26 | 0.23 | 5.00 | 0.07 | 3.26 | 0.23 | | | | | | | | | | | | |
| H | 11 | 0.21 | 0.39 | 6.40 | 0.08 | 3.04 | 0.25 | 6.40 | 0.08 | 3.04 | 0.25 | | | | | | | | | | | | |
| OS1 | 7 | 0.24 | 0.37 | 11.30 | 0.09 | 2.47 | 0.21 | 11.30 | 0.09 | 2.47 | 0.21 | | | | | | | 0.2 | | | | | |
| OS2 | 8 | 0.07 | 0.47 | 7.80 | 0.03 | 2.85 | 0.09 | 7.80 | 0.03 | 2.85 | 0.09 | | | | | | | 0.1 | | | | | |
| OS3 | 9 | 0.15 | 0.29 | 10.70 | 0.04 | 2.53 | 0.11 | 10.70 | 0.04 | 2.53 | 0.11 | | | | | | | 0.1 | | | | | |
| TOTAL SITE | | 2.00 | | | | | | | TOTAL SITE | | 2.91 | | | | | TOTAL SITE | | 2.9 | | | | | |

**JVA Incorporated**
1319 Spruce Street
Boulder, CO 80302
Ph: 303.444.1951
Fax: 303.444.1957

Job Name: Louisville Mill Site
Job Number: 2221c
Date: 3/12/15
By: MDE

## Louisville Mill Site

## Developed Storm Runoff Calculations

Design Storm : **10 Year**

Point Hour Rainfall ($P_1$) : **1.68**

I = (28.5 P1) / ((10 + TC)^0.786)

| | Direct Runoff | | | | | | | Total Runoff | | | | Inlets | | | Pipe | | | | | Pipe/Swale Travel Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | Area (ac) | Runoff Coeff | tc (min) | C*A (ac) | I (in/hr) | Q (cfs) | Total tc (min) | ΣC*A (ac) | I (in/hr) | Q (cfs) | Inlet Type | Q intercepted | Q carryover | Pipe Size (in) or equivalent | Pipe Material | Slope (%) | Pipe Flow (cfs) | Max Pipe Capacity (cfs) | Length (ft) | Velocity (fps) | tt (min) | Total Time (min) |
| A | 1 | 0.06 | 0.70 | 7.70 | 0.04 | 5.00 | 0.22 | 7.70 | 0.04 | 5.00 | 0.22 | | | | | | | 0.2 | | | | | |
| B | 2 | 0.20 | 0.77 | 5.70 | 0.15 | 5.50 | 0.84 | 5.70 | 0.15 | 5.50 | 0.84 | | | | | | | 0.8 | | | | | |
| C | 3 | 0.14 | 0.62 | 5.60 | 0.08 | 5.53 | 0.47 | 5.60 | 0.08 | 5.53 | 0.47 | | | | | | | 0.5 | | | | | |
| D | 4 | 0.26 | 0.43 | 9.60 | 0.11 | 4.62 | 0.52 | 9.60 | 0.11 | 4.62 | 0.52 | | | | | | | 0.5 | | | | | |
| E | 5 | 0.38 | 0.71 | 7.00 | 0.27 | 5.16 | 1.41 | 7.00 | 0.27 | 5.16 | 1.41 | | | | | | | 1.4 | | | | | |
| F | 6 | 0.18 | 0.61 | 8.40 | 0.11 | 4.85 | 0.54 | 8.40 | 0.11 | 4.85 | 0.54 | | | | | | | 0.5 | | | | | |
| G | 10 | 0.11 | 0.71 | 5.00 | 0.08 | 5.70 | 0.43 | 5.00 | 0.08 | 5.70 | 0.43 | | | | | | | 0.4 | | | | | |
| H | 11 | 0.21 | 0.50 | 6.40 | 0.10 | 5.31 | 0.55 | 6.40 | 0.10 | 5.31 | 0.55 | | | | | | | 0.5 | | | | | |
| OS1 | 7 | 0.24 | 0.48 | 11.30 | 0.11 | 4.33 | 0.49 | 11.30 | 0.11 | 4.33 | 0.49 | | | | | | | 0.5 | | | | | |
| OS2 | 8 | 0.07 | 0.56 | 7.80 | 0.04 | 4.98 | 0.19 | 7.80 | 0.04 | 4.98 | 0.19 | | | | | | | 0.2 | | | | | |
| OS3 | 9 | 0.15 | 0.42 | 10.70 | 0.07 | 4.42 | 0.29 | 10.70 | 0.07 | 4.42 | 0.29 | | | | | | | 0.3 | | | | | |
| TOTAL SITE | | 2.00 | | | | | | | TOTAL SITE | | 5.94 | | | | | TOTAL SITE | | 5.9 | | | | | |

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Job Name: Louisville Mill Site
Job Number: 2221c
Date: 3/12/15
By: MDE

## Louisville Mill Site

## Developed Storm Runoff Calculations

Design Storm : **100 Year**

Point Hour Rainfall ($P_1$) : **2.70**

I = (28.5 P1) / ((10 + TC)^0.786)

| | Direct Runoff | | | | | | | Total Runoff | | | | Inlets | | | Pipe | | | | | Pipe/Swale Travel Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin Name | Design Point | Area (ac) | Runoff Coeff | tc (min) | C*A (ac) | I (in/hr) | Q (cfs) | Total tc (min) | ΣC*A (ac) | I (in/hr) | Q (cfs) | Inlet Type | Q intercepted | Q carryover | Pipe Size (in) or equivalent | Pipe Material | Slope (%) | Pipe Flow (cfs) | Max Pipe Capacity (cfs) | Length (ft) | Velocity (fps) | tt (min) | Total Time (min) |
| A | 1 | 0.06 | 0.77 | 7.70 | 0.05 | 8.04 | 0.39 | 7.70 | 0.05 | 8.04 | 0.39 | | | | | | | 0.4 | | | | | |
| B | 2 | 0.20 | 0.83 | 5.70 | 0.17 | 8.84 | 1.46 | 5.70 | 0.17 | 8.84 | 1.46 | | | | | | | 1.5 | | | | | |
| C | 3 | 0.14 | 0.71 | 5.60 | 0.10 | 8.88 | 0.86 | 5.60 | 0.10 | 8.88 | 0.86 | | | | | | | 0.9 | | | | | |
| D | 4 | 0.26 | 0.59 | 9.60 | 0.15 | 7.42 | 1.14 | 9.60 | 0.15 | 7.42 | 1.14 | | | | | | | 1.1 | | | | | |
| E | 5 | 0.38 | 0.78 | 7.00 | 0.30 | 8.30 | 2.49 | 7.00 | 0.30 | 8.30 | 2.49 | | | | | | | 2.5 | | | | | |
| F | 6 | 0.18 | 0.71 | 8.40 | 0.13 | 7.80 | 0.99 | 8.40 | 0.13 | 7.80 | 0.99 | | | | | | | 1.0 | | | | | |
| G | 10 | 0.11 | 0.78 | 5.00 | 0.08 | 9.16 | 0.77 | 5.00 | 0.08 | 9.16 | 0.77 | | | | | | | 0.8 | | | | | |
| H | 11 | 0.21 | 0.63 | 6.40 | 0.13 | 8.54 | 1.10 | 6.40 | 0.13 | 8.54 | 1.10 | | | | | | | 1.1 | | | | | |
| OS1 | 7 | 0.24 | 0.61 | 11.30 | 0.14 | 6.95 | 1.01 | 11.30 | 0.14 | 6.95 | 1.01 | | | | | | | 1.0 | | | | | |
| OS2 | 8 | 0.07 | 0.67 | 7.80 | 0.05 | 8.01 | 0.37 | 7.80 | 0.05 | 8.01 | 0.37 | | | | | | | 0.4 | | | | | |
| OS3 | 9 | 0.15 | 0.59 | 10.70 | 0.09 | 7.11 | 0.64 | 10.70 | 0.09 | 7.11 | 0.64 | | | | | | | 0.6 | | | | | |
| TOTAL SITE | | 2.00 | | | | | | | TOTAL SITE | | 11.23 | | | | | TOTAL SITE | | 11.2 | | | | | |

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Boulder, CO 80302
Ph: 303.444.1951
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Job Name: Louisville Mill Site
Job Number: 2221c
Date: 3/12/15
By: MDE

# Louisville Mill Site
## Detention Pond Volume Calculations: V = K*A Method

### ALLOWABLE RELEASE RATE

**Table SO-1 - Maximum Unif Flow Release Rates (cfs/ac)**

| Design Frequency | NRCS Hydrologic Soil Group | | |
|---|---|---|---|
| | A | B | C & D |
| 5-year | 0.07 | 0.13 | **0.17** |
| 10-year | 0.13 | 0.23 | **0.30** |
| 100-year | 0.50 | 0.85 | **1.00** |

Q release = Area * Max Unit Flow Release Rate

**Soil Type:** **C/D**

Release Rates:

**Q10 =** **0.46 CFS**

**Q100 =** **1.54 CFS**

### DETENTION POND SIZING

**V = K * A** (UDFCD, Vol 2, Chapter 10, Equation SO-1)

10 Year Pond Volume
K = (0.95*I-1.9)/1000 (UDFCD, Vol 2, Chapter 10, Equation SO-3)

100 year Pond Volume:
K = (1.78*I-0.002*I^2-3.56)/900 (UDFCD, Vol 2, Chapter 10, Equation SO-2)

I = **68.1%** I = Percent Impervious
A = **1.5** acres A = Tributary Area
V = Required Volume

K10 = 0.0628
K100 = 0.1204

| | | |
|---|---|---|
| **V10 =** | **4,210** | **CF** |
| **V100 =** | **8,075** | **CF** |

### TOTAL DETENTION POND VOLUME

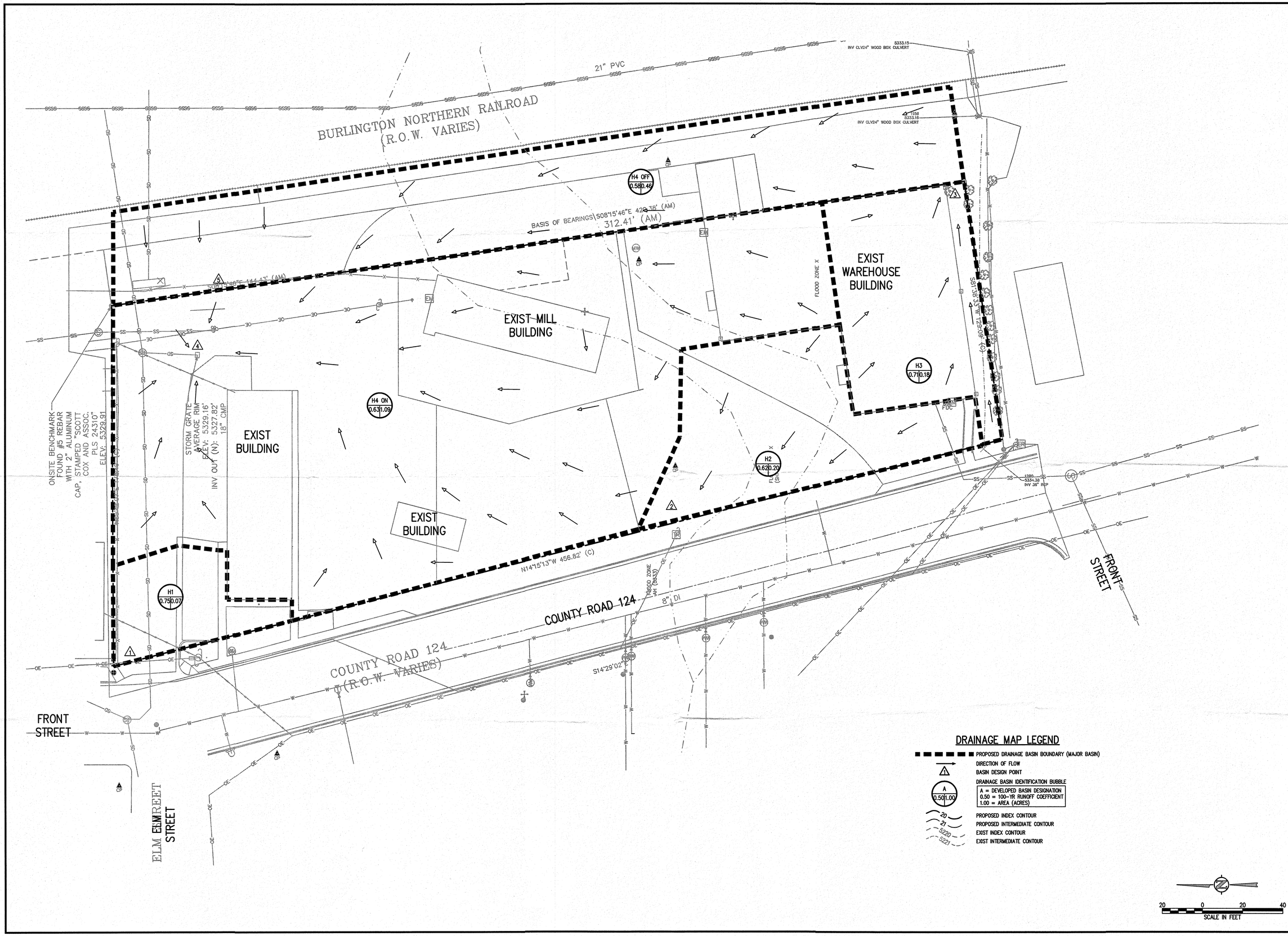
| | | | |
|---|---|---|---|
| **Water Quality Capture Volume (WQCV) =** | | | **1,266 CF** |
| **Volume Minor =** | **V10 +** | **0% WQCV =** | **4,210 CF** |
| **Volume Major =** | **V100 +** | **0% WQCV =** | **8,075 CF** |

# Design Procedure Form: Rain Garden (RG)



**Designer:** REP
**Company:** JVA, Inc.
**Date:** March 12, 2015
**Project:** Louisville Mill (Developed Site-Basins A-H)- For reference only, no WQCV provided for site
**Location:** Louisville, Colorado

| | |
|---|---|
| 1. Basin Storage Volume | |
| A) Effective Imperviousness of Tributary Area, $I_a$ (100% if all paved and roofed areas upstream of rain garden) | $I_a$ = 71.5 % |
| B) Tributary Area's Imperviousness Ratio (i = $I_a$/100) | i = 0.715 |
| C) Water Quality Capture Volume (WQCV) for a 12-hour Drain Time ($WQCV = 0.8 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i)$) | WQCV = 0.23 watershed inches |
| D) Contributing Watershed Area (including rain garden area) | Area = 67,285 sq ft |
| E) Water Quality Capture Volume (WQCV) Design Volume Vol = (WQCV / 12) * Area | $V_{WQCV}$ = 1,266 cu ft |
| F) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm | $d_6$ = ____ in |
| G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume | $V_{WQCV\ OTHER}$ = ____ cu ft |
| H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired) | $V_{WQCV\ USER}$ = ____ cu ft |
| 2. Basin Geometry | |
| A) WQCV Depth (12-inch maximum) | $D_{WQCV}$ = 12 in |
| B) Rain Garden Side Slopes (Z = 4 min., horiz. dist per unit vertical) (Use "0" if rain garden has vertical walls) | Z = 4.00 ft / ft |
| C) Mimimum Flat Surface Area | $A_{Min}$ = 844 sq ft |
| D) Actual Flat Surface Area | $A_{Actual}$ = 844 sq ft |
| E) Area at Design Depth (Top Surface Area) | $A_{Top}$ = 1700 sq ft |
| F) Rain Garden Total Volume ($V_T = ((A_{Top} + A_{Actual}) / 2) * Depth$) | $V_T$ = 1,272 cu ft |
| 3. Growing Media | Choose One: (●) 18" Rain Garden Growing Media ( ) Other (Explain): ____ |
| 4. Underdrain System | |
| A) Are underdrains provided? | Choose One: ( ) YES (●) NO |
| B) Underdrain system orifice diameter for 12 hour drain time | |
| i) Distance From Lowest Elevation of the Storage Volume to the Center of the Orifice | y = N/A ft |
| ii) Volume to Drain in 12 Hours | $Vol_{12}$ = N/A cu ft |
| iii) Orifice Diameter, 3/8" Minimum | $D_O$ = N/A in |





JVA CONSULTING ENGINEERS
JVA, Incorporated 1319 Spruce Street
Boulder, CO 80302 Phone: 303.444.1951
www.jvajva.com E-mail: info@jvajva.com


| NO. | DATE | DES'D | DWN | REVISION DESCRIPTION |
|---|---|---|---|---|

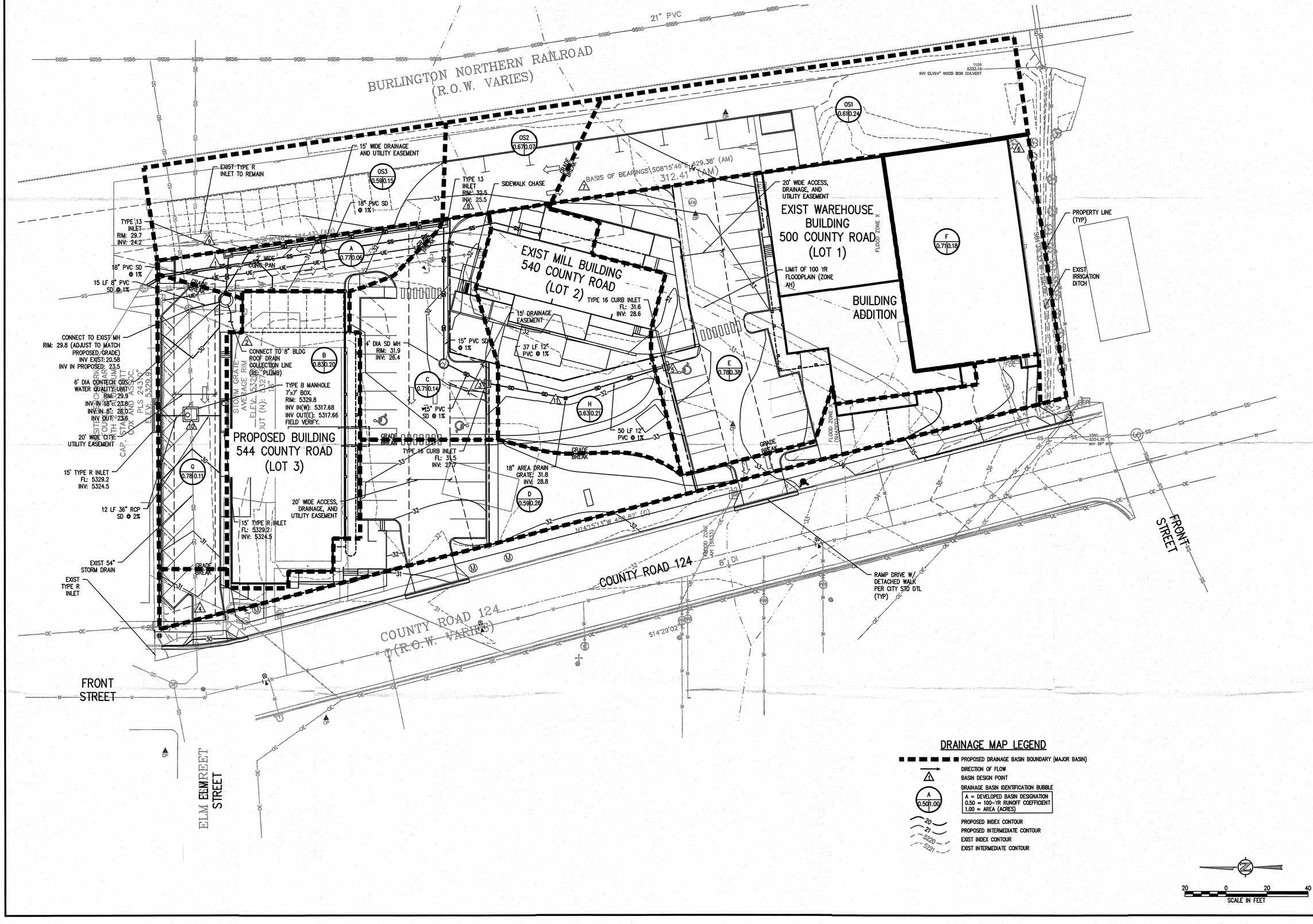
DESIGNED BY:
DRAWN BY:
CHECKED BY:
JOB #: 2221c
DATE: APRIL 03, 2014

© JVA INC

LOUISVILLE MILL SITE
LOUISVILLE, COLORADO

HISTORIC DRAINAGE MAP

SHEET NO.
FIG 1




## DRAINAGE MAP LEGEND

- PROPOSED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DIRECTION OF FLOW
- BASIN DESIGN POINT
- DRAINAGE BASIN IDENTIFICATION BUBBLE
  - A = DEVELOPED BASIN DESIGNATION
  - 0.50 = 100-YR RUNOFF COEFFICIENT
  - 1.00 = AREA (ACRES)
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- EXIST INDEX CONTOUR
- EXIST INTERMEDIATE CONTOUR

20 0 20 40
SCALE IN FEET

JVA CONSULTING ENGINEERS
JVA, Incorporated 1319 Spruce Street
Boulder, CO 80302 Phone: 303.444.1951
www.jvajva.com E-mail: info@jvajva.com

| NO. | DATE | DESD | DWN | REVISION DESCRIPTION |
|---|---|---|---|---|

DESIGNED BY:
DRAWN BY:
CHECKED BY:
JOB #: 2221c
DATE: APRIL 03, 2014
© JVA INC

LOUISVILLE MILL SITE
LOUISVILLE, COLORADO

DEVELOPED DRAINAGE MAP

SHEET NO.
FIG2

03563028
Page: 1 of 1
DF: $0.00
RF: $11.00
12/13/2016 01:21 PM
Boulder County Clerk, CO
Unofficial Copy

# LOUISVILLE MILL SITE SUBDIVISION

*LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 69 WEST OF THE 6TH P.M.,*
*CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO*

SHEET 1 OF 1

## DEDICATION AND LEGAL DESCRIPTION

KNOW ALL MEN BY THESE PRESENTS, THAT THE UNDERSIGNED BEING THE OWNERS OF A PARCEL OF LAND LOCATED IN THE SOUTHEAST QUARTER SECTION 8, TOWNSHIP 1 SOUTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF LOUISVILLE, BOULDER COUNTY, STATE OF COLORADO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

CONSIDERING THE WEST RIGHT OF WAY LINE OF BURLINGTON NORTHERN RAILROAD TO BEAR S08°15'46"E BETWEEN A FOUND #5 REBAR WITH A 2" ALUMINUM CAP, STAMPED "PLS 24310" AT THE NORTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 03267645 AND A FOUND #5 REBAR WITH 1 1/2" ALUMINUM CAP, STAMPED "LS 5428" AT THE SOUTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 253376, AS SHOWN HEREON. ALL BEARINGS SHOWN HEREON ARE RELATIVE THERETO.

COMMENCING AT THE EAST 1/4 CORNER SECTION 8, BEING A FOUND #6 REBAR WITH 3 1/4" ALUMINUM CAP STAMPED "T1S R69W 1/4 S8 S9 1995, LS 13155"; THENCE S23°38'21"W, A DISTANCE OF 1448.46 FEET TO A POINT ON SAID WEST RIGHT OF WAY LINE OF THE BURLINGTON NORTHERN RAILROAD, SAID POINT ALSO BEING THE POINT OF BEGINNING; THENCE ALONG SAID WEST RIGHT OF WAY LINE S08°15'46"E, A DISTANCE OF 429.38 FEET TO THE NORTHEAST CORNER OF LOT 2, MANSOUR-ENGEL SUBDIVISION, RECORDED WITH BOULDER COUNTY AT P-19 F-1 #40; THENCE ALONG THE NORTH LINE OF SAID LOT 2, S81°38'33"W, A DISTANCE OF 129.09 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF COUNTY ROAD 124; THENCE ALONG SAID EAST RIGHT OF WAY LINE N14°15'13"W, A DISTANCE OF 456.82 FEET TO A POINT ON THE SOUTH LINE OF THE PLAT OF THE TOWN OF LOUISVILLE, RECORDED WITH BOULDER COUNTY AT BOOK 2, PAGE 6; THENCE ALONG SAID SOUTH LINE N89°42'07"E, A DISTANCE OF 178.49 FEET TO THE POINT OF BEGINNING.

CONTAINING 67,281 SQ. FT. OR 1.54 ACRES OF LAND, MORE OR LESS.

HAVE LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AND OUTLOT A UNDER THE NAME OF LOUISVILLE MILL SITE SUBDIVISION AS LAID OUT AND DESIGNATED ON THIS PLAT, A SUBDIVISION OF A PART OF THE CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO, AND BY THESE PRESENTS DO HEREBY DEDICATE TO THE CITY OF LOUISVILLE AND THE PUBLIC, EXCEPT WHERE NOTED HEREON, THE ACCESS, DRAINAGE AND UTILITY EASEMENTS AS SHOWN ON THE ACCOMPANYING PLAT FOR VEHICULAR, PEDESTRIAN AND EMERGENCY ACCESS; TO THE CITY OF LOUISVILLE THE EXCLUSIVE UTILITY EASEMENT AND CITY MAINTENANCE AND ACCESS EASEMENTS AS SHOWN ON THE ACCOMPANYING PLAT; TO THE CITY OF LOUISVILLE THE NO-BUILD EASEMENT AS SHOWN AND ESTABLISHED ON THE ACCOMPANYING PLAT; AND DO FURTHER DEDICATE TO THE USE OF THE CITY OF LOUISVILLE AND ALL MUNICIPALLY OWNED AND/OR FRANCHISED UTILITIES AND SERVICES SUCH OTHER PORTIONS OF SAID REAL PROPERTY WHICH ARE SO DESIGNATED AS EASEMENTS AND RIGHT-OF-WAYS FOR THE CONSTRUCTION, INSTALLATION, OPERATION, MAINTENANCE, REPAIR AND REPLACEMENT FOR ALL SERVICES, INCLUDING WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, TELEPHONE AND ELECTRIC LINES, WORKS, POLES AND UNDERGROUND CABLES, GAS PIPELINES, WATER PIPELINES, SANITARY SEWER LINES, STREET LIGHTS, CULVERTS, HYDRANTS, DRAINAGE DITCHES AND DRAINS AND ALL APPURTENANCES THERETO, IT BEING EXPRESSLY UNDERSTOOD AND AGREED BY THE UNDERSIGNED THAT ALL EXPENSES AND COSTS INVOLVED IN CONSTRUCTING AND INSTALLING SANITARY SEWER SYSTEM WORKS AND LINES, GAS SERVICE LINES, ELECTRICAL SERVICE WORKS AND LINES, STORM SEWERS AND DRAINS, STREET LIGHTING, GRADING AND LANDSCAPING, CURBS, GUTTERS, STREET PAVEMENT, SIDEWALKS AND OTHER SUCH UTILITIES AND SERVICES SHALL BE GUARANTEED AND PAID FOR BY THE SUBDIVIDER OR ARRANGEMENTS MADE BY THE SUBDIVIDER THEREOF WHICH ARE APPROVED BY THE CITY OF LOUISVILLE, COLORADO, AND SUCH SUMS SHALL NOT BE PAID BY THE CITY OF LOUISVILLE, COLORADO, AND THAT ANY SUCH ITEMS SO CONSTRUCTED OR INSTALLED WHEN ACCEPTED BY THE CITY OF LOUISVILLE, COLORADO, SHALL BECOME THE SOLE PROPERTY OF SAID CITY OF LOUISVILLE, COLORADO, EXCEPT PRIVATE ROADWAY CURBS, GUTTER AND PAVEMENT AND ITEMS OWNED BY MUNICIPALLY FRANCHISED UTILITIES AND/OR U.S. WEST COMMUNICATION, INC. WHICH WHEN CONSTRUCTED OR INSTALLED, SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL NOT BECOME THE PROPERTY OF THE CITY OF LOUISVILLE, COLORADO.

## OWNERSHIP CERTIFICATE

OWNER: RCC LTD., A PARTNERSHIP OF RAYMOND CARL CARANCI AND RANDALL CARL CARANCI

BY: [signature]

TITLE: Managing General Partner

OWNER: CITY OF LOUISVILLE, A COLORADO HOME RULE MUNICIPAL CORPORATION

BY: [signature]
ROBERT P. MUCKLE, MAYOR

ATTEST: [signature]
~~NANCY VARRA~~, CITY CLERK
MEREDYTH MUTH

## ACKNOWLEDGMENT

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BY ME THIS 12 DAY OF December, 2016, BY Randall C. Caranci as Managing General Partner of RCC LTD.

WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES ____________

NOTARY NAME AND SIGNATURE [signature]

REBECCA RINGMAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19984016968
MY COMMISSION EXPIRES JUNE 20, 201

## ACKNOWLEDGMENT

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BY ME THIS 6th DAY OF December, 2016, BY Robert P. Muckle

WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES 12-4-2019

Carol Hanson
NOTARY NAME AND SIGNATURE

CAROL HANSON
NOTARY PUBLIC
STATE OF COLORADO

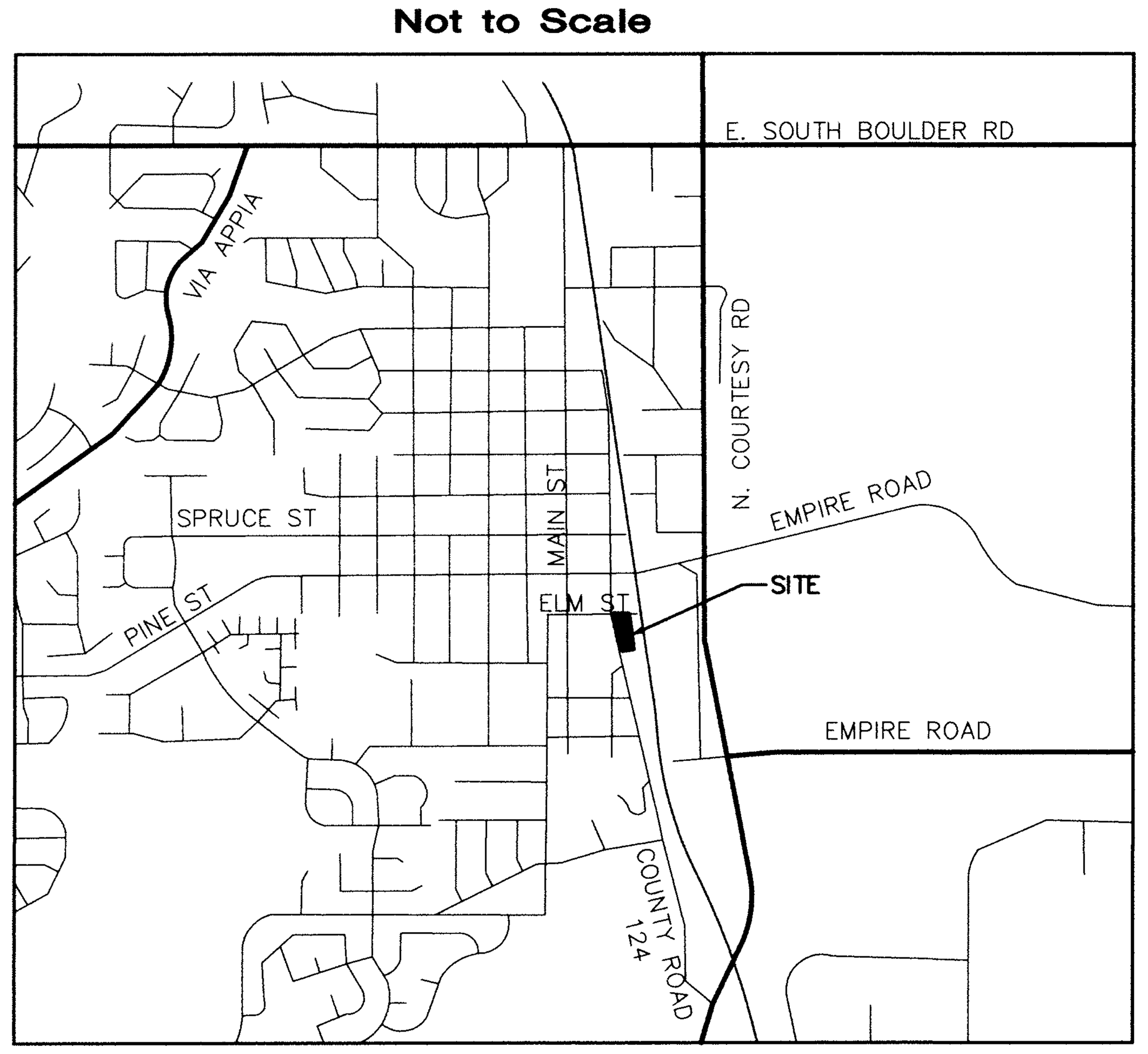
## LENDER CONSENT

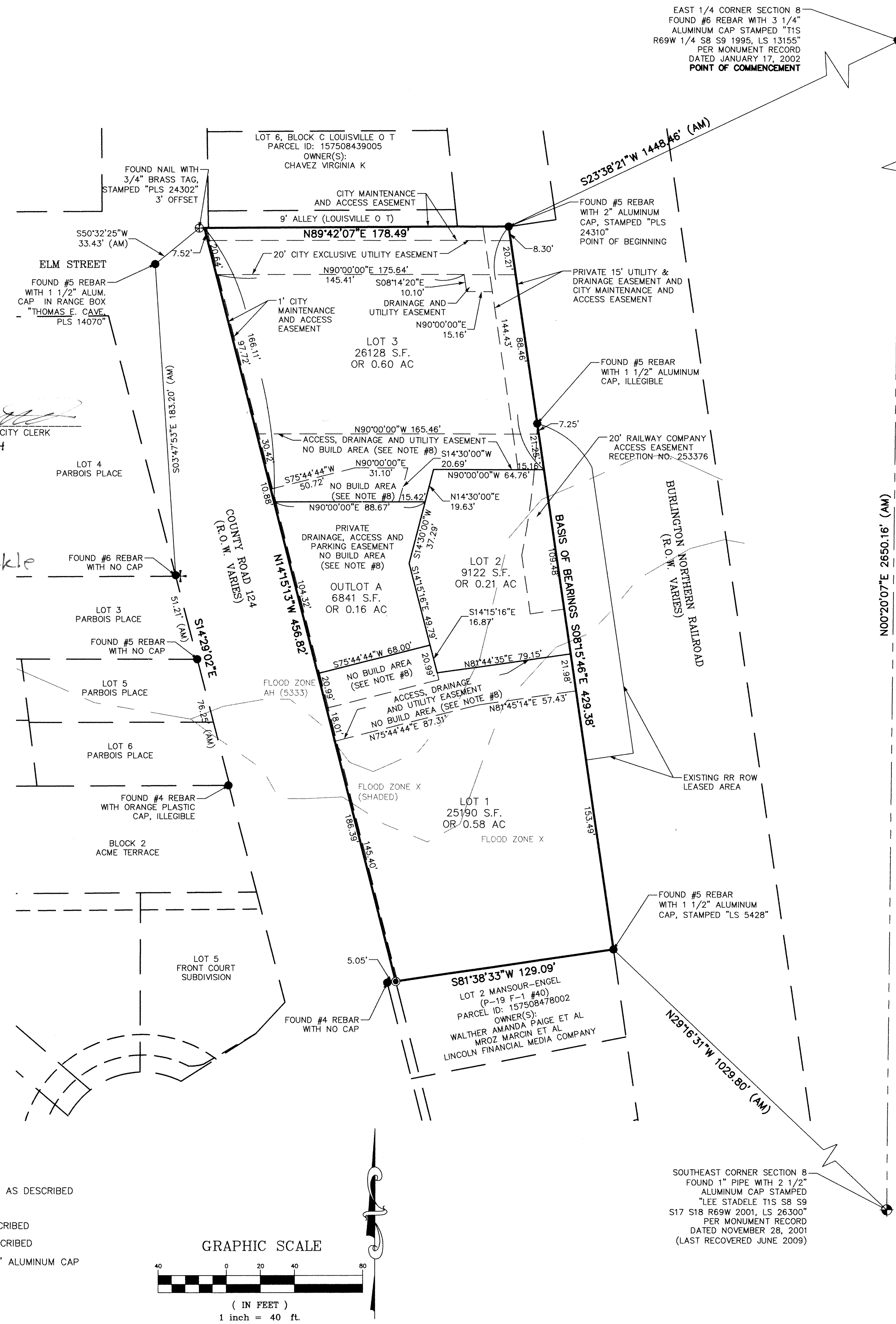
THE UNDERSIGNED, COLORADO BUSINESS BANK, A COLORADO BANKING CORPORATION, AS THE BENEFICIARY OF A DEED OF TRUST RECORDED WITH THE BOULDER COUNTY CLERK AND RECORDER, APRIL 19, 2006 AT RECEPTION NO. 540838 AND ALL SUBSEQUENT MODIFICATIONS THERETO AND THAT CONSTITUTES A LIEN UPON PORTIONS OF THE PROPERTY DESCRIBED ON THIS PLAT, DOES HEREBY CONSENT TO THE PLATTING OF THE PROPERTY AND TO THE DEDICATION AND ESTABLISHMENT OF ALL EASEMENTS, COVENANTS AND RESTRICTIONS AS SET FORTH ON THE FINAL PLAT OF "LOUISVILLE MILL SITE SUBDIVISION," AND HEREBY SUBORDINATES ITS LIEN TO THE INTERESTS OF THE CITY OF LOUISVILLE UNDER SAID EASEMENTS, COVENANTS AND RESTRICTIONS.

BY: [signature]

TITLE: Vice President

### Vicinity Map
### Not to Scale




### Legend

- FOUND ALIQUOT MONUMENT AS DESCRIBED
- FOUND CHISELED CROSS
- FOUND MONUMENT AS DESCRIBED
- FOUND BRASS TAG AS DESCRIBED
- SET #5 REBAR WITH 1 1/2" ALUMINUM CAP "FLATIRONS SURV 16406"

## Notes

1. FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT NUMBER 515-F0467807-170-BL7, AMENDMENT NO. 1, DATED SEPTEMBER 4, 2015 AT 7:00 A.M., WAS ENTIRELY RELIED UPON FOR RECORDED INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES IN THE PREPARATION OF THIS SURVEY. THE PROPERTY SHOWN AND DESCRIBED HEREON IS ALL OF THE PROPERTY DESCRIBED IN SAID TITLE COMMITMENT.
2. ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. THIS SURVEY IS VALID ONLY IF PRINT HAS SEAL AND SIGNATURE OF SURVEYOR.
4. BASIS OF BEARINGS: AN ASSUMED BEARING OF S08°15'46"E ALONG THE WEST RIGHT OF WAY LINE OF BURLINGTON NORTHERN RAILROAD, BETWEEN A FOUND #5 REBAR WITH A 2" ALUMINUM CAP, STAMPED "PLS 24310" AT THE NORTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 03267645 AND A FOUND #5 REBAR WITH 1 1/2" ALUMINUM CAP, STAMPED "LS 5428" AT THE SOUTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 253376, AS SHOWN HEREON. ALL BEARINGS SHOWN HEREON ARE RELATIVE THERETO.
5. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SEC 18-4-508. WHOEVER WILLFULLY DESTROYS, DEFACES, CHANGES, OR REMOVES TO ANOTHER PLACE ANY SECTION CORNER, QUARTER-SECTION CORNER, OR MEANDER POST, ON ANY GOVERNMENT LINE OF SURVEY, OR WILLFULLY CUTS DOWN ANY WITNESS TREE OR ANY TREE BLAZED TO MARK THE LINE OF A GOVERNMENT SURVEY, OR WILLFULLY DEFACES, CHANGES, OR REMOVES ANY MONUMENT OR BENCH MARK OF ANY GOVERNMENT SURVEY, SHALL BE FINED UNDER THIS TITLE OR IMPRISONED NOT MORE THAN SIX MONTHS, OR BOTH. 18 U.S.C. § 1858.
6. THE DISTANCE MEASUREMENTS SHOWN HEREON ARE U.S. SURVEY FOOT.
7. FLOOD INFORMATION: THE SUBJECT PROPERTY IS LOCATED IN ZONES AH, FLOOD DEPTHS OF 1 TO 3 FEET (USUALLY AREAS OF PONDING); BASE FLOOD ELEVATIONS DETERMINED (5330), X (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREA OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAT 1 SQUARE MILE; AND AREA PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD AND X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP; COMMUNITY-PANEL NO. 08013C-0582 J, DATED DECEMBER 18, 2012. FLOOD INFORMATION IS SUBJECT TO CHANGE.
8. NO- BUILD AREA: THE NO-BUILD AREAS NOTED ON THIS PLAT ARE SUBJECT TO THE FOLLOWING RESTRICTION: NO BUILDINGS OR OTHER IMPROVEMENTS SHALL BE CONSTRUCTED WITHIN THE NO-BUILD AREA WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE CITY OF LOUISVILLE, AS EVIDENCED BY WRITTEN RESOLUTION OF THE CITY OF LOUISVILLE CITY COUNCIL. THE OWNERS HEREBY ESTABLISH THAT THE FOREGOING RESTRICTION SHALL CONSTITUTE A COVENANT RUNNING WITH OUTLOT A AND THOSE PORTIONS OF LOTS 1 AND 3 WITHIN THE NO-BUILD AREA, AND THAT SUCH RESTRICTION SHALL ENCUMBER THE NO-BUILD AREA AND BE BINDING UPON ALL OWNERS OF ANY OWNERSHIP OR OTHER INTEREST IN THE NO-BUILD AREA. THE OWNERS HEREBY FURTHER DEDICATE TO THE CITY OF LOUISVILLE A PERPETUAL CONSERVATION EASEMENT IN GROSS TO ENFORCE THE FOREGOING PROHIBITION ON THE CONSTRUCTION OF BUILDINGS OR OTHER IMPROVEMENTS WITHIN THE NO-BUILD AREA, IT BEING THE INTENT THAT SUCH PROHIBITION IS FOR THE PRESERVATION OF VIEW CORRIDORS FOR HISTORIC PRESERVATION PURPOSES. THE RESTRICTION AND EASEMENT HEREIN ESTABLISHED SHALL NOT BE SUBJECT TO ABANDONMENT OR MERGER AND MAY ONLY BE MODIFIED, TERMINATED, EXTINGUIHSED OR RELEASED BY INSTRUMENT APPROVED BY RESOLUTION OF THE LOUISVILLE CITY COUNCIL AND EXECUTED BY THE MAYOR AND CITY CLERK. IMPROVEMENTS AUTHORIZED BY THE LOUISVILLE MILL SITE PLANNED UNIT DEVELOPMENT PLAN, AS APPROVED BY CITY COUNCIL RESOLUTION, SHALL BE PERMITTED IMPROVEMENTS IN THE NO-BUILD AREA.
9. THE 20' CITY EXCLUSIVE UTILITY EASEMENT SHOWN HEREON IS AN EXCLUSIVE CITY UTILITY EASEMENT FOR WATER, SANITARY AND STORM SEWER AND MAY NOT BE USED FOR OTHER UTILITIES WITHOUT CITY CONSENT.
10. OWNERSHIP INFORMATION IS PER THE BOULDER COUNTY WEBSITE AS RESEARCHED ON MARCH 30, 2014 AND IS SUBJECT TO CHANGE.

## PLANNING COMMISSION CERTIFICATE

RECOMMENDED APPROVED THIS 9TH DAY OF APRIL, 2015 BY THE PLANNING COMMISSION OF THE CITY OF LOUISVILLE, COLORADO. RESOLUTION NO. 14, SERIES 2015.

PLANNING COMMISSION CHAIRMAN ____________ SECRETARY ____________

## CITY COUNCIL CERTIFICATE

APPROVED THIS 19th DAY OF May, 2015 BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO. RESOLUTION NO. 29, SERIES 2015.

MAYOR SIGNATURE [signature] CITY CLERK SIGNATURE [signature]

CITY OF LOUISVILLE SEAL COLORADO

## CLERK AND RECORDER CERTIFICATE

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED IN MY OFFICE AT 1:21 O'CLOCK, P.M., THIS 13 DAY OF December, 2016, AND IS RECORDED IN PLAN FILE ——, FEE $11.00 PAID. —— FILM NO. 03563028 RECEPTION.

Hillary Hall
CLERK & RECORDER

Cessica Martinez
DEPUTY

## Surveyor's Statement

I, JOHN B. GUYTON, A DULY REGISTERED LAND SURVEYOR, LICENSED IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT OF LOUISVILLE MILL SITE SUBDIVISION TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE BY ME OR UNDER MY DIRECTION, AND THAT SAID PLAT COMPLIES WITH THE REQUIREMENTS OF TITLE 38, ARTICLE 51, COLORADO REVISED STATUTES.

JOHN B. GUYTON COLORADO P.L.S. #16406
CHAIRMAN & CEO, FLATIRONS, INC.

COLORADO LICENSED JOHN B. GUYTON 16406 PROFESSIONAL LAND SURVEYOR 12/5/16

| REVISION | DATE |
|---|---|
| 1 REVISED FOR CITY COMMENTS | M. VOYLES 06/12/2014 |
| 2 REVISED FOR CITY COMMENTS | M. VOYLES 03/12/2015 |
| 3 REVISED FOR CHANGES TO EASEMENTS | M. VOYLES 03/13/2015 |
| 4 REVISED PER CITY COMMENTS | M. VOYLES 10/17/2016 |
| 5 - | - |
| 6 - | - |
| 7 - | - |
| 8 - | - |
| 9 - | - |

FINAL PLAT

LOUISVILLE MILL SITE SUBDIVISION

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**Flatirons, Inc.**
*Surveying, Engineering & Geomatics*
www.FlatironsInc.com

655 FOURTH AVE
LONGMONT, CO 80501
PH: (303) 776-1733
FAX: (303) 776-4355

3825 IRIS AVE, STE 395
BOULDER, CO 80301
PH: (303) 443-7001
FAX: (303) 443-9830

3660 DOWNING ST
UNIT E
DENVER, CO 80205
PH: (303) 936-6997

JOB NUMBER: 14-63,228
DATE: 06-03-2014
DRAWN BY: M. VOYLES
CHECKED BY: JZG/NV

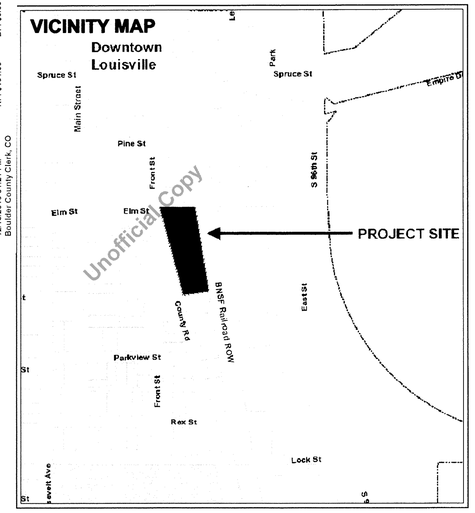
SHEET 1 OF 1

Page: 1 of 10
DF: $0.00
RF: $101.00
20153240 01/13/2015 01:13 PM
Boulder County Clerk, CO

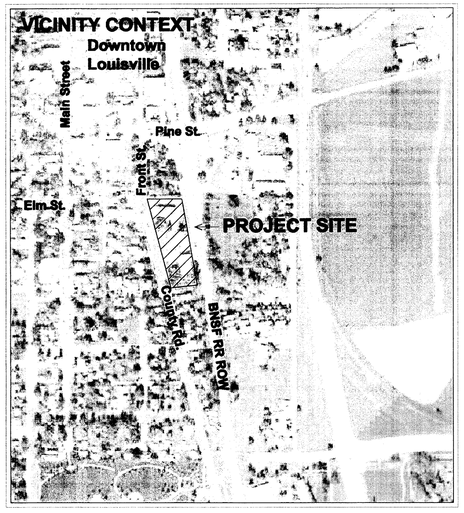
# FINAL P.U.D.
# LOUISVILLE MILL SITE REDEVELOPMENT
## 500, 540, 544 County Road
## LOUISVILLE MILL SITE SUBDIVISION

**LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO**

## VICINITY MAP




## VICINITY CONTEXT




* Note: Prior to closing date, property for 540/544 County Rd. Owner is City of Louisville, 749 Main Street, Louisville, CO 80027. Louisville Mill Site LLC has a contract with the property owner to purchase the property and has an agreement to renovate the buildings on site. "Owner" as referenced herein for 540/544 County Rd. shall refer to Louisville Mill Site LLC. See related agreements for additional information and responsibilities.

## SIGNATURES

**OWNERSHIP SIGNATURE BLOCK**

By signing this PUD, the owner acknowledges and accepts all the requirements and intent set forth in this PUD. Witness my/our hand(s) seal(s) this ___ day of _____, 20___.

J. Erik Hartronft, Member
Louisville Mill Site, LLC
Owner Name and Signature

Randall C. Caranci, Member
Louisville Mill Site, LLC
Owner Name and Signature

Randall C. Caranci
RCC Ltd.
Owner Name and Signature

_____ (Notary Seal)
Notary Name (print)

_____
Notary Signature

My Commission Expires _____

**PLANNING COMMISSION CERTIFICATE**

Approved this 9th day of APRIL, 2015 by the Planning Commission of the City of Louisville, Colorado.
Resolution No. 14, Series 2015

**CLERK AND RECORDER CERTIFICATE**
**(COUNTY OF BOULDER, STATE OF COLORADO)**

I hereby certify that this instrument was filed in my office at 1:21 o'clock, P. M., this 13 day of December, 2016, and is recorded in Plan File _____, Fee $101.00 paid. _____ Film No. 03563038 Reception.

Hillary Hall
Clerk & Recorder

Jessica Martinez
Deputy

**CITY COUNCIL CERTIFICATE**

Approved this 9th day of May, 2015 by the City Council of the City of Louisville, Colorado.
Resolution No. 29, Series 2015
(City Seal)

Mayor Signature

City Clerk Signature

## SHEET INDEX

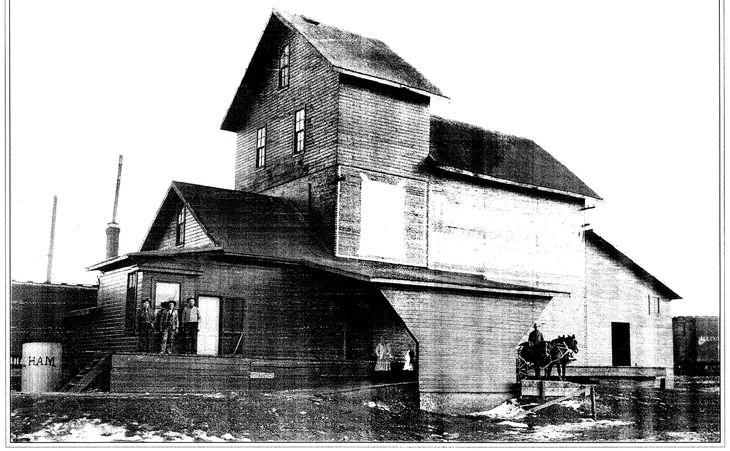
| SHEET | DESCRIPTION |
|---|---|
| ARCHITECTURAL | |
| A1 | Cover Sheet, Project Data & Renderings |
| A2 | Site Plan |
| A3 | Landscape & Parking Plan, Alt Parking Plan |
| A4 | Plans |
| A5 | Building Elevations |
| A6 | Site Photometric |
| SURVEY | |
| 1 | ALTA/ACSM Land Title Survey |
| CIVIL | |
| C1.0 | Drainage Plan |
| C2.0 | Utility Plan |
| EX-1 | Autoturn Firetruck Exhibit |
| EX-2 | Autoturn Firetruck Exhibit |

## PROJECT DIRECTORY

| | |
|---|---|
| OWNER | Louisville Mill Site LLC *<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft<br>303-673-9304 |
| ARCHITECT/PLANNER | Hartronft Associates, p.c.<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft, AIA<br>303-673-9304 |
| CIVIL ENGINEER | JVA, Incorporated<br>1319 Spuce Street<br>Boulder, Colorado 80302<br>Contact: Darren Stewart<br>303-444-1951 |

## HISTORIC VIEW OF GRAIN ELEVATOR FROM THE NORTHWEST

Carnegie Branch Library for Local History / Boulder Historical Society Collection




## VIEW OF PROPOSED MILL SITE BUILDING AND HISTORIC GRAIN ELEVATOR FROM THE SOUTHWEST




## Louisville Mill Site - Use and Zoning Information

Final PUD and Plat - 11/6/14 (rev. 3/13/15)

**Project Description:**

The Louisville Mill Site Redevelopment project will combine two adjacent properties, and subdivide the combined land area into 3 building lots and one outlot for common use. The northern property currently contains the historic Louisville Grain Elevator building which will be landmarked and rehabilitated for commercial use with minor additions, and a 3,360sf commercial building, and small shed which will be both be removed. The southern property currently contains a commercial structure, formerly used as a warehouse, now home to a fitness-related business. An addition is planned for this building. The proposed uses for all buildings on the property is commercial, with retail, restaurant/bar, and similar allowable uses on the ground level, with offices anticipated on upper levels. There is a potential for some public or private museum space in the grain elevator structure.

**Building Bulk and Density Standards:**

| Required Setbacks: | | Proposed Setbacks: |
|---|---|---|
| Front | 5'-25' | 5' minimum |
| Rear | 20' | Variance requested - see plan |
| Side (internal) | 5' | 10' minimum |

| Allowable Height: | Proposed Height: |
|---|---|
| 2 story - 35' * | 3 story - 36.5' * |

* 35' from Main Level FFE to flat roof with allowance for rooftop screening
Due to floodplain grading requirements, building height from average Main Level FFE to flat roof is 36.5' with tower and roof screening to 41.5'

**Addresses and Legal Descriptions:**

See Plat and Survey for Legal Descriptions

| | Caranci Lot 1 | Grain Lot 2 | Green Outlot A | Mill Site Lot 3 |
|---|---|---|---|---|
| Address - County Road | 500 | 540 | - | 544 |

## Louisville Mill Site - Plat Areas & PUD Yield Per Lot Including Parking

Final PUD and Plat - 11/6/14 (rev. 3/13/15)

**Existing Property Areas:**

| | | | |
|---|---|---|---|
| Existing Mill Site Land Area | 46,546 sf +/- | 69.18% |
| Existing Caranci Property Land Area | 20,735 sf +/- | 30.82% |
| Total Plat Area | 67,281 sf +/- | 100.00% |
| RR ROW Lease Area 1 (Caranci) | 5,298 sf +/- | -existing |
| RR ROW Lease Area 2 (Proposed-Mill Site) | 3,576 sf +/- | -future |
| Total Plat Area plus RR ROW | 76,155 sf +/- | |

**Proposed Plat Areas:**

| | | | |
|---|---|---|---|
| Lot 1 - Caranci | 25,190 sf | 37.44% |
| Lot 2 - Grain Elevator | 9,122 sf | 13.56% |
| Outlot A - Mill Site Green | 6,841 sf | 10.17% |
| Combined Lot 2 + Outlot 15,963 | | |
| Lot 3 - Mill Site Building | 26,128 sf | 38.83% |
| Total Plat Area | 67,281 sf | 100.00% |

Public Land Dedication: Public Land Dedication waiver was requested and approved as a condition of the purchase agreement between Louisville Mill Site LLC and the City of Louisville. Refer to the Purchase and Sale Agreement, Article 9, Paragraph 9.15 'Public Use Dedication Waived' which applies to all land in the Subdivision.

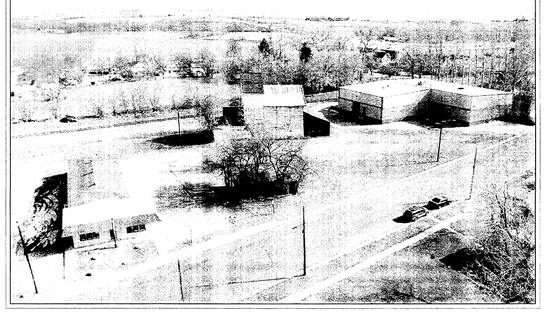
**PUD Yield From Redevelopment**

| | | Caranci Lot 1 | Grain Lot 2 | Green Outlot A | Mill Site Lot 3 | Total |
|---|---|---|---|---|---|---|
| Lot Area | | 25,190 | 9,122 | 6,841 | 26,128 | 67,281 |
| Additional RR ROW Area | | 5,298 | | | 3,576 | 8,874 |
| | | | | | proposed | |
| Existing Building Area* | | 10,000 | 4,094 | | 3,360 | 17,454 |
| Additional Building Area / Lot | | 6,500 | 1,500 | | 15,640 | |
| Total Proposed Usable Building Area | | 16,500 | 3,560 | 0 | 19,000 | 39,060 |
| Bldg Area Percentage of total | | 42.24% | 9.11% | | 48.64% | 100.00% |
| Total Unconditioned in Grain Elev. | | | 2,034 +/- | | | |
| Net Area (-1ksf -util, circ, kit, etc) | 0.9 | 13,950 | 1,404 | | 17,100 | 32,454 |
| Parking Required | @ 1sp per 500 | 28 | 3 | | 34 | 65 |
| Parking Proposed | | | | | | |
| On Site | | 19 | 3 | 0 | 34 | 56 |
| Existing RR ROW | | 9 | | | | 9 |
| Potential addl on-site spaces** | | | | | 9 | 5 | 14 |
| Potential addl RR ROW*** | | | | 12 shared/common | | 12 |

Notes:
* Existing bldg. area of Grain Elevator not all usable/not all counted "proposed usable"
* Existing Lot 3 Commercial (former Napa) to be removed, total is all new construction
** 9 net spaces if green space replaced by parking, 5 potential spaces tuck under bldg
*** Dependent upon successful negotiation with BNSF for extended lease area

A shared parking/access/maintenance agreement shall be executed by all Mill Site Subdivision property owners and recorded concurrently with the Final PUD and Plat.

## AERIAL VIEW OF MILL SITE - EXISTING CONDITIONS



## VIEW OF LOT 1 BUILDING AND GRAIN ELEVATOR FROM THE NORTHWEST



HARTRONFT ASSOCIATES
A Professional Corporation
Planning
Architecture
Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO
JOE ERIK HARTRONFT
13-2236
12-5-14
REGISTERED ARCHITECT

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/06/15

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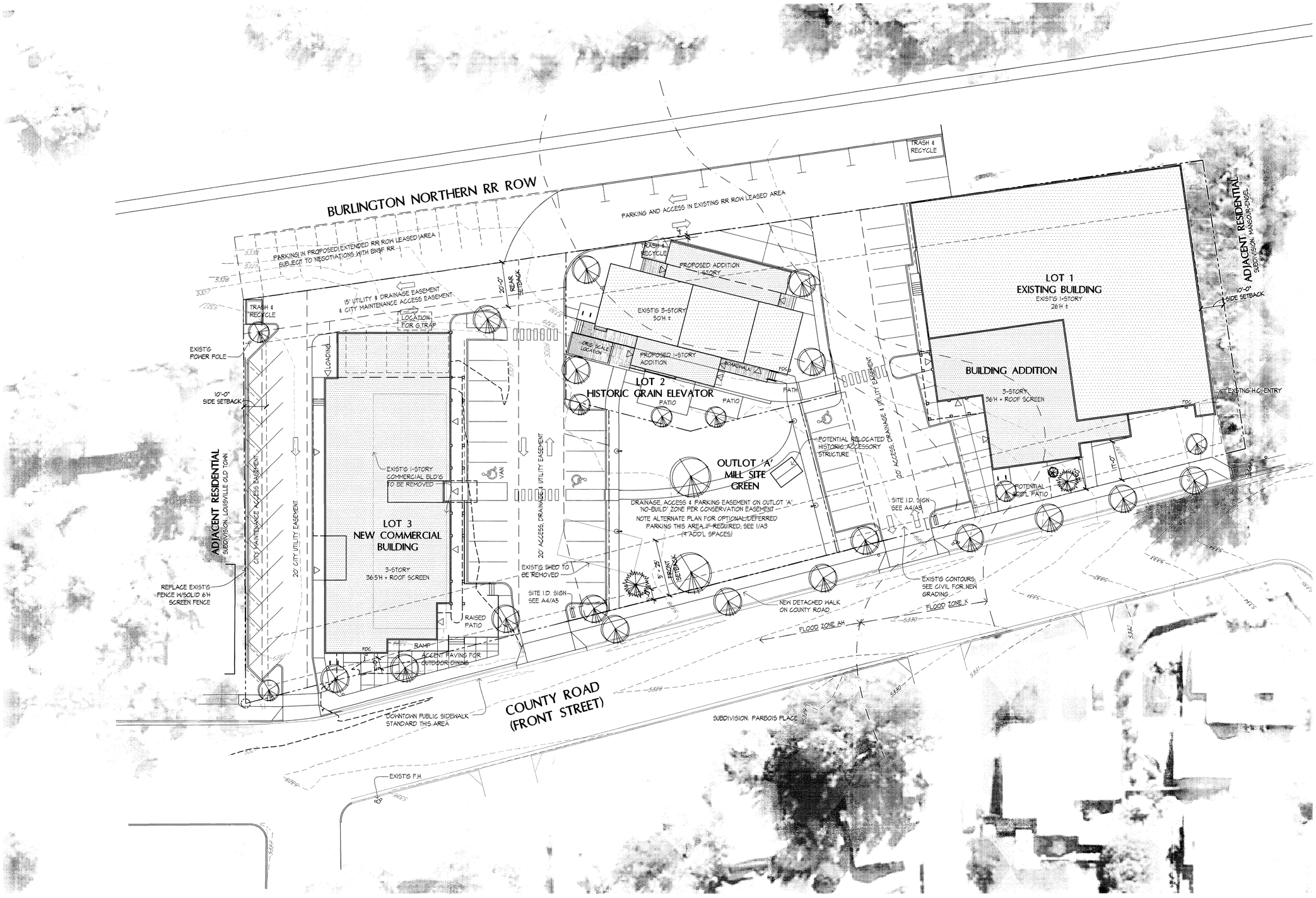
COVER SHEET
PROJECT DATA
RENDERINGS
SIGNATURES

Sheet
A1
1 of 9 Sheets

Boulder County, CO 03563038 2 of 10

Unofficial Copy




1 / A2 ARCHITECTURAL SITE PLAN

1" = 20'

NORTH

0 5 10 25 50 100 FEET

HARTRONFT ASSOCIATES
A Professional Corporation

Planning
Architecture
Interior Design

950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO
JOHN CHRIS HARTRONFT
PE-23138
12-5-14
REGISTERED ARCHITECT

**PROJECT #** 1252.10
**DATE:** 04/03/14
**DRAWN BY:** HAPC
**CHECKED BY:** JEH
**REVISIONS:**
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/06/15

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SITE PLAN

Sheet
**A2**
2 of 9 Sheets

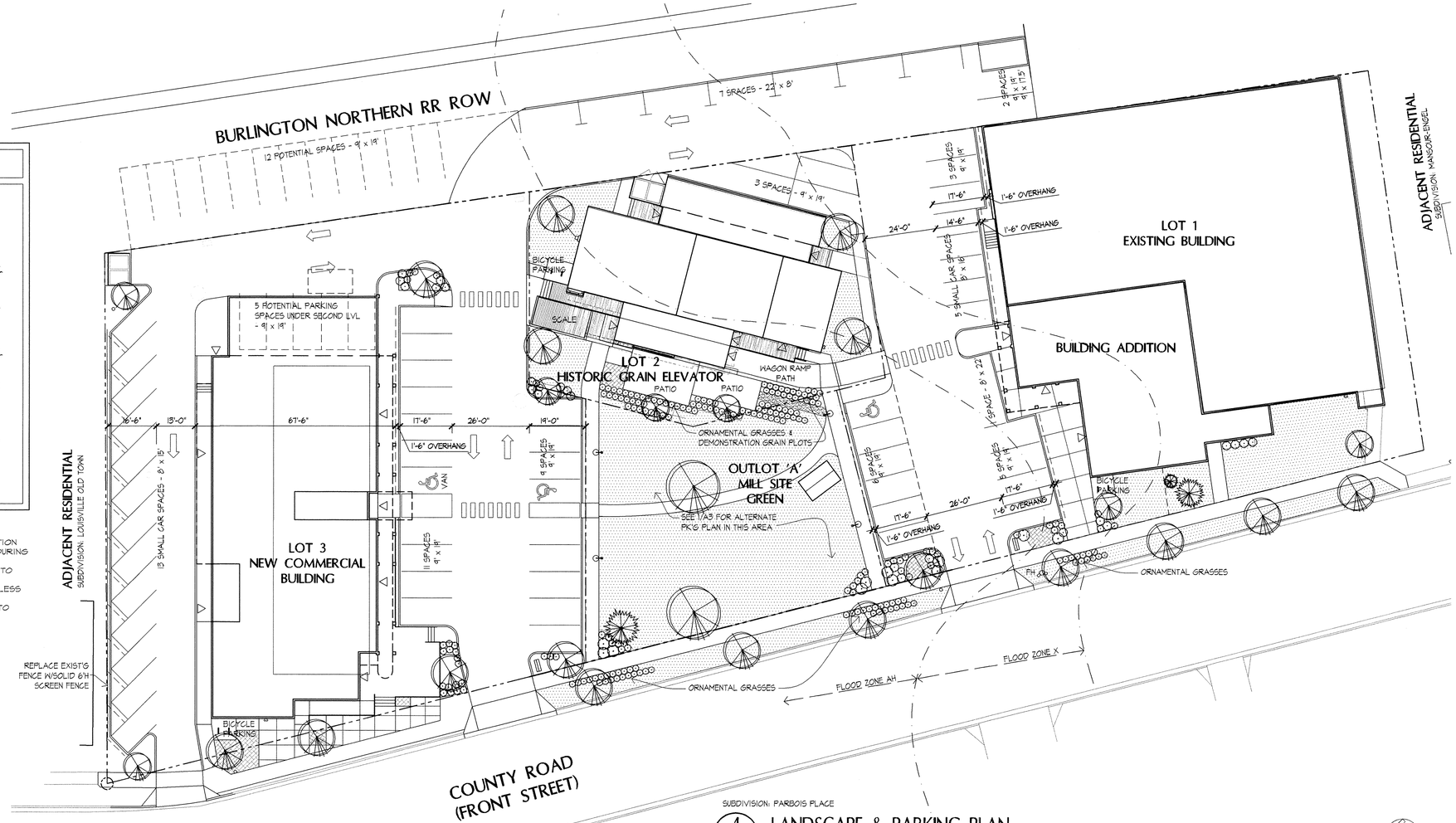
Boulder County, CO 03563038 3 of 10
Unofficial Copy

## LANDSCAPE LEGEND

- Planting bed - perrentials/ annuals
- Sod/Turf areas - 90% fescue/ 10% bluegrass
- Ornamental Grasses
- Coniferous Shrub 5 GAL.
- Deciduous Shrub 5 GAL.
- 2" - 3" Caliper Deciduous Tree
- Deciduous Tree 1-1/2" - 2" Caliper
- Coniferous Tree Min. 6 Ft.
- Existing Coniferous Tree over 10" Caliper
- Existing Coniferous Tree 2" - 8" Caliper
- Existing Deciduous Tree over 10" Caliper
- Existing Deciduous Tree 6" - 10" Caliper
- Existing Deciduous Tree 3" - 6" Caliper
- Existing Deciduous Tree 1" - 3" Caliper
- Existing Shrub

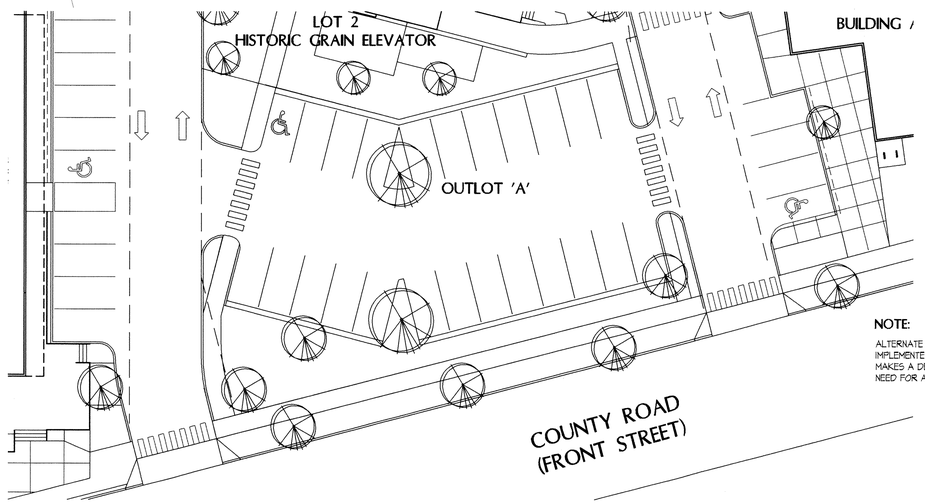
NOTES:

1. APPLICANT TO PROVIDE DETAILED LANDSCAPE & IRRIGATION DRAWINGS TO PUBLIC WORKS FOR REVIEW & APPROVAL DURING THE CIVIL PLAN REVIEW
2. PARKWAY TREES SHALL BE PLANTED NO CLOSER THAN 5' TO CURB OR WALK.
3. THE USE OF ROOT BARRIER IS REQUIRED FOR ALL TREES LESS THAN 5' FROM CURB OR WALK.
4. THE PARKWAY IRRIGATION SYSTEM SHALL NOT SPRAY ONTO PAVED SERVICES




4 / A3 LANDSCAPE & PARKING PLAN
1" = 20'

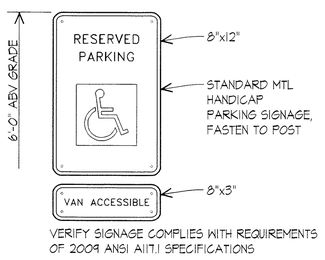
0 1 5 10 25 50 100 FEET NORTH




**NOTE:**
ALTERNATE PARKING PLAN SHALL ONLY BE IMPLEMENTED BY THE OWNER IF THE CITY MAKES A DETERMINATION THAT THERE IS A NEED FOR ADDITIONAL PARKING ON SITE.

1 / A3 ALTERNATE PARKING PLAN
1" = 20'

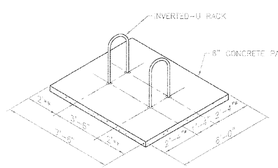
0 1 5 10 25 50 100 FEET NORTH




VERIFY SIGNAGE COMPLIES WITH REQUIREMENTS OF 2009 ANSI A117.1 SPECIFICATIONS

3 / A3 H.C. PK'G SIGN DETAIL
N.T.S.

NOTES:
EXPOSED CONCRETE SURFACE TO BE BROOM FINISHED.
PAD SIZE MAY VARY AS DIRECTED BY THE ENGINEER.
PAD IS TO BE CONSTRUCTED WITH CLASS B CONCRETE.
EXCAVATION AND/OR EMBANKMENT REQUIRED FOR PAD CONSTRUCTION WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAD. CONCRETE SHALL BE SLOPED AT 2% TO DRAIN.




* 3'-4" MINIMUM WHEN INSTALLED PERPENDICULAR TO A WALL OR CURB.
** 3' MINIMUM WHEN INSTALLED PARALLEL TO A WALL OR CURB. 2' MINIMUM SEPARATION FROM CURB FACE WHEN INSTALLED ADJACENT TO A CURB WITH "HEAD-IN" AUTOMOBILE PARKING.
*** 10' MINIMUM IF MORE THAN TWO "U" RACKS IN A SERIES.

2 / A3 U-RACK DETAIL @BICYCLE PK'G
N.T.S.

HARTRONFT ASSOCIATES
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950 Spruce Street, #1A
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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
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LANDSCAPE & PARKING PLAN
ALT PARKING PLAN

Sheet
**A3**
3 of 9 Sheets

Boulder County, CO 03563038 4 of 10

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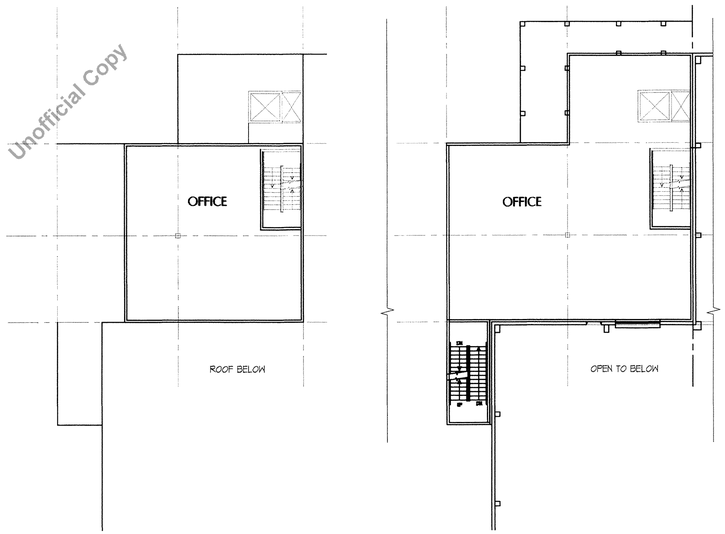
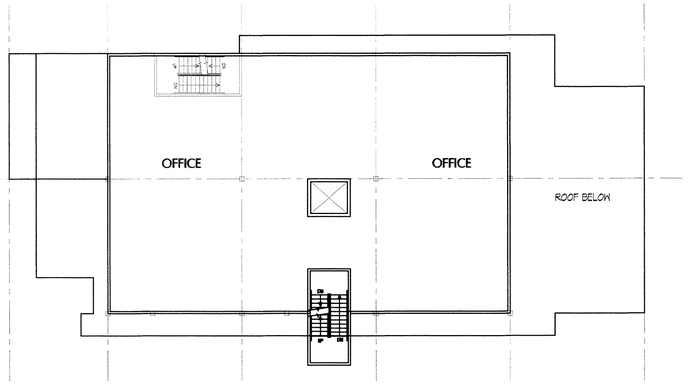
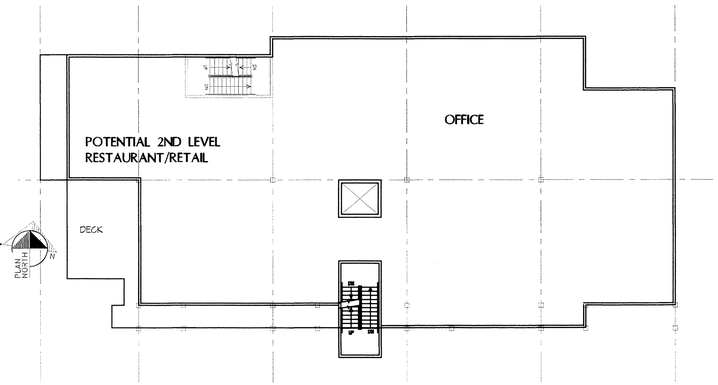



C4/A4 FLOOR PLAN – THIRD LEVEL
SCALE: 1/16" = 1'-0"

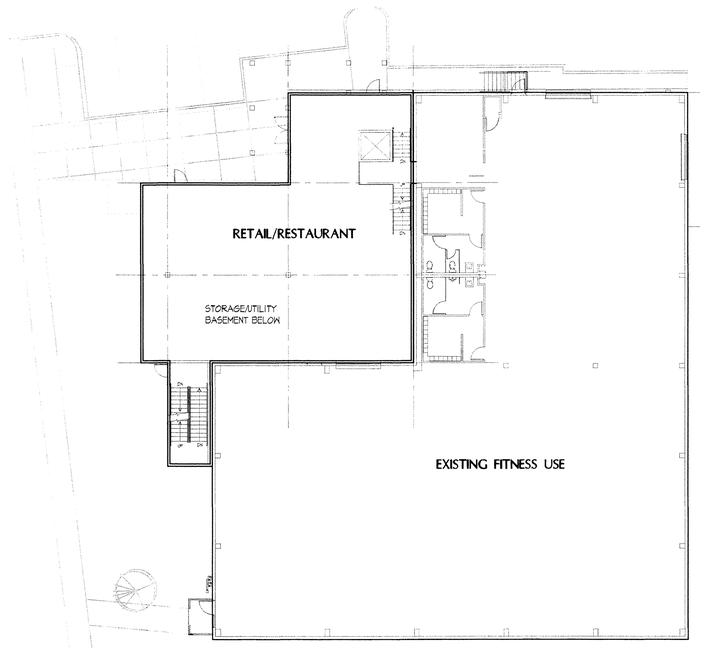
C3/A4 FLOOR PLAN – SECOND LVL
SCALE: 1/16" = 1'-0"




C2/A4 FLOOR PLAN – THIRD LEVEL
SCALE: 1/16" = 1'-0"

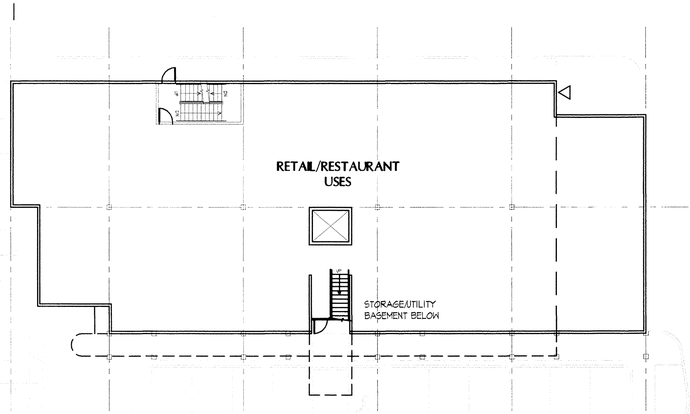



B2/A4 FLOOR PLAN – SECOND LEVEL
SCALE: 1/16" = 1'-0"




A4/A4 FLOOR PLAN – MAIN LEVEL
SCALE: 1/16" = 1'-0"

**LOT 1 - CARANCI BUILDING**



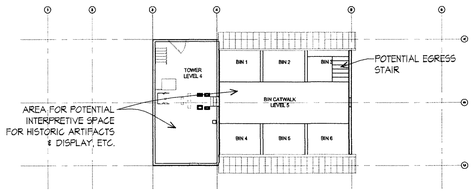

A2/A4 FLOOR PLAN – MAIN LEVEL
SCALE: 1/16" = 1'-0"

**LOT 3 - MILL SITE BUILDING**

PLAN @PK'G

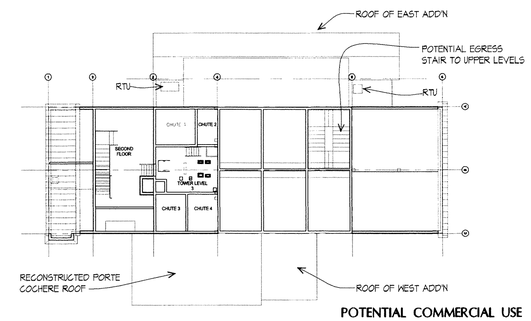
**COMMERCIAL USE NOTES:**

USE DESIGNATIONS ARE INTENDED TO DESCRIBE THE INTENDED CHARACTER OF THE SPACE TO BE CONSTRUCTED & DO NOT LIMIT ANY PERMITTED USE PER ZONING REGULATIONS OR AS OTHERWISE APPROVED, TYP.



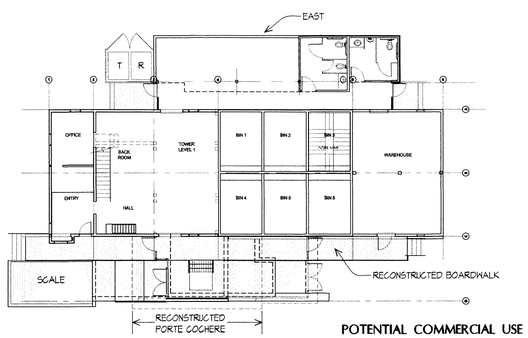

UNFINISHED

D1/A4 FLOOR PLAN – FOURTH/FIFTH LEVEL (3RD STORY)
SCALE: 1/16" = 1'-0"



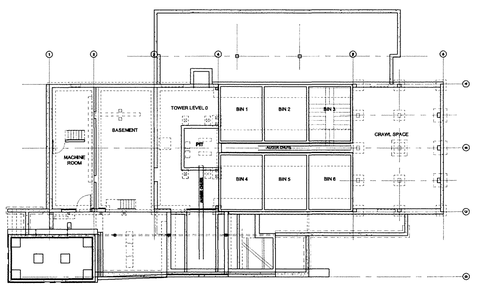

POTENTIAL COMMERCIAL USE

C1/A4 FLOOR PLAN – SECOND/THIRD LEVEL (2ND STORY)
SCALE: 1/16" = 1'-0"




POTENTIAL COMMERCIAL USE

B1/A4 FLOOR PLAN – FIRST LEVEL (1ST STORY)
SCALE: 1/16" = 1'-0"




UNFINISHED

A1/A4 FLOOR PLAN – BASEMENT/CRAWL SPACE
SCALE: 1/16" = 1'-0"

**LOT 2 - HISTORIC GRAIN ELEVATOR**

HARTRONFT ASSOCIATES
A Professional Corporation
Planning
Architecture
Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO — JAMES E. HARTRONFT — REGISTERED ARCHITECT — 19-5-16

**PROJECT # 1252.10**
**DATE:** 04/03/14
**DRAWN BY:** HAPC
**CHECKED BY:** JEH
**REVISIONS:**
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/08/15

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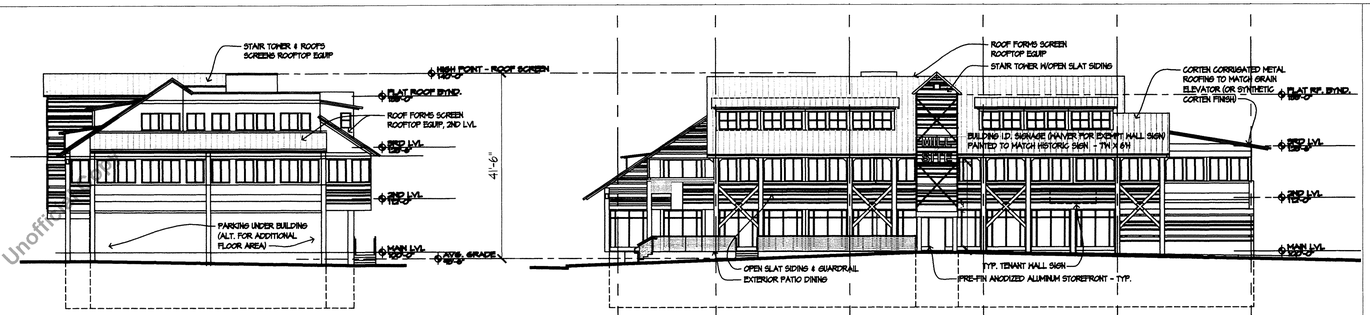
PLANS

Sheet
**A4**
4 of 9 Sheets

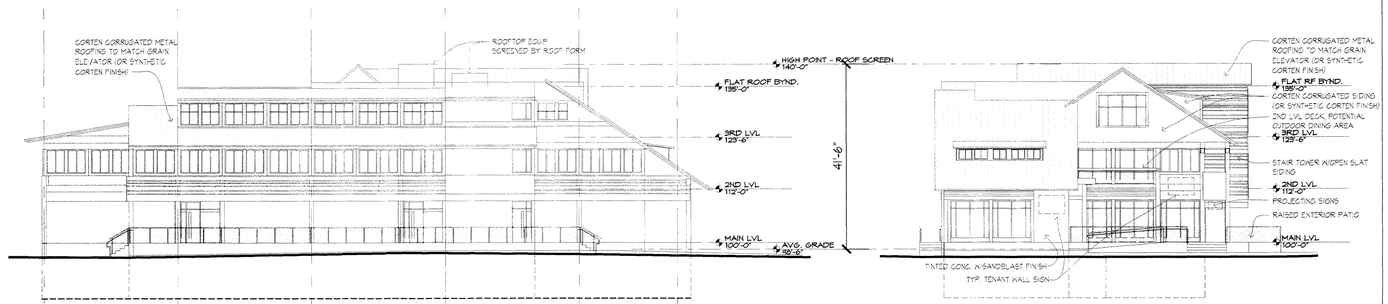
Boulder County, CO 03563038 5 of 10

Unofficial Document




D4 A5 EAST ELEVATION
SCALE: 1/16" = 1'-0"

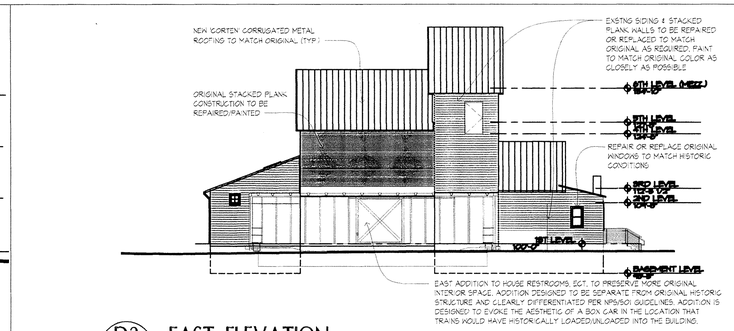
D3 A5 SOUTH ELEVATION
SCALE: 1/16" = 1'-0"



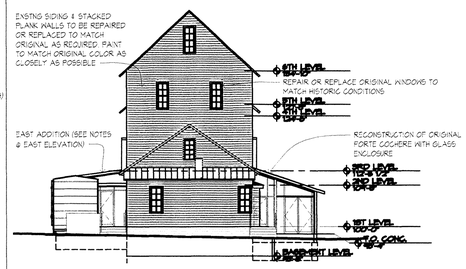

C4 A5 NORTH ELEVATION
SCALE: 1/16" = 1'-0"

C3 A5 WEST ELEVATION
SCALE: 1/16" = 1'-0"

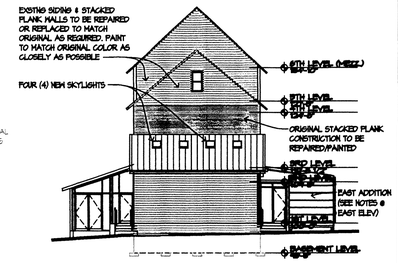
## LOT 3 - NEW MILL SITE BUILDING



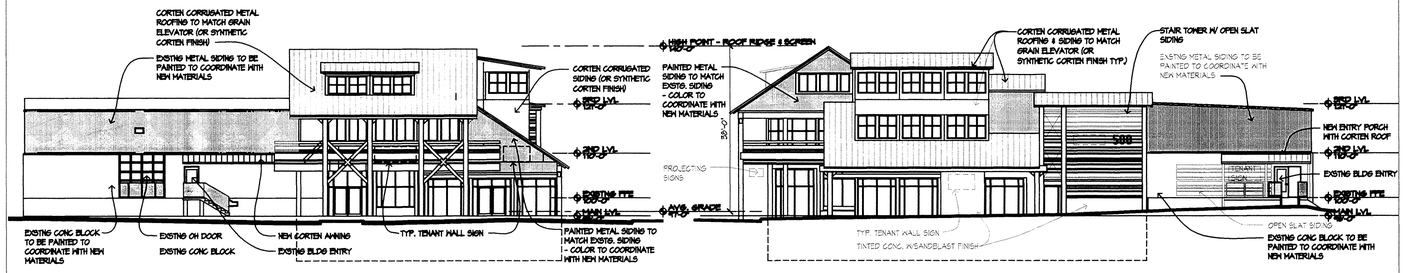

D2 A5 EAST ELEVATION
SCALE: 1/16" = 1'-0"




C2 A5 NORTH ELEVATION
SCALE: 1/16" = 1'-0"



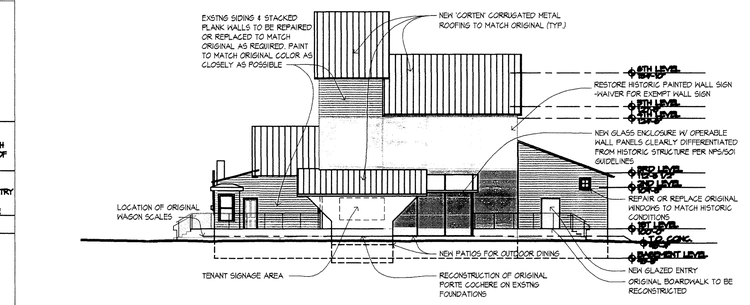

C1 A5 SOUTH ELEVATION
SCALE: 1/16" = 1'-0"




B4 A5 NORTH ELEVATION
SCALE: 1/16" = 1'-0"

B3 A5 WEST ELEVATION
SCALE: 1/16" = 1'-0"

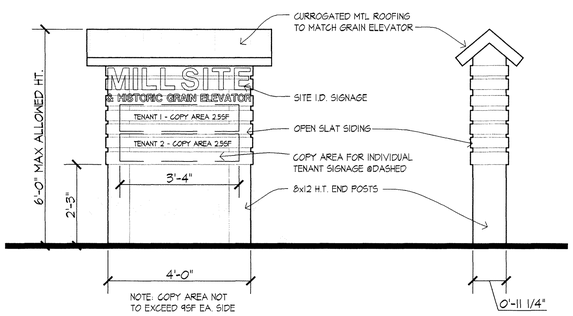
## LOT 1 - CARANCI BUILDING ADDITION / RENOVATION




NOTE: HISTORIC LOUISVILLE GRAIN ELEVATOR TO BE STRUCTURALLY STABILIZED AND RENOVATED FOR COMMERCIAL USE PER THE NATIONAL PARK SERVICE AND SECRETARY OF THE INTERIOR (NPS/SOI) STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES ACCORDING TO THE GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS.

B2 A5 WEST ELEVATION
SCALE: 1/16" = 1'-0"

## LOT 2 - HISTORIC GRAIN ELEVATOR




A4 A5 SITE FREE STANDING SIGN
SCALE: 1/2" = 1'-0"

## SIGN AREA CALCULATIONS

NOTE: SIGN AREA LOCATIONS ON BLD'G ELEVATIONS ARE GENERAL GUIDELINES & NOT POTENTIAL SIGNAGE AS SHOWN. FINAL SIGNAGE DESIGN, SIZE & LOC'N SHALL BE PROVIDED DURING PERMIT PROCESS.

### LOT 1

MAXIMUM SIGN COPY AREA
MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARQUEE, AWNINGS/CANOPY, & FREE STANDING SIGN

| | | | |
|---|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 121.3 L.F. x 2SF PER L.F. = | 242.7 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 122.1 L.F. x 1SF PER L.F. = | 122.6 SF |

WALL SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF WALL SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 121.3 L.F. x 2SF PER L.F. = | 242.7 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 122.1 L.F. x 1SF PER L.F. = | 122.6 SF |

AWNING & CANOPY SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF AWNING & CANOPY SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 121.3 L.F. x 1SF PER L.F. = | 121.3 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 122.1 L.F. x 1SF PER L.F. = | 122.6 SF |

PROJECTING SIGNS
TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS

THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLD'G FRONTAGES IS (4) SF PER SIDE

MULTI TENANT BUILDINGS MAY UTILIZE ONE PROJECTING SIGN PER TENANT

### LOT 2

MAXIMUM SIGN COPY AREA
MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARQUEE, AWNINGS/CANOPY, & FREE STANDING SIGN

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 88.0 L.F. x 2SF PER L.F. = | 176.0 SF |

WALL SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF WALL SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 88.0 L.F. x 2SF PER L.F. = | 176.0 SF |

AWNING & CANOPY SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF AWNING & CANOPY SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 88.0 L.F. x 1SF PER L.F. = | 88.0 SF |

PROJECTING SIGNS
TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS

THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLD'G FRONTAGES IS (4) SF PER SIDE

MULTI TENANT BUILDINGS MAY UTILIZE ONE PROJECTING SIGN PER TENANT

### LOT 3

MAXIMUM SIGN COPY AREA
MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARQUEE, AWNINGS/CANOPY, & FREE STANDING SIGN

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 56.0 L.F. x 2SF PER L.F. = | 112.0 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 142.0 L.F. x 1SF PER L.F. = | 142.0 SF |

WALL SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF WALL SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 56.0 L.F. x 2SF PER L.F. = | 112.0 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 142.0 L.F. x 1SF PER L.F. = | 142.0 SF |

AWNING & CANOPY SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF AWNING & CANOPY SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 56.0 L.F. x 1SF PER L.F. = | 56.0 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 142.0 L.F. x 1SF PER L.F. = | 142.0 SF |

PROJECTING SIGNS
TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS

THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLD'G FRONTAGES IS (4) SF PER SIDE

MULTI TENANT BUILDINGS MAY UTILIZE ONE PROJECTING SIGN PER TENANT

FREE STANDING SIGN: TWO FREE STANDING SIGNS FOR THE 3 LOTS ARE PROPOSED TO ACCOMMODATE MAJOR TENANT(S) & PROJECT IDENTIFICATION (SEE DETAIL & SITE PLAN). MAX 9 SF COPY AREA PER SIDE WHICH COUNTS TOWARDS MAX. SIGN COPY AREA

GENERAL NOTE: ALL SIGNAGE SHALL COMPLY WITH THE DOWNTOWN SIGN MANUAL UNLESS SPECIFIC WAIVER IS INDICATED OR REQUESTED

HARTRONFT ASSOCIATES
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Planning
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Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
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FAX: 303.673.9319

LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO — JOHN CHRISTOPHER HARTRONFT — 37288 — REGISTERED ARCHITECT — 12-5-14

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
PPC/PCC - 06/3/14
FINAL - 11/06/14
FPC - 03/13/15
FCC - 05/06/15

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BUILDING ELEVATIONS

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4 of 9 Sheets

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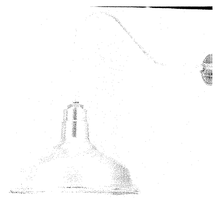
**Luminaire Schedule**

| Symbol | Label | Quantity | Manufacturer | Catalog Number | Description | Lamp | Number Lamps | Filename | Lumens Per Lamp | Light Loss Factor | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | 18 | BASELITE 16" WAREHOUSE CORD HUNG LUMINAIRE | W516/BLC | WITH WHITE INTERIOR AND NO LENS | lumens for 1 32 trt | 1 | W516-BLC INC.IES | 2400 | 0.85 | 32 |
| | B | 5 | Lithonia Lighting | DSXW1 LED 10C 700 40K T3M MVOLT | DSXW1 LED WITH 1 LIGHT ENGINE, 10 LED's, 700mA DRIVER, 4000K LED, TYPE 3 MEDIUM OPTIC | LED | 1 | DSXW1_LED_10C_700_40K_T3M_MVOLT.ies | 2272.285 | 0.98 | 27 |
| | C | 4 | Antique Street Lamps | EH16XT 63LED 350mA 50K R3 MVOLT 1DS ANWH | EUROTIQUE HANOVER SERIES WITH DECORATIVE SKIRT, HLM MODULE TYPE 3 LENS, SINGLE DRIVER, TEMP 50.2C | ONE 71.6-WATT LED, AIMED DOWN POS. | 1 | EH16XT_63LED_350mA_50K_R3_MVOLT_1DS_ANWH.ies | 6299.651 | 0.85 | 71.6 |
| | D | 9 | Gotham Architectural Lighting | EVO 30/14 6AR LD 120 | 6" LED DOWNLIGHT, 3000K, 1400 LUMENS, STANDARD DISTRIBUTION WITH MATTE DIFFUSE REFLECTOR | LED | 1 | EVO_30_14_6AR_LD_120.ies | 1299.4 | 0.85 | 24.7 |
| | B1 | 4 | Lithonia Lighting | DSXW1 LED 10C 700 40K T2S MVOLT | DSXW1 LED WITH 1 LIGHT ENGINE, 10 LED's, 700mA DRIVER, 4000K LED, TYPE 2 SHORT OPTIC | LED | 1 | DSXW1_LED_10C_700_40K_T2S_MVOLT.ies | 2233.988 | 0.98 | 27 |
| | E | 2 | BASELITE 12" ANGLE REFLECTOR - WALL MOUNT LUMINAIRE | A812/E3 | WITH WHITE INTERIOR AND NO LENS | lumens for 1 32 trt | 1 | A812-E3 INC.IES | 2400 | 0.85 | 198 |
| | F | 36 | ECOSENSE | 11LC-12-40-120-17 | Linear HP EXT Wall Wash, 12in, 4000K, 110V, 17x35deg | 4000K LED | 1 | 11LC-12-40-120-17-IESNA.IES | 990.92 | 0.85 | 16.63 |



TYPE A



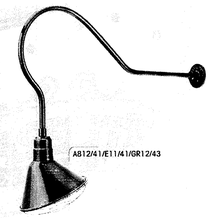
TYPE B



TYPE C



TYPE D




TYPE E



TYPE F

**Luminaire Locations**

| | | Location | | | | | | Aim | | |
|---|---|---|---|---|---|---|---|---|---|---|
| No. | Label | X | Y | Z | MH | Orientation | Tilt | X | Y | Z |
| 1 | A | 294.70 | 204.44 | 15.00 | 15.00 | 81.71 | 0.00 | 294.70 | 204.44 | 0.00 |
| 2 | A | 298.34 | 174.22 | 15.00 | 15.00 | 84.58 | 0.00 | 298.34 | 174.22 | 0.00 |
| 3 | A | 301.34 | 150.43 | 15.00 | 15.00 | 82.82 | 0.00 | 301.34 | 150.43 | 0.00 |
| 4 | A | 305.42 | 124.07 | 15.00 | 15.00 | 77.72 | 0.00 | 305.42 | 124.07 | 0.00 |
| 5 | A | 327.06 | 114.64 | 15.00 | 15.00 | 0.00 | 0.00 | 327.06 | 114.64 | 0.00 |
| 6 | A | 345.92 | 106.86 | 15.00 | 15.00 | 0.00 | 0.00 | 345.92 | 106.86 | 0.00 |
| 7 | A | 373.57 | 112.71 | 15.00 | 15.00 | 0.00 | 0.00 | 373.57 | 112.71 | 0.00 |
| 8 | A | 426.07 | 130.50 | 15.00 | 15.00 | 0.00 | 0.00 | 426.07 | 130.50 | 0.00 |
| 9 | A | 37.09 | 18.74 | 14.00 | 14.00 | 0.00 | 0.00 | 37.09 | 18.74 | 0.00 |
| 10 | A | 59.00 | 18.13 | 14.00 | 14.00 | 0.00 | 0.00 | 59.00 | 18.13 | 0.00 |
| 11 | A | 74.52 | 26.04 | 14.00 | 14.00 | 0.00 | 0.00 | 74.52 | 26.04 | 0.00 |
| 12 | A | 88.52 | 31.82 | 14.00 | 14.00 | -90.00 | 0.00 | 88.52 | 31.82 | 0.00 |
| 13 | A | 95.52 | 146.25 | 14.00 | 14.00 | 180.00 | 0.00 | 95.52 | 146.25 | 0.00 |
| 14 | A | 94.91 | 160.56 | 14.00 | 14.00 | -90.00 | 0.00 | 94.91 | 160.56 | 0.00 |
| 19 | A | 155.00 | 180.00 | 14.00 | 14.00 | 111.52 | 0.00 | 155.00 | 180.00 | 0.00 |
| 20 | A | 246.00 | 157.00 | 14.00 | 14.00 | -77.91 | 0.00 | 246.00 | 157.00 | 0.00 |
| 21 | A | 239.00 | 178.00 | 14.00 | 14.00 | -73.61 | 0.00 | 239.00 | 178.00 | 0.00 |
| 22 | A | 184.00 | 192.00 | 14.00 | 14.00 | 104.47 | 0.00 | 184.00 | 192.00 | 0.00 |
| 4 | B | 88.51 | 164.77 | 14.00 | 14.00 | 0.00 | 0.00 | 88.51 | 164.77 | 0.00 |
| 5 | B | 47.12 | 166.38 | 14.00 | 14.00 | 0.00 | 0.00 | 47.12 | 166.38 | 0.00 |
| 1 | B1 | 31.31 | 138.34 | 12.00 | 12.00 | -90.00 | 0.00 | 31.31 | 138.34 | 0.00 |
| 12 | B | 200.97 | 202.20 | 12.00 | 12.00 | 17.98 | 0.00 | 200.97 | 202.20 | 0.00 |
| 13 | B | 228.30 | 195.34 | 12.00 | 12.00 | 13.51 | 0.00 | 228.30 | 195.34 | 0.00 |
| 14 | B | 302.29 | 223.99 | 14.00 | 14.00 | -10.47 | 0.00 | 302.29 | 223.99 | 0.00 |
| 5 | B1 | 31.31 | 88.34 | 12.00 | 12.00 | -90.00 | 0.00 | 31.31 | 88.34 | 0.00 |
| 6 | B1 | 31.31 | 34.34 | 12.00 | 12.00 | -90.00 | 0.00 | 31.31 | 34.34 | 0.00 |
| 7 | B1 | 39.21 | 158.99 | 12.00 | 12.00 | -90.00 | 0.00 | 39.21 | 158.99 | 0.00 |
| 1 | C | 251.20 | 86.57 | 14.00 | 14.00 | 80.19 | 0.00 | 252.43 | 88.78 | 0.00 |
| 2 | C | 241.98 | 121.29 | 14.00 | 14.00 | 75.64 | 0.00 | 243.19 | 121.80 | 0.00 |
| 3 | C | 186.12 | 111.21 | 14.00 | 14.00 | 269.51 | 0.00 | 184.87 | 111.20 | 0.00 |
| 4 | C | 188.55 | 75.98 | 14.00 | 14.00 | 268.07 | 0.00 | 186.30 | 75.92 | 0.00 |
| 1 | D | 323.86 | 127.71 | 13.00 | 13.00 | 0.00 | 0.00 | 323.86 | 127.71 | 0.00 |
| 2 | D | 314.42 | 125.79 | 13.00 | 13.00 | 0.00 | 0.00 | 314.42 | 125.79 | 0.00 |
| 3 | D | 95.52 | 92.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 92.82 | 0.00 |
| 9 | D | 95.52 | 75.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 75.82 | 0.00 |
| 10 | D | 95.52 | 58.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 58.82 | 0.00 |
| 11 | D | 95.52 | 41.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 41.82 | 0.00 |
| 12 | D | 95.52 | 110.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 110.82 | 0.00 |
| 13 | D | 95.52 | 126.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 126.82 | 0.00 |
| 14 | D | 88.52 | 41.82 | 12.00 | 12.00 | 0.00 | 0.00 | 88.52 | 41.82 | 0.00 |
| 3 | E | 105.25 | 92.25 | 18.00 | 10.00 | 85.24 | 0.00 | 105.25 | 92.25 | 8.00 |
| 4 | E | 105.25 | 94.50 | 18.00 | 10.00 | -86.91 | 0.00 | 105.25 | 94.50 | 8.00 |
| 16 | F | 207.11 | 61.51 | 1.00 | 1.00 | 77.47 | 0.00 | 207.11 | 61.51 | 0.00 |
| 17 | F | 207.33 | 60.54 | 1.00 | 1.00 | 77.47 | 0.00 | 207.33 | 60.54 | 0.00 |
| 18 | F | 207.54 | 59.56 | 1.00 | 1.00 | 77.47 | 0.00 | 207.54 | 59.56 | 0.00 |
| 19 | F | 207.76 | 58.58 | 1.00 | 1.00 | 77.47 | 0.00 | 207.76 | 58.58 | 0.00 |
| 20 | F | 212.90 | 62.90 | 1.00 | 1.00 | 75.96 | 0.00 | 212.90 | 62.90 | 0.00 |
| 21 | F | 213.14 | 61.93 | 1.00 | 1.00 | 75.96 | 0.00 | 213.14 | 61.93 | 0.00 |
| 22 | F | 213.39 | 60.96 | 1.00 | 1.00 | 75.96 | 0.00 | 213.39 | 60.96 | 0.00 |
| 23 | F | 213.63 | 59.99 | 1.00 | 1.00 | 75.96 | 0.00 | 213.83 | 59.99 | 0.00 |
| 80 | F | 193.46 | 159.38 | 25.00 | 25.00 | 14.38 | 0.00 | 193.46 | 159.38 | 0.00 |
| 81 | F | 194.45 | 159.13 | 25.00 | 25.00 | 14.38 | 0.00 | 194.45 | 159.13 | 0.00 |
| 82 | F | 195.42 | 158.88 | 25.00 | 25.00 | 14.38 | 0.00 | 195.42 | 158.88 | 0.00 |
| 83 | F | 196.39 | 158.63 | 25.00 | 25.00 | 14.38 | 0.00 | 196.39 | 158.63 | 0.00 |
| 84 | F | 197.36 | 158.38 | 25.00 | 25.00 | 14.38 | 0.00 | 197.36 | 158.36 | 0.00 |
| 85 | F | 198.33 | 158.13 | 25.00 | 25.00 | 14.38 | 0.00 | 198.33 | 158.13 | 0.00 |
| 86 | F | 199.30 | 157.89 | 25.00 | 25.00 | 14.38 | 0.00 | 199.30 | 157.89 | 0.00 |
| 87 | F | 200.27 | 157.64 | 25.00 | 25.00 | 14.38 | 0.00 | 200.27 | 157.64 | 0.00 |
| 88 | F | 201.23 | 157.39 | 25.00 | 25.00 | 14.38 | 0.00 | 201.23 | 157.39 | 0.00 |
| 89 | F | 202.20 | 157.14 | 25.00 | 25.00 | 14.38 | 0.00 | 202.20 | 157.14 | 0.00 |
| 90 | F | 203.17 | 156.89 | 25.00 | 25.00 | 14.38 | 0.00 | 203.17 | 156.89 | 0.00 |
| 91 | F | 204.14 | 156.64 | 25.00 | 25.00 | 14.38 | 0.00 | 204.14 | 156.64 | 0.00 |
| 92 | F | 205.11 | 156.40 | 25.00 | 25.00 | 14.38 | 0.00 | 205.11 | 156.40 | 0.00 |
| 93 | F | 206.08 | 156.15 | 25.00 | 25.00 | 14.38 | 0.00 | 206.08 | 156.15 | 0.00 |
| 94 | F | 207.05 | 155.90 | 25.00 | 25.00 | 14.38 | 0.00 | 207.05 | 155.90 | 0.00 |
| 95 | F | 208.01 | 155.65 | 25.00 | 25.00 | 14.38 | 0.00 | 208.01 | 155.65 | 0.00 |
| 96 | F | 208.98 | 155.40 | 25.00 | 25.00 | 14.38 | 0.00 | 208.98 | 155.40 | 0.00 |
| 97 | F | 209.95 | 155.15 | 25.00 | 25.00 | 14.38 | 0.00 | 209.95 | 155.15 | 0.00 |
| 98 | F | 210.92 | 154.91 | 25.00 | 25.00 | 14.38 | 0.00 | 210.92 | 154.91 | 0.00 |
| 99 | F | 211.89 | 154.66 | 25.00 | 25.00 | 14.38 | 0.00 | 211.89 | 154.66 | 0.00 |
| 100 | F | 212.86 | 154.41 | 25.00 | 25.00 | 14.38 | 0.00 | 212.86 | 154.41 | 0.00 |
| 101 | F | 213.83 | 154.16 | 25.00 | 25.00 | 14.38 | 0.00 | 213.83 | 154.16 | 0.00 |
| 102 | F | 214.80 | 153.91 | 25.00 | 25.00 | 14.38 | 0.00 | 214.80 | 153.91 | 0.00 |
| 103 | F | 215.76 | 153.66 | 25.00 | 25.00 | 14.38 | 0.00 | 215.76 | 153.66 | 0.00 |
| 104 | F | 216.73 | 153.42 | 25.00 | 25.00 | 14.38 | 0.00 | 216.73 | 153.42 | 0.00 |
| 105 | F | 217.70 | 153.17 | 25.00 | 25.00 | 14.38 | 0.00 | 217.70 | 153.17 | 0.00 |
| 106 | F | 218.67 | 152.92 | 25.00 | 25.00 | 14.38 | 0.00 | 218.67 | 152.92 | 0.00 |
| 107 | F | 219.64 | 152.67 | 25.00 | 25.00 | 14.38 | 0.00 | 219.64 | 152.67 | 0.00 |




**Statistics**

| Description | Symbol | Avg | Max | Min | Max/Min | Avg/Min | Avg/Max |
|---|---|---|---|---|---|---|---|
| Calc Zone #1 | + | 0.5 fc | 9.2 fc | 0.0 fc | N/A | N/A | 0.1:1 |

**Note**

1.file=visual-files-sept2014-millsite2.vsl

1 / A6 SITE PHOTOMETRIC

1" = 30'

0 1.5 10 25 50 100 FEET

NORTH

HARTRONFT ASSOCIATES
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950 Spruce Street, #1A
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TEL: 303.673.9364
FAX: 303.673.9349

LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/06/15

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SITE PHOTOMETRIC

Sheet
A6
6 of 9 Sheets

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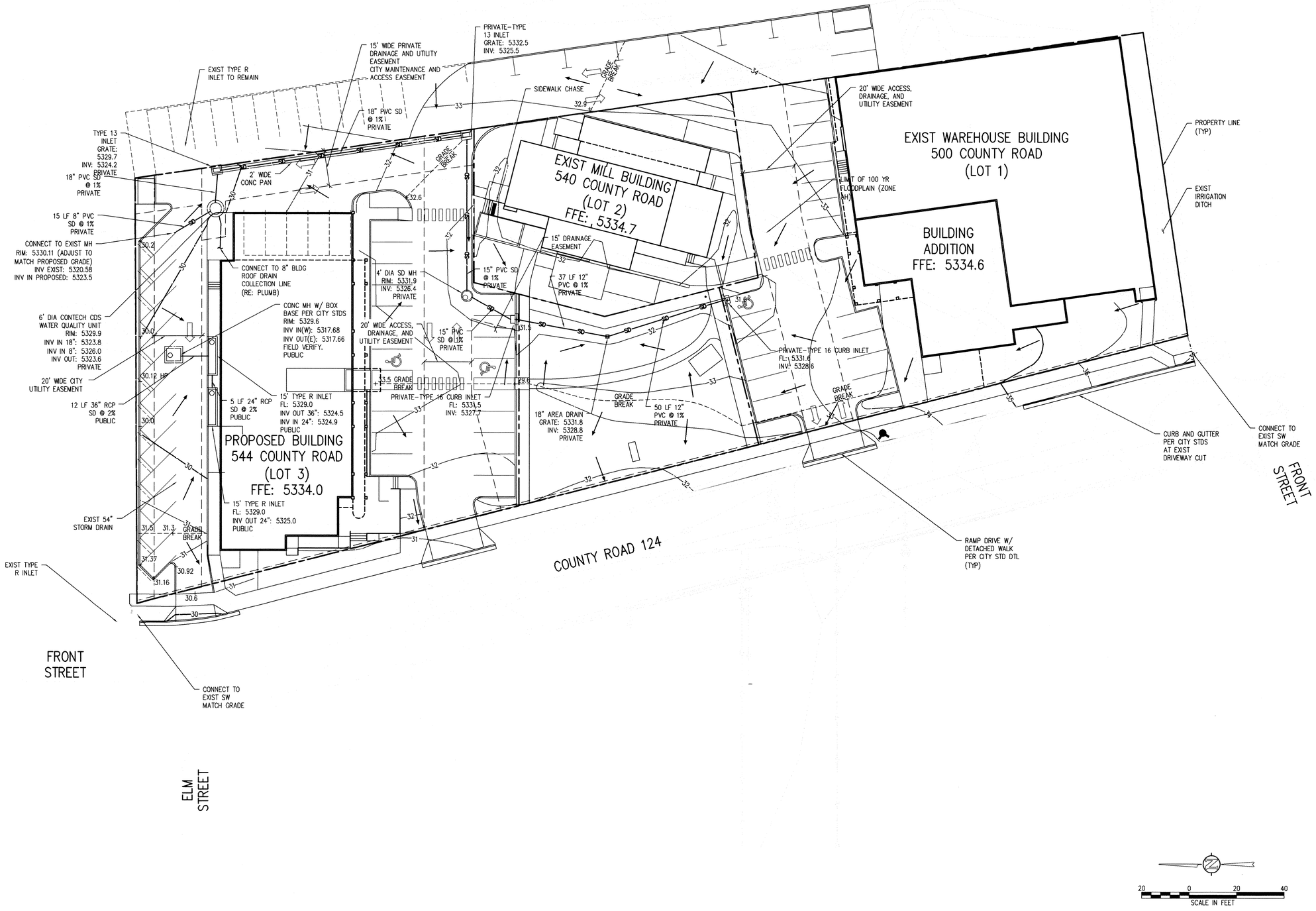


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www.jvajva.com E-mail: info@jvajva.com

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED PROFESSIONAL ENGINEER CHARLES R. HAGER 12/05/16 37146

PROJECT # 1252.10
DATE: 04/13/14
DRAWN BY: --
CHECKED BY: --
REVISIONS:
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DRAINAGE PLAN

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Boulder County, CO 03563038 8 of 10

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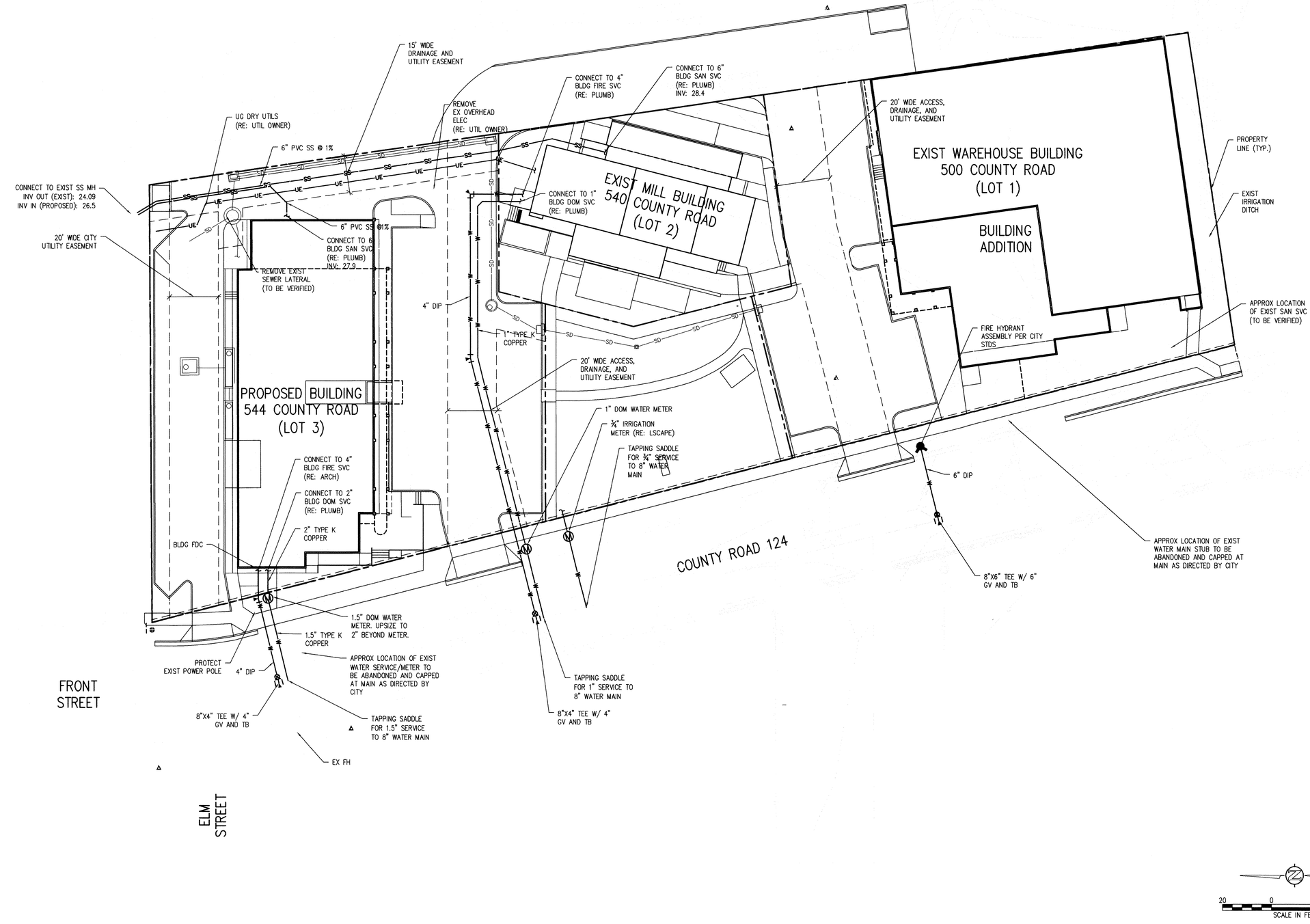
NOTES:
1. OLD WATER AND SEWER SERVICES SHALL BE ABANDONED AS DIRECTED BY THE CITY.
2. CURB STOP VALVES AND METER PITS SHALL BE LOCATED AND INSTALLED AS DIRECTED BY THE CITY.
3. FIRE LINES ARE PRIVATELY OWNED/MAINTAINED DOWNSTREAM OF WATER MAIN GATE VALVES.
4. LIMITED UTILITY SURVEY INFORMATION WAS PROVIDED. PORTIONS OF SHOWN UTILITIES ARE BASED ON CITY UTILITY MAPPING. ALL UTILITY LOCATIONS, INVERTS, SIZES, ETC. TO BE FIELD LOCATED AND SURVEYED PRIOR TO CONSTRUCTION.

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Louisville, CO 80027
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FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED CHRISTOPHER R. HARTRONFT 12/05/16 37146 PROFESSIONAL ENGINEER

**PROJECT #** 1252.10
**DATE:** 04/13/14
**DRAWN BY:** --
**CHECKED BY:** --
**REVISIONS:**
PPC/PCC – 06/13/14
FINAL – 11/06/14
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UTILITY PLAN

Sheet
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of Sheets

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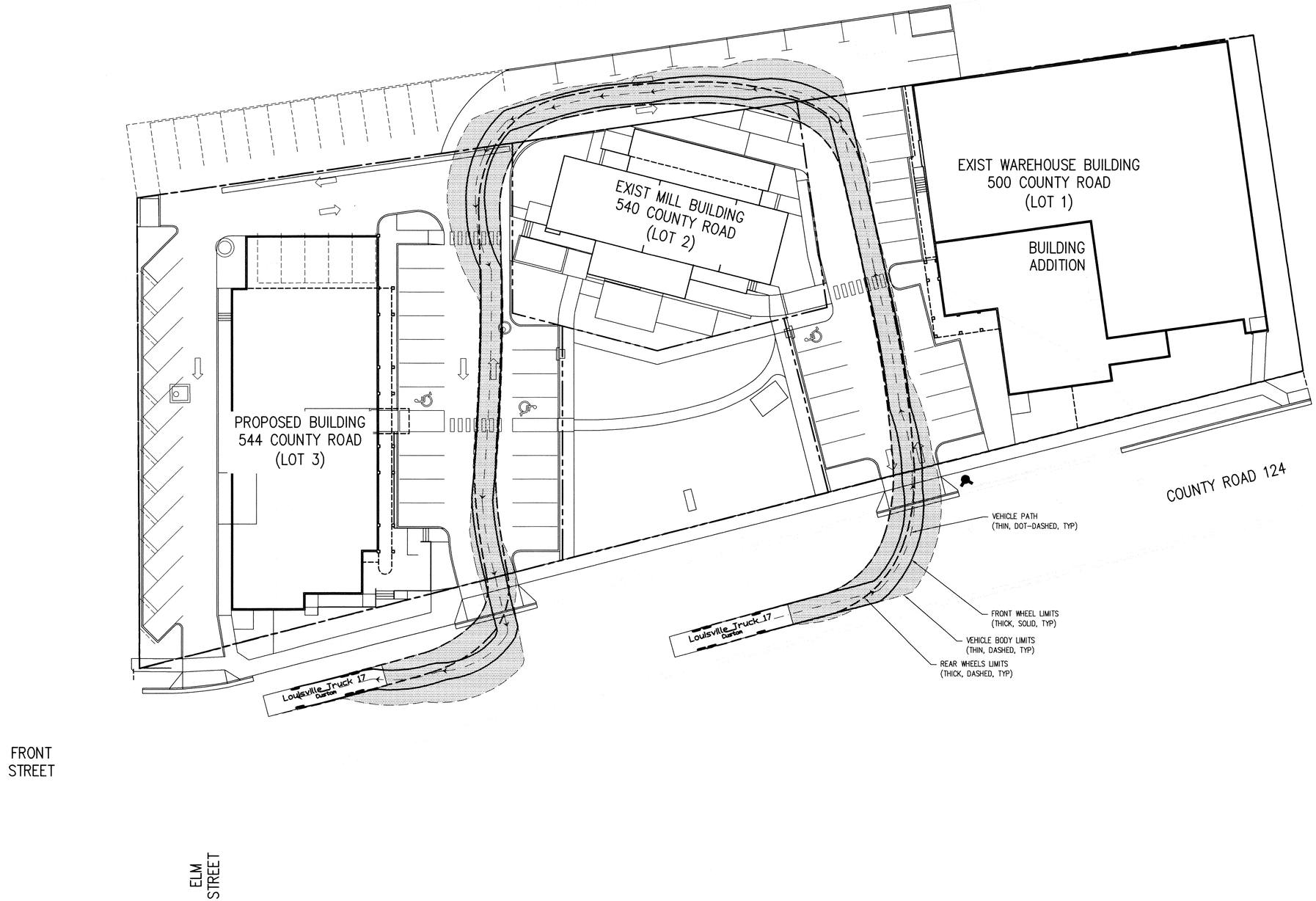
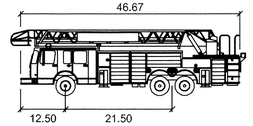
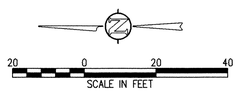



Louisville Truck 17 feet

| | |
|---|---|
| Width | : 8.00 |
| Track | : 8.00 |
| Lock to Lock Time | : 5.0 |
| Steering Angle | : 45.0 |

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED PROFESSIONAL ENGINEER
CHARLES R. HAGER
12/05/16
37146

**PROJECT #** 1252.10
**DATE:** 04/13/14
**DRAWN BY:** --
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AUTOTURN FIRETRUCK EXHIBIT

Sheet
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of Sheets

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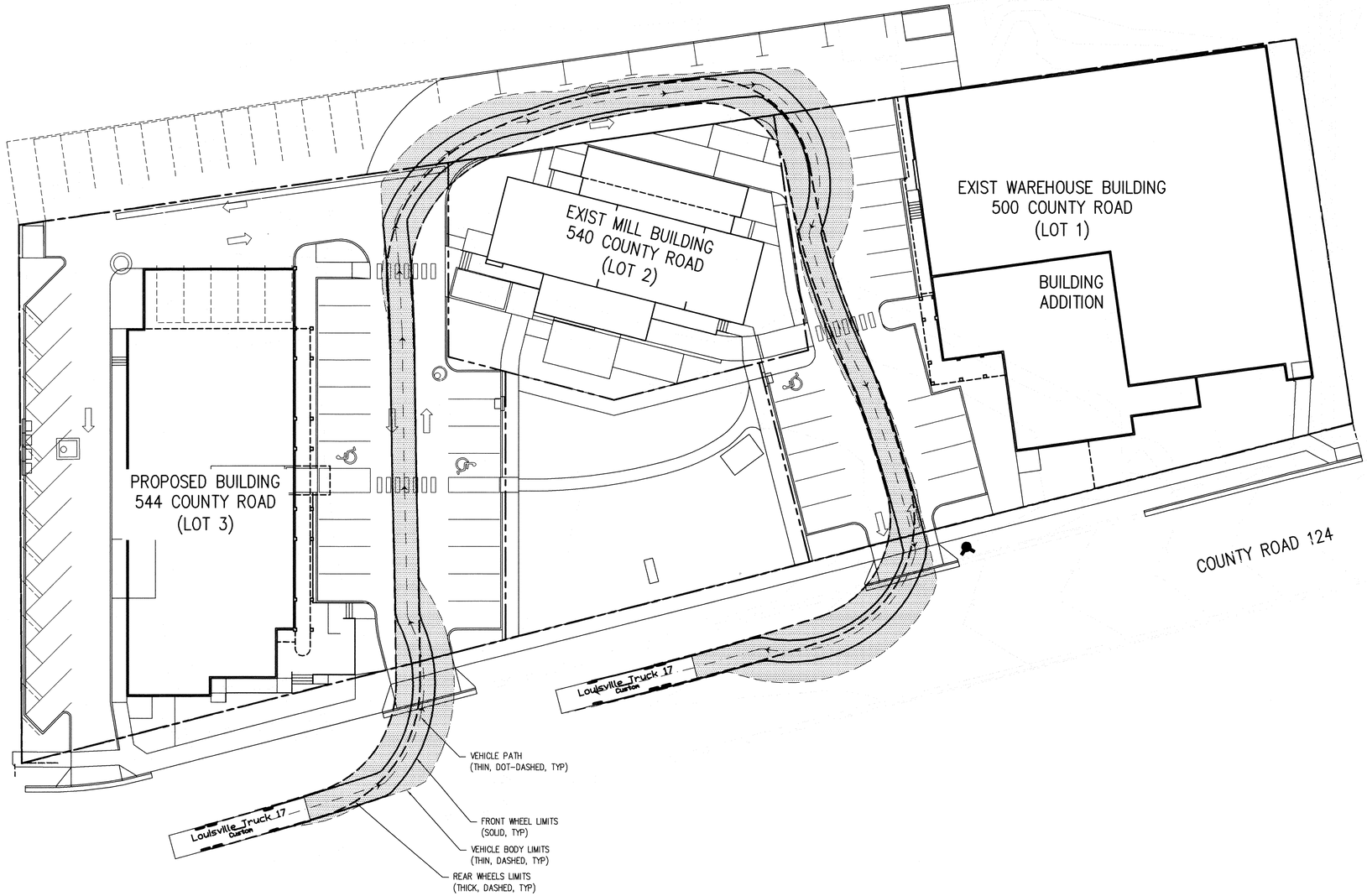
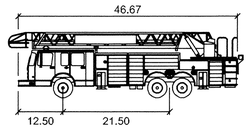
Boulder County, CO 03563038 10 of 10

Unofficial Copy




Louisville Truck 17 feet

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|---|---|
| Width | : 8.00 |
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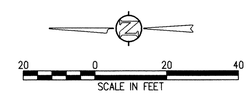


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FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED CHARLES R. HARTRONFT 12/05/16 37146 PROFESSIONAL ENGINEER

**PROJECT # 1252.10**
**DATE:** 04/13/14
**DRAWN BY:** --
**CHECKED BY:** --
**REVISIONS:**

| | |
|---|---|
| PPC/PCC | – 06/13/14 |
| FINAL | – 11/06/14 |
| FPC | – 03/13/15 |
| FCC | – 05/06/15 |

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AUTOTURN FIRETRUCK EXHIBIT

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03563039
Page 1 of 1
DF: $0.00
RF: $11.00
12/13/2016 01:21 PM
Boulder County Clerk, CO

## SIGNATURES

**Ownership Signature Block**

By signing this PUD, the owner acknowledges and accepts all the requirements and intent set forth in this PUD. Witness my/our hand(s) seal(s) this ___ day of _____, 20___

**J. Erik Hartronft, Member**
**Louisville Mill Site, LLC**
Owner Name and Signature

**Randall C. Caranci, Member**
**Louisville Mill Site, LLC**
Owner Name and Signature

**Randall C. Caranci**
**RCC Ltd.**
Owner Name and Signature

Rebecca Ringman (Notary Seal)
Notary Name (print)
Notary Signature
My Commission Expires _____

REBECCA RINGMAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19984016968
MY COMMISSION EXPIRES JUNE 20, 2018

**Planning Commission Certificate**

Approved this 1st day of April, 20 15 by the Planning Commission of the City of Louisville, Colorado.
Resolution No. 19, Series 2015

**Clerk and Recorder Certificate**
**(County of Boulder, State of Colorado)**

I hereby certify that this instrument was filed in my office at 1:21 o'clock, P M., this 13 day of December 20 16 and is recorded in Plan File _____. Fee $11.00 paid _____ Film No. 03563039 Reception.

Hillary Hall
Clerk & Recorder

Jessica Martinez
Deputy

**City Council Certificate**

Approved this 19 day of May, 20 15 by the City Council of the City of Louisville, Colorado.
Resolution No. 29, Series 2015

Mayor Signature

City Clerk Signature

CITY OF LOUISVILLE SEAL COLORADO

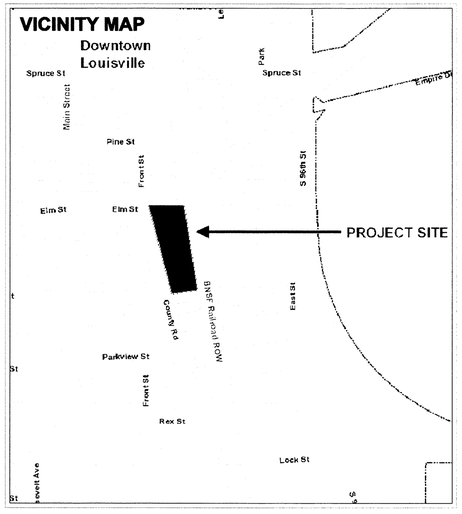
## PROJECT DIRECTORY

| | |
|---|---|
| OWNER | Louisville Mill Site LLC *<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft<br>303-673-9304 |
| ARCHITECT/PLANNER | Hartronft Associates, p.c.<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft, AIA<br>303-673-9304 |

*** Note: Prior to closing date, property for 540/544 County Rd. Owner is City of Louisville, 749 Main Street, Louisville, CO 80027. Louisville Mill Site LLC has a contract with the property owner to purchase the property and has an agreement to renovate the buildings on site. 'Owner' as referenced herein for 540/544 County Rd. shall refer to Louisville Mill Site LLC. See related agreements for additional information and responsibilities.**

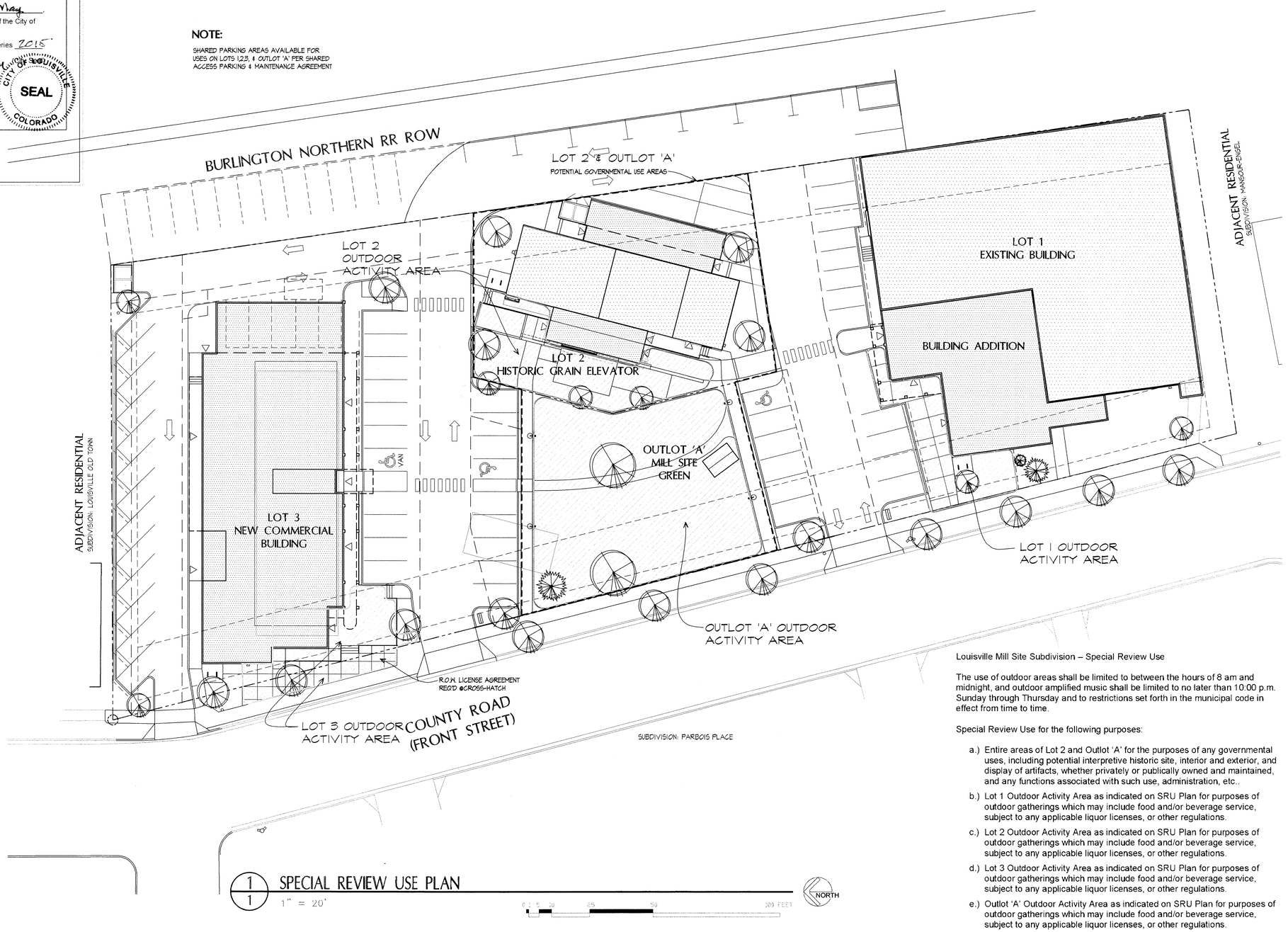
# SPECIAL REVIEW USE
# LOUISVILLE MILL SITE REDEVELOPMENT
## 500, 540, 544 County Road
## LOUISVILLE MILL SITE SUBDIVISION
### LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO

## VICINITY MAP




**NOTE:**

SHARED PARKING AREAS AVAILABLE FOR USES ON LOTS 123, & OUTLOT 'A' PER SHARED ACCESS PARKING & MAINTENANCE AGREEMENT




1/1 SPECIAL REVIEW USE PLAN
1" = 20'

0 5 10 25 50 100 FEET
NORTH

Louisville Mill Site Subdivision – Special Review Use

The use of outdoor areas shall be limited to between the hours of 8 am and midnight, and outdoor amplified music shall be limited to no later than 10:00 p.m. Sunday through Thursday and to restrictions set forth in the municipal code in effect from time to time.

Special Review Use for the following purposes:

a.) Entire areas of Lot 2 and Outlot 'A' for the purposes of any governmental uses, including potential interpretive historic site, interior and exterior, and display of artifacts, whether privately or publically owned and maintained, and any functions associated with such use, administration, etc..

b.) Lot 1 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

c.) Lot 2 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

d.) Lot 3 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

e.) Outlot 'A' Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

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LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO
ERIK HARTRONFT
REGISTERED
12-5-16
ARCHITECT

PROJECT # 1252.10
DATE: 11/06/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS: 03/13/15
05/06/15

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SPECIAL REVIEW USE

Sheet
1
1 of 1 Sheets

**RESOLUTION NO. 18**
**SERIES 2025**

**A RESOLUTION RECOMMENDING APPROVAL OF THE LOUISVILLE MILL SITE REDEVELOPMENT PUD, 1ST AMENDMENT AND AN SRU FOR AN OUTDOOR EATING AND DRINKING ESTABLISHMENT AND MOBILE FOOD COURT**

**WHEREAS**, there has been submitted to the Louisville Planning Commission an application for a final planned unit development amendment for redevelopment and preservation of the Grain Elevator property, with improvements planned on Lots 1, 2, and 3 and Outlot A of the Louisville Mill Site Subdivision;

**WHEREAS**, there has been submitted to the Louisville Planning Commission an application to approve a Special Review Use to and Outdoor Eating and Drinking Establishment and Mobile Food Court associated with the redevelopment of the Grain Elevator property;

**WHEREAS**, City staff has reviewed the information submitted and found that, with the requested waivers, the application complies with the applicable zoning regulations, design standards, and other applicable sections of the Louisville Municipal Code; and

**WHEREAS**, the Planning Commission has considered the application at a duly noticed public hearing on November 18, 2025, where evidence and testimony where entered into the record.

**NOW THEREFORE, BE IT RESOLVED** that the Planning Commission of the City of Louisville, Colorado does hereby recommend approval of the Louisville Mill Site Redevelopment PUD, 1st Amendment and an SRU for an Outdoor Eating and Drinking Establishment and Mobile Food Court with the following conditions:

1. Prior to the City Council hearing, the applicant shall obtain an Alteration Certificate approval from the Louisville Historic Preservation Commission.
2. Prior the City Council hearing, the applicant shall revise the PUD plans and Drainage Report to address outstanding Public Works comments related to the drainage infrastructure.

**PASSED AND ADOPTED** this 18th day of November 2025.

By: Steve Brauneis
_____
Steve Brauneis, Chair
Planning Commission

Attest: Cullen Choi
_____
Cullen Choi, Secretary
Planning Commission

**Baskett**. The motion was adopted by a vote of 6 to 0.

**c. Louisville Mill Site Redevelopment** – Resolution 18, Series 2025 with a recommendation to City Council for a Planned Unit Development (PUD) Amendment request for an Outdoor Eating and Drinking Establishment and Mobile Food Court at 500-544 Front Street.

**Choi** recused himself from this resolution due to a conflict of interest.

*Staff Presentation:*
**Zuccaro** explained that the request is for a PUD amendment and special review use at the historic Louisville Mills grain elevator site to enable a first-phase activation focused on the elevator lot and front lot, including restoration of the grain elevator (with a small rear “boxcar” addition, reconstructed boardwalk and porte cochère), creation of an outdoor bar and mobile food court with three food truck pads, a stage, and associated outdoor seating and lighting, plus 24 on-site parking spaces and shared parking arrangements. He reviewed the long public-investment history in the property, prior but now-expired PUD approvals, and the existing conservation “no-build” easement intended to preserve public view corridors, noting staff’s conclusion that the low, transparent food court improvements can fit within that easement while materially maintaining those views and helping make the challenging site viable. He stated the proposal complies with the Downtown Design Handbook (general, transition-area, and historic-building standards), downtown’s reduced and flexible parking rules, and the criteria for both PUDs and special review uses, with hours, amplified-music cutoffs, and decorative-light shutoff times tailored to the surrounding neighborhoods. He summarized requested waivers from CB zoning standards (setbacks and lot coverage) as modest and supportable in context and recommended approval with two conditions: obtaining a Historic Preservation Commission alteration certificate and resolving remaining drainage comments before City Council, while dropping an earlier condition that would have required full civil construction plans prior to Council since those will instead be handled at building permit.

*Staff Recommendation:*
Staff recommended approval of Resolution 18, Series 2025 with two conditions. One condition being applicant obtainment of an Alteration Certificate from the Historic Preservation Commission and the other being applicant revision of PUD plans and Drainage Report to address outstanding Public Works comments related to drainage infrastructure.

*Commissioner Questions of Staff:*

**Baskett** asked whether the interior of the grain elevator would be used and what it would contain.
**Zuccaro** confirmed it would be used as a bar and noted that interior floor plans are included in the packet, with more detail to come from the applicant.

**Mihaly** asked where the historic accessory building being relocated to the northwest corner was coming from.
**Zuccaro** said it would be moved from the Warnberg Farm and that the applicant could provide additional details.

**Mihaly** also asked for clarification on how many food-truck pads were included, noting only two were clearly visible in one image
**Zuccaro** confirmed there are three pads and pointed out their locations on the SRU plan.

*Applicant Presentation:*
The applicant team—longtime Louisville and Boulder County residents and business owners—described their plan to “reactivate” the historic grain elevator site as the Grainyard, a locally run bar and outdoor gathering space anchored by the restored elevator. They explained that the interior of the elevator would house a bar while preserving and showcasing historic wood structure and equipment, with a small “boxcar” rear addition for restrooms and back-of-house functions, and a seasonal tap house created by relocating and restoring the historic Warberg granary. Outside, they proposed a landscaped courtyard with three electrically powered food-truck pads (no generators), a small low platform for ambient music rather than concert-level events, fire pits, and play space, emphasizing sensitivity to nearby homes, adherence to sound and lighting limits, and efforts to create a welcoming neighborhood hangout. They outlined a parking strategy that includes 24 new spaces on-site, shared parking with neighboring properties, existing nearby public and on-street parking, and hoped for collaboration with the city to add more spaces along the rail line, plus incentives for patrons who walk or bike. The original grain-elevator developer and a neighboring property owner recounted the long, costly history of stabilizing and preserving the building and expressed strong support for finally activating the site, while also raising concern about how required electrical upgrades and transformer requirements might affect costs and access for adjacent properties, asking the city and Xcel to work toward a fair solution.

*Commissioner Questions of Applicant:*
**Mihaly** asked whether the mobile food-truck pads required water, drainage, or gray-water connections in addition to electrical power.

**Zuccaro** responded that the pads require only electrical hookups and that food trucks are not required to be hard-plumbed.

**Brauneis** asked the applicant how the food trucks would operate, whether they would rotate and what the envisioned model was.
The **applicant** explained that the intention is to rotate trucks to provide ongoing variety and that operational ideas such as coordinating local delivery from nearby restaurants are also being explored.

**Mihaly** sought confirmation that the pads are strictly electric from an infrastructure standpoint.
**The applicant** confirmed this, adding that the seasonal tap house will have plumbing available for limited needs like filling water buckets, but the pads themselves will not have permanent plumbing.

*Public Comment:*
**Caranci** said he strongly supported activating the grain elevator and small business generally but was very concerned about unknown costs from Xcel's required electrical and transformer upgrades that could heavily impact his adjacent properties. He stated he was rescinding his previously signed support letters and asked that the project be put on hold until those costs were clarified, but after staff explained that nothing could advance without his future authorization, he agreed to let the hearing proceed while keeping his concerns on the record.

**Horst** said he was very excited about the proposal, noting that grain elevators are difficult to repurpose and this building has been unused for too long. He believed the project would boost all downtown businesses, help fill empty spaces, attract families, and urged the commission to approve it.

**Baker** explained that she lives directly across from the site and moved there for Louisville's downtown vibrancy, coming to the meeting mainly worried about lighting, noise, and hours. After hearing the proposal and comparing it to the considerate operations of nearby Crystal Springs, she said she supported the project despite some skepticism about food trucks and urged approval, saying downtown is struggling and needs this activation.

**Muckle** said he had been deeply involved in the original purchase and preservation of the grain elevator and considers it one of the most historic buildings in town. He argued that the best way to preserve historic structures is to give them an active, vibrant use, praised the project for doing exactly that, and encouraged approval.

**Reed** spoke as a business owner, Chamber of Commerce leader, and nearby resident, emphasizing that the commission's role is to apply the rules and that staff has recommended approval. He highlighted the addition of 24 on-site parking

spaces, the benefit of activating a long-empty historic building, the value of outdoor "third spaces" for families, and the importance of supporting local investors who bring vibrancy to downtown, urging the commission not to miss this opportunity.

**Ramos** described his own recent, ultimately unsuccessful effort to create a historic rail-themed project nearby and said ventures like this grain elevator proposal, backed by local owners willing to take major risks, are rare and hard-fought. He argued that if the community doesn't rally behind such locally driven projects, only large outside developers will shape Louisville's future, and he strongly urged support for this project as a huge win for downtown and for preserving the city's character and history.

*Applicant Response:*
The applicant expressed relief and gratitude that the project had finally reached this stage, saying it had been a long time coming. He stated confidence that the team could resolve the outstanding electrical and transformer issues with Randy and Xcel, and that they would be able to move the project forward to City Council as planned. He thanked the commission for hearing the proposal and said he looked forward to their deliberation.

*Staff Response:*
Staff had no additional response.

*Commissioner Discussion:*
**Mihaly** said he strongly supported the project, found the setbacks and lot-coverage waivers reasonable, and especially appreciated the addition of 24 parking spaces that were not required but significantly strengthened the proposal.

**Hunt** thanked staff and the applicants for their thorough work, praised the historical context and local involvement, and said the proposal felt like an authentic, community-driven project that she was excited to support.

**Baskett** called it a great project, emphasizing that local ownership and investment would ensure it is carried through successfully, and stated she would vote in favor.

**Moline** praised the collaborative effort among applicants, neighbors, and the city, reflected on having seen the site come before the commission in the past, and said community testimony demonstrated how important the grain elevator is. He expressed strong enthusiasm for moving the project forward.

**Brauneis** also voiced full support, noting the site has awaited activation for decades and commending past city leaders for preserving the structure rather than

demolishing it, saying the community is fortunate to still have it and to now see a viable plan for its reuse.

Motion to approve Resolution 18, Series 2025 with the two conditions as amended made by **Baskett** and seconded by **Mihaly**. The motion was adopted by a vote of 6 to 0.

## PLANNING COMMISSION COMMENTS

None were heard.

## STAFF COMMENTS

**Zuccaro** mentioned that there may need to be an overflow meeting in December and dates will be polled around that.

**Zuccaro** additionally reminded commissioners that the comprehensive plan discussion is planned for December.

## ADJOURNMENT

Motion to adjourn was moved by **Moline**, seconded by **Brauneis**, and adopted by voice vote.
The Commission adjourned at 9:42PM.

## Rob Zuccaro

**Subject:** FW: Grain Yard PUD Amendment and SRU

**From:** Mona Ferrera <nonar47@gmail.com>
**Sent:** Monday, October 27, 2025 7:29 AM
**To:** Planning <planning@Louisvilleco.gov>
**Subject:** Grain Yard PUD Amendment and SRU

**[EXTERNAL EMAIL] From outside of City of Louisville** DO NOT CLICK links or attachments unless you validate the sender and know the content is safe.

Good morning,
I'm not able to attend the meeting on Thursday November 13, 2025.
My question is, will there be a parking lot for the Outdoor Eater and Mobile Food Court?
I live at 600 1/2 Lafarge Avenue, Louisville, CO 80027.
When there's big events in Louisville there isn't enough parking for all the cars that come in. Usually No Parking Signs are ignored or people are parking too close to intersections or alleys.
Thank you for taking the time to address this issue.
Respectfully,
Mona Ferrera

**Rob Zuccaro**

**Subject:** FW: Louisville Mill Site

**From:** Tyson J. Ingraham <tjingraham@gmail.com>
**Sent:** Thursday, November 13, 2025 1:11 PM
**To:** Planning <planning@Louisvilleco.gov>
**Subject:** Louisville Mill Site

**[EXTERNAL EMAIL] From outside of City of Louisville** DO NOT CLICK links or attachments unless you validate the sender and know the content is safe.

Planning Commission,

My name is T.J. Ingraham and I am one of the owners of Verde, the restaurant located at 640 Main Street. I am writing to show my support for the Louisville Mill Site item on your agenda and, specifically, the food truck park idea.

I have been a member of the downtown business community since signing our lease in 2017. During that time Jen Fox has done nothing but show her support and passion for businesses in downtown Louisville. This passion has not been limited to restaurants and bars, but also to the retail side of the downtown area.

Whether promoting the arts and music with Louisville Live or just simply taking her local staff members out to lunch to support the downtown restaurants, she is always trying to make downtown a better and more lively place to be.

It would be silly for me to think that her team will do anything other than help the community with her new food truck park idea. Their team has pitched cross-collaboration with other restaurants and bars, and I think that would be great for the city. This project has the support of Verde.

T.J. Ingraham
Verde
(520) 440-1015
www.verdeeatdrink.com

## Rob Zuccaro

**Subject:** FW: 540 Front St. Grainyard PUD and SRU

**From:** Patricia Lucey <luceype@gmail.com>
**Sent:** Sunday, November 2, 2025 5:58 AM
**To:** Rob Zuccaro <rzuccaro@louisvilleco.gov>
**Subject:** 540 Front St. Grainyard PUD and SRU

**[EXTERNAL EMAIL] From outside of City of Louisville** DO NOT CLICK links or attachments unless you validate the sender and know the content is safe.

To the Louisville Planning Commission,

I am writing to express my support for the proposed **Grainyard PUD and SRU application.**

I have lived at **527 Front Street** for over twenty years, directly across from the E-bike warehouse. From my home office overlooking Front Street, I see the Grain Mill, the E-bike buildings, and—over this past year—a run-down food truck every day. I drive and walk past this site multiple times each day.

The site at **540 Front Street** has been a blighted property for most of my years here in Louisville. The City of Louisville sold the property to private owners with the intent of restoring this historic structure. While the initial restoration efforts were promising, unfortunately the building has since fallen back into disrepair.

As a very close neighbor to this site, I have several ongoing concerns. Parking in this area is already limited, and additional commercial activity could worsen the shortage. Noise after 8 p.m. would be disruptive in what is primarily a residential and mixed-use corridor. I also hope the City will ensure that any approvals include **clear, enforceable limits** on food truck operations and other outdoor uses so that the property remains orderly and consistent with the agreements made by the developers. Past projects have not always received adequate follow-up or enforcement once approved, and I urge the City to maintain active oversight to ensure compliance with all conditions.

Despite these concerns, I **support the overall plans** to redevelop the property under the Grainyard PUD and SRU. This is a crucial opportunity to finally bring this landmark site back into productive use, preserve an important piece of Louisville's history, and revitalize the Front Street corridor.

Thank you for your consideration.

Patricia Lucey

527 Front St., Louisville, CO

**Rob Zuccaro**

**Subject:** FW: Mill Site Redevelopment

**From:** Gregory Maring <gregmaring@yahoo.com>
**Sent:** Friday, November 21, 2025 9:12 AM
**To:** City Council <Council@louisvilleco.gov>; Planning <planning@Louisvilleco.gov>
**Subject:** Mill Site Redevelopment

**[EXTERNAL EMAIL] From outside of City of Louisville** DO NOT CLICK links or attachments unless you validate the sender and know the content is safe.

Dear Louisville City Council and Planning Commission,

I was unable to attend the Planning Commission meeting on November 13, 2025 regarding the Mill Site Redevelopment. I did not hear any concern raised about this issue, so wanted to bring it to your attention. While I generally applaud investment in town and preservation of historic structures, I have one MAJOR hesitation . . . Mobile Food Trucks.

Brick & Mortar restaurants pay permitting fees and build out costs to obtain a certificate of occupancy. They must meet the strict sustainability, health and safety requirements of the city codes. As the operate they pay real estate tax, personal property tax on equipment and furnishings, use tax, support a local workforce, bag taxes, other permitting and license fees, in addition to the all-important sales tax revenue. They are also investing in the fabric of our downtown. Local businesses support the lion's share of our city's budget through these taxes and fees. There are anumber of vacancies around town and the high cost of operation is one reason.

Food trucks on the other hand offer unfair competition with Brick and Mortar restaurants. They come in from a far and pay much of that tax and fees elsewhere, while not having the same overheads, upfront costs, or restrictive standards that restaurants have. They also don't have vested interest in the community, like a business that is establishing roots. They are generally using disposable plates, and cutlery which end up in landfills and don't meet the same codes that our restaurants are required to. I personally think having food trucks on semi-permanent basis detracts from of our celebrated downtown and the historic structure.

Rather than elevate downtown as some proponents suggest, I believe this will lead to more vacancies. I would propose that site add more permanent structure to the site, to allow ghost kitchens or rotating options to highlight restaurants already located throughout town. Although, it may meet the letter of the law, I'm not sure it meets the spirit, with

neighboring brick and mortar restaurants in the adjoining blocks and trucks present in a more permanent nature.

Local restaurant owners have expressed concern over this development. It would be worth their input prior to a final approval of this project.

Sincerely,

Gregory Maring

Ward 3 resident, former business downtown business owner, downtown property owner

gregmaring@yahoo.com

# City Council Public Hearing

*April 21, 2026*

## Resolution No. XX, Series 2026
## Approving a First Amendment to the Louisville Mill Site Redevelopment Site PUD and an SRU for an Outdoor Eating Establishment and Mobile Food Court

*Presented by: Rob Zuccaro, Community Development Director*

City of Louisville

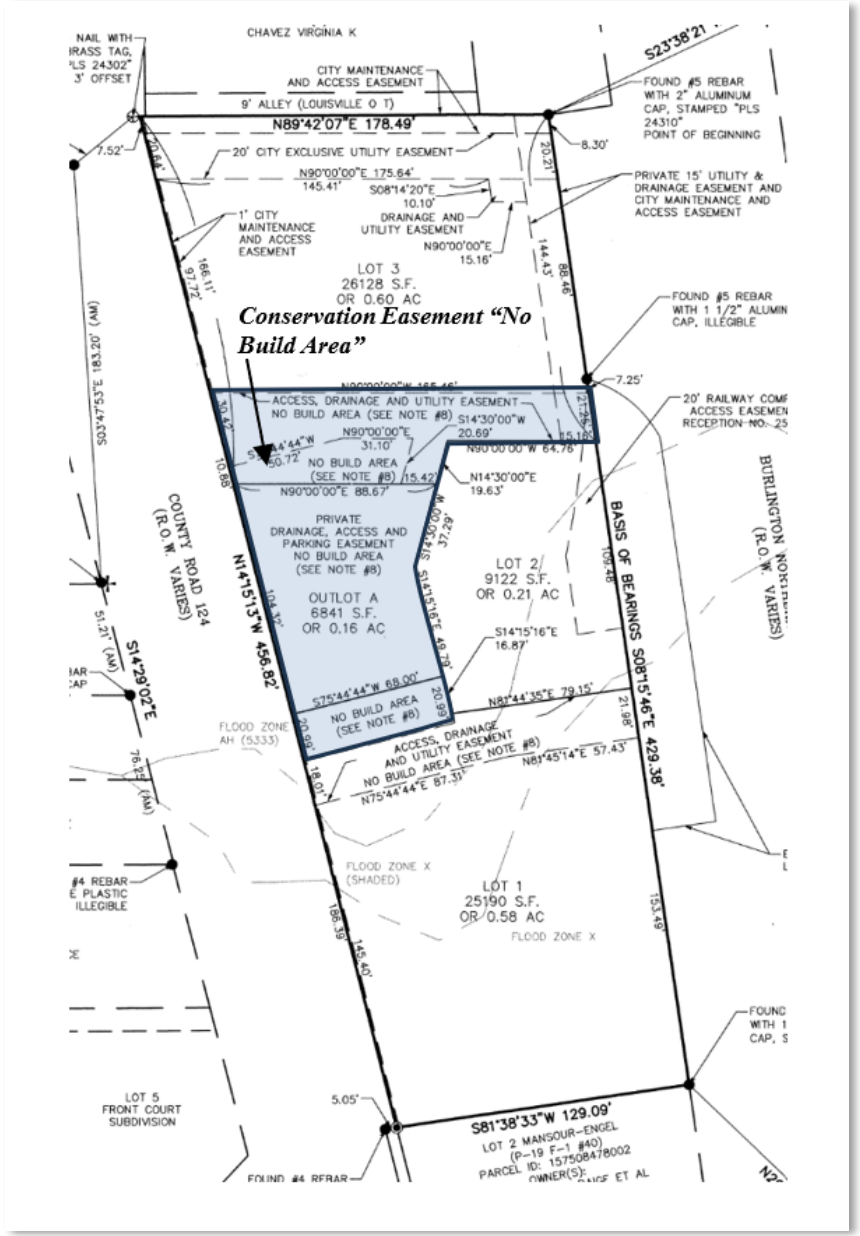
# Background

- City purchased Grain Elevator and 544 Front Street in 2012 using Historic Preservation Funds for $950,000.
- City originally entered into a public/private partnership with Olde Town Group to redevelop the property that included $2.1M in grant funds (including purchase price) to support the project.
- Due to property boundary and encroachment conflicts with the 500 Courtesy Road property, the public/private partnership was abandoned.
- City entered into new agreement with Louisville Mill Site LLC to sell the property for $200,000 and awarded a $500,000 grant to stabilize the Grain Elevator, but no agreement for ultimate development and activation of site.

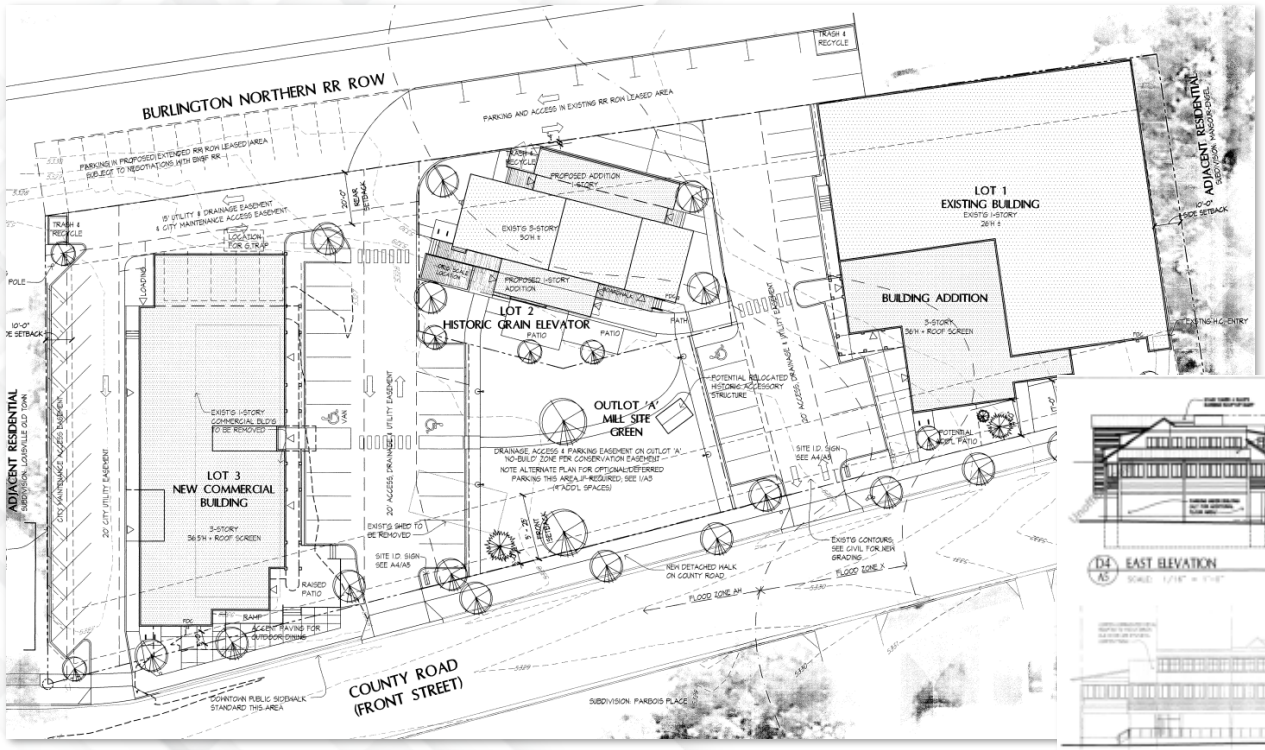


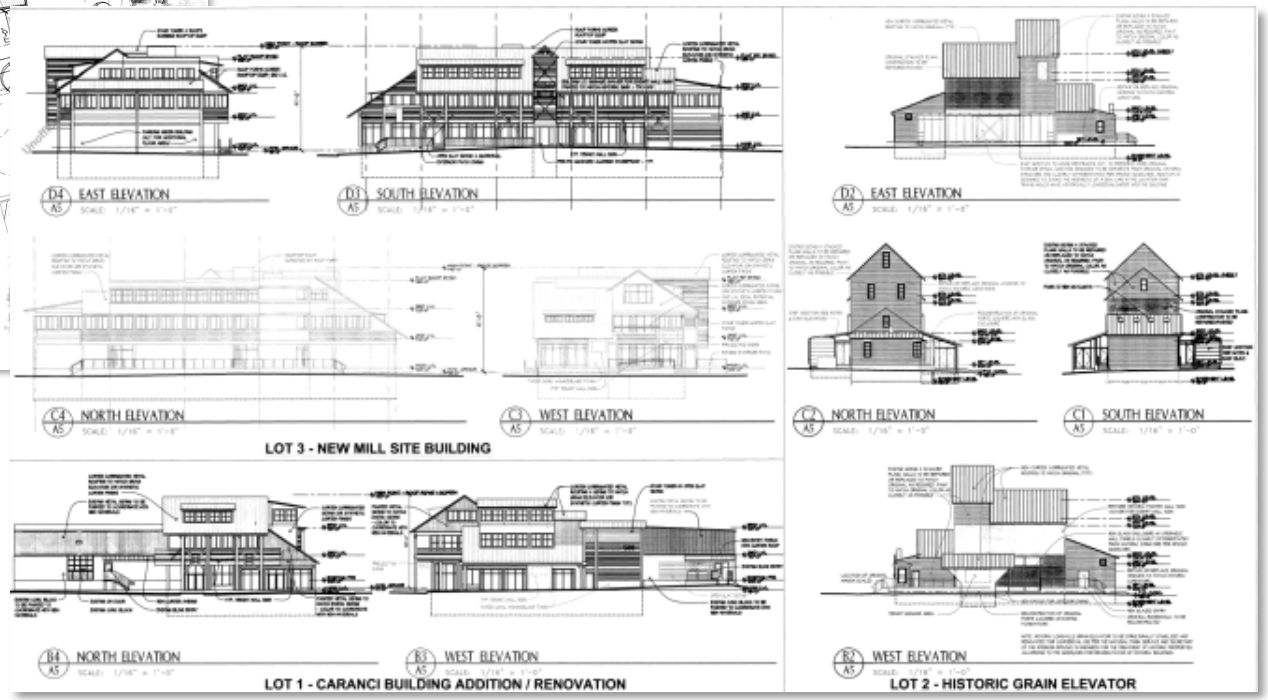
# Background

- The City approved a final subdivision plat, PUD and SRU in 2015 for redevelopment of the property.
  - Building addition on southern lot (Lot 1).
  - Restoration of Grain Elevator and small addition for use as a restaurant (Lot 2).
  - Demolish and build new three-story commercial building on norther lot (Lot 3).
- Final Plat established a “Not Build Area” conservation easement on Outlot A and portion of Lot 1 and Lot 3 to preserve public view corridors to the Grain Elevator.
- SRU allowed an outdoor activity area for an Outdoor Eating and Drinking Establishment.
- Historic Preservation approvals for an “Alteration Corticate” including the building addition on the Grain Elevator.
- City and Uban Renewal District have currently invested $1.47M in project.



# Background




City of Louisville

# Proposal

- Focus of development is on Lot 2 and Outlot A, with parking and drive aisle improvements on Lots 1 and 3 and in BNSF right of way.
- Finish restoration of Grain Elevator, add historic front porte cochere and boardwalk.
- Small building addition on back side of Grain Elevator (east side).
- Improve drive aisles and add 24 parking spaces.
- Lease to Grain Yard, LLC, who intends to operate a bar and Mobile Food Court
- Activate the outdoor areas on the west, including Outlot A, with a Mobile Food Court and Outdoor Dining area.
    - Relocate historic accessory building to use as a tap house.
    - Designated food truck pads.
    - Outdoor stage and gather area.




City of Louisville

# Proposal

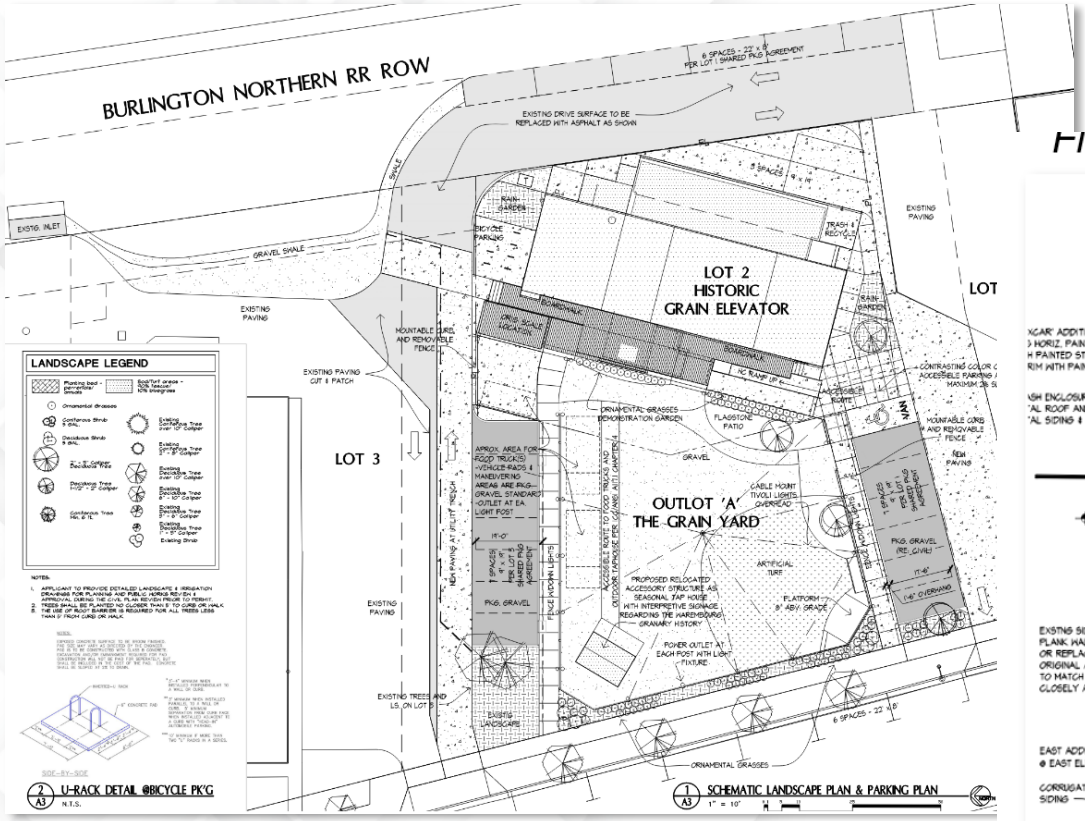
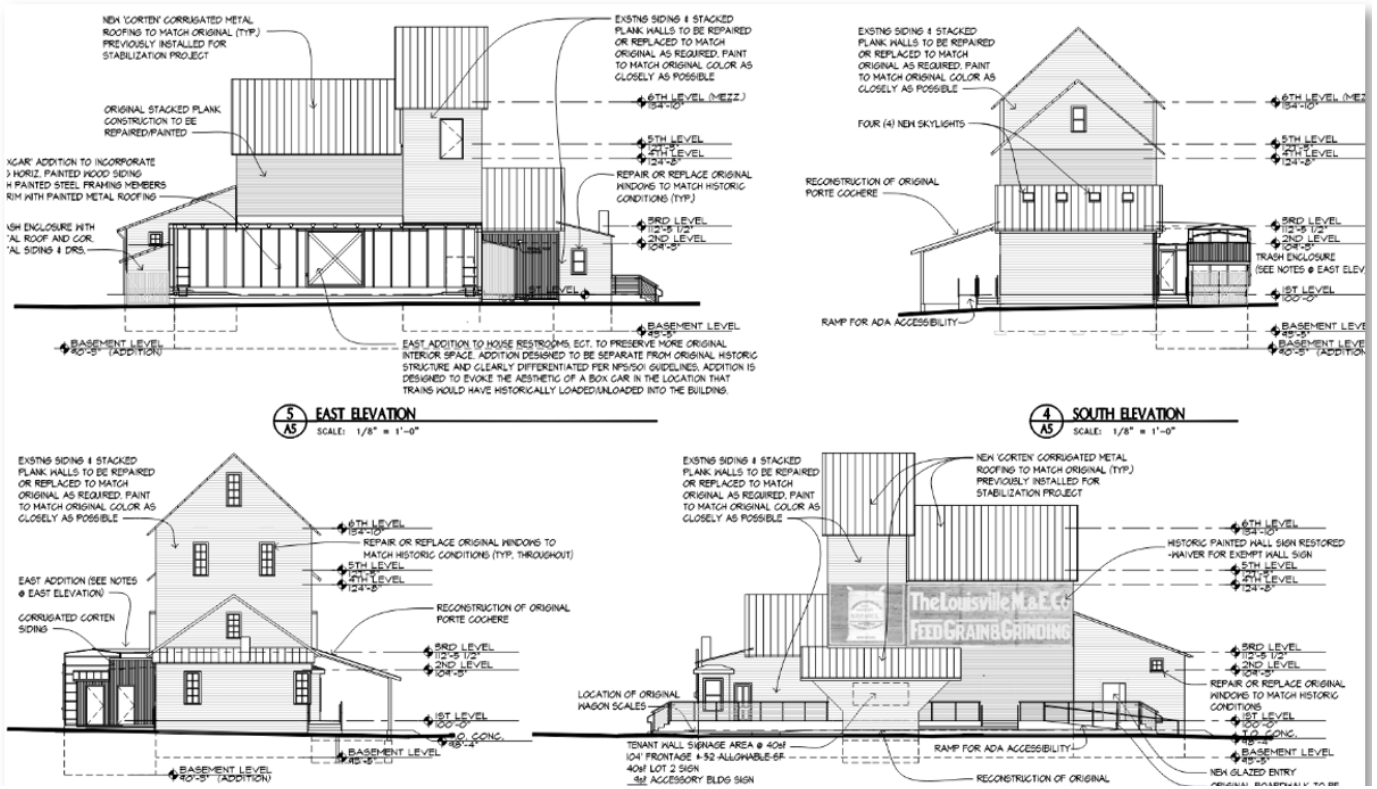



Figure 6: Proposed Grain Elevator and Outdoor Gather Space Elevations



# Proposal

- SRU for Outdoor Eating and Drinking Establishment and Mobile Food Court
  - Use of outdoor areas limited to 8am to midnight.
  - Outdoor amplified music limited to 9pm Sunday through Thursday an 10pm on Friday and Saturday.
  - Outdoor decorative lights and stage lights turned off after business hours.
  - Temporary structures, such as tents, allowed but limited to 60 days withing a six-month period.
  - Each food truck vendor pad would be required to have dedicated electrical connection and could not use generators.




City of Louisville

# Analysis

- Property is zoned Commercial Business (CB) and located in the Commercial Core Transition Area of Downtown.
- Relevant Codes and Design Guidelines
  - Design Handbook for Downtown
    - ✓ General Standards and Guidelines
    - ✓ Transition Area Standards and Guidelines
    - ✓ Historic Standards and Guidelines
  - Parking Standards for Downtown Louisville
  - CB Zoning Standards (waivers requested)
  - No-Build Area conservation easement
  - Special Review Use review criteria, including specific standard for Mobile Food Courts
  - PUD review criteria




City of Louisville

# Analysis

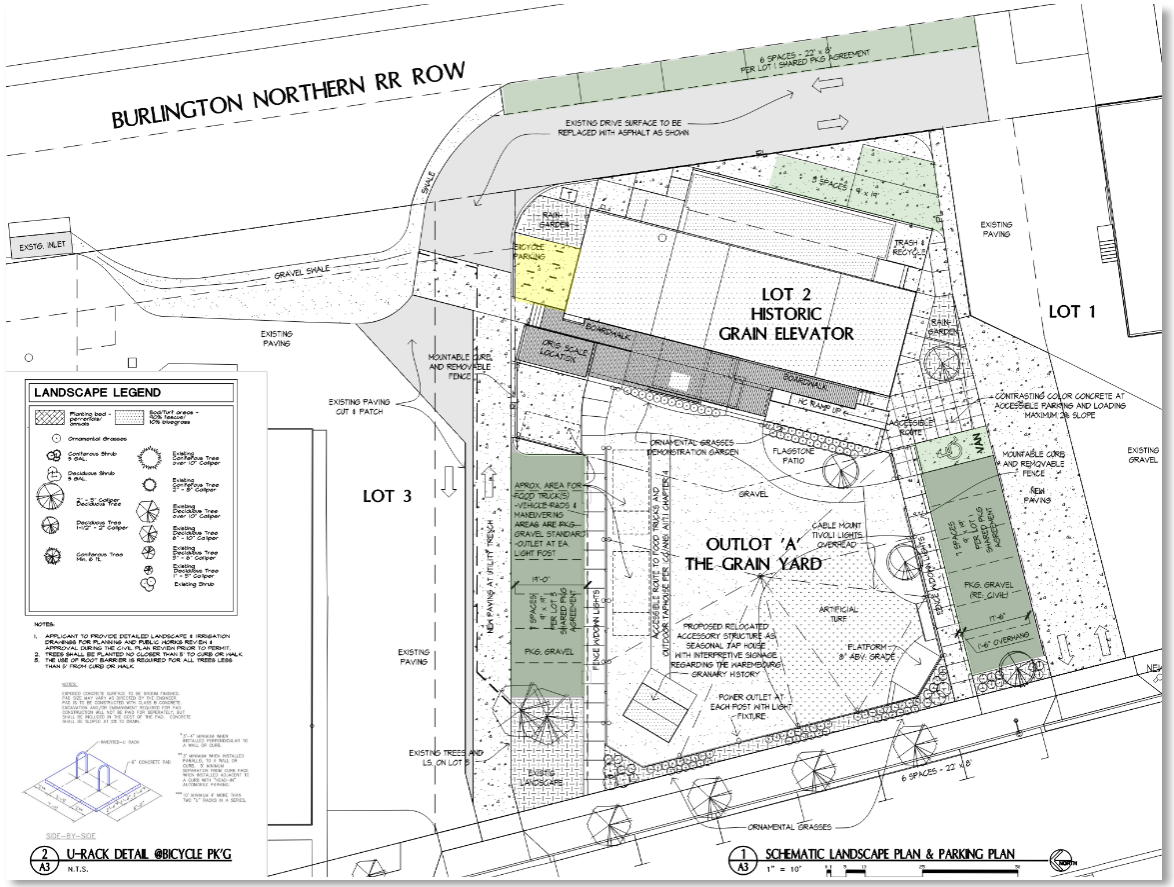
- Design Handbook for Downtown
  - Staff finds compliance with applicable standards and guidelines.
  - Redevelopment proposal will activate an area of downtown with pedestrian focus and amenities.
  - Redevelopment appropriately treats historic structure with restoration and subordinate building addition.




City of Louisville

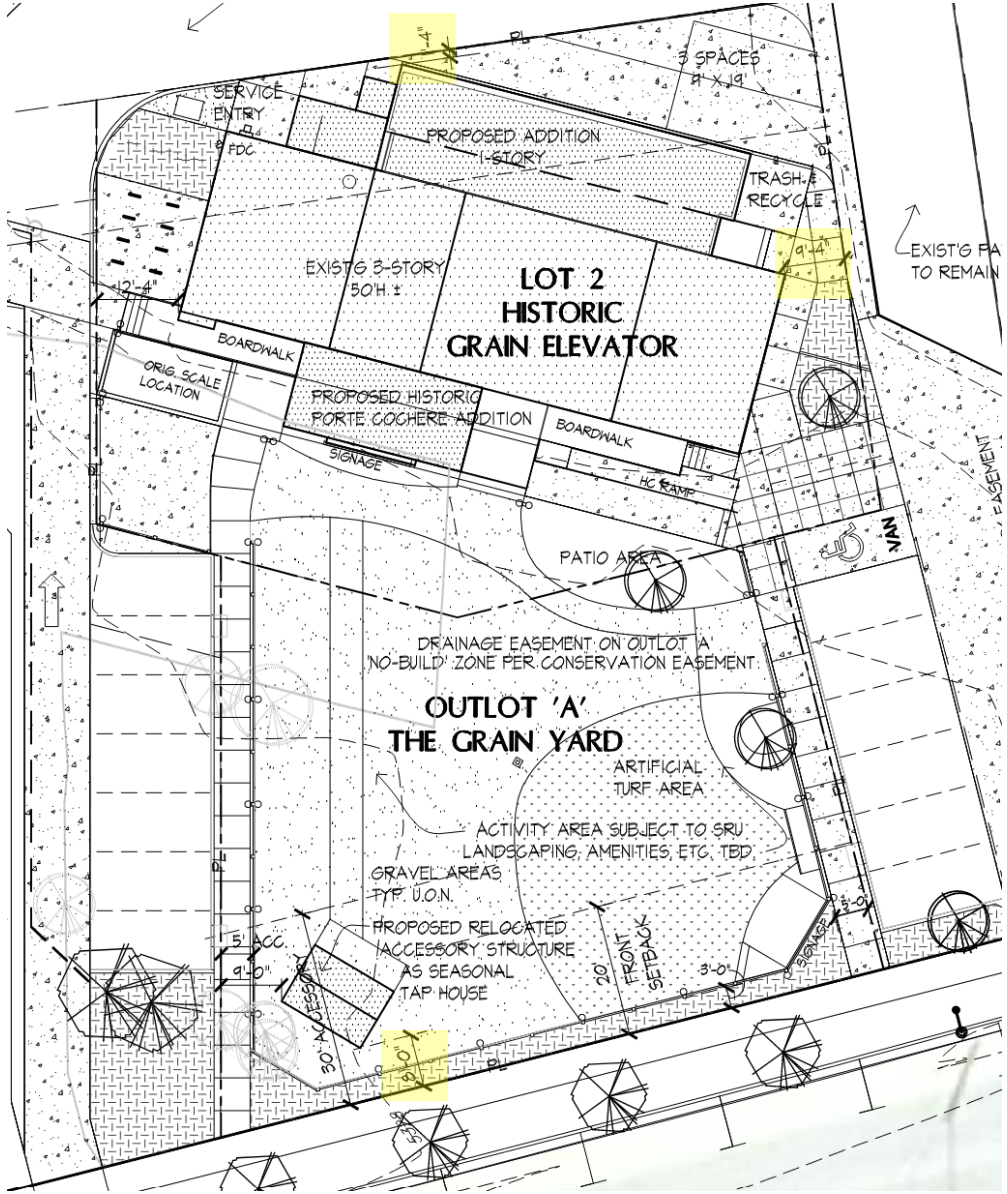
# Analysis

- Parking Standards for Downtown Louisville
  - Recognizes and promotes the pedestrian-friendly urban design of Downtown, which includes public parking, street parking, building frontages predominately abutting the street, and a traditional street grid with alley access.
  - One space required per 500 sq. ft. of new building area, but provides exemptions for first 999 sq. ft. of new development and exempts uninhabitable areas, restrooms, and food service areas from calculation.
  - Net result is no parking is required by base calculation.
  - SRU areas may be considered in additional parking demand.
  - 24 new spaces provided, plus shared parking with adjoining developments.
  - Street parking and public parking nearby.



# Analysis

- CB Zoning Waivers
  - Staff finds that the waivers are warranted by the design and amenities incorporated in the development plan.
    - ✓ 8’ front setback for the accessory building in the outdoor gathering area where a 30’ front setback is required.
    - ✓ 9’-4” side setback on the south side for the existing Grain Elevator building where a 10’ side setback is required.
    - ✓ 1’-4” rear setback for the proposed “box car” addition where 20’ is required.
    - ✓ 44% lot coverage on Lot 2 where a 40% maximum is required.



# Analysis

- No Build Area and View Corridor Conservation Easement
  - Intent of easement is to preserve view corridors.
  - Allows some consideration of development within No Build Area if authorized by City Council.
  - Staff finds that limited development could be appropriate if such development does not material impact public view corridors to the Grain Elevator.
  - Development in No Build Area will facilitate redevelopment and activation of a property that is challenging to develop.

Grain Yard - Southwest
View From West Side of Street




Grain Yard - West
View From West Side of Street




Grain Yard - Northwest
View From West Side of Street




City of Louisville

# Analysis

- SRU for Outdoor Eating and Drinking Establishment and Mobile Food Court
  - Consistent with Comprehensive Plan policies, including policies for *Centers*, which promote a mixture of uses, integrated public spaces, and physical design that promotes a destination for city-wide activities.
  - Promotes economic activity and stability in Downtown.
  - Limits allowed hours of operation, lighting, and amplified music in a similar manner to other SRUs for Outdoor Eating and Drinking Establishments.
  - Addresses Mobile Food Court criteria.
    - ✓ Allows food trucks without seeking permission from brick and mortar restaurants within 150 ft.
    - ✓ Designates vendor pads with dedicated electrical connections.
    - ✓ Allows for consideration of amplified music, otherwise not allowed for food trucks.
    - ✓ Vendor pads meet minimum setbacks from residential areas.
    - ✓ Fenced area with landscape buffer between sidewalk and outdoor gather area.




City of Louisville

# Analysis

- PUD Criteria
  - Staff finds that the proposed development has an appropriate relationship to the surrounding area.
  - The project includes appropriate building, site design, landscaping, pedestrian areas and connections, and buffering.
  - Staff analysis of PUD criteria included in appendix to staff memo.




City of Louisville

# Planning Commission Recommendation

- Reviewed on November 13, 2025 and voted unanimously to recommend approval with the following conditions.
  - Prior to the City Council hearing, the applicant shall obtain an Alteration Certificate approval from the Louisville Historic Preservation Commission.
  - Prior the City Council hearing, the applicant shall revise the PUD plans and Drainage Report to address outstanding Public Works comments related to the drainage infrastructure.
- Both conditions have been met.

# Staff Recommendation

- Staff recommends approval of Resolution No. XX, Series 2026, approving a First Amendment to the Louisville Mill Site Redevelopment Site PUD and an SRU for an Outdoor Eating Establishment and Mobile Food Court.

City of Louisville
COLORADO • SINCE 1878

**City Council Communication**
**Agenda Item 8.D.ii.**

**Subject:** Resolution No. 39, Series 2026 — A Resolution Approving a Preservation and Restoration Grant for the Grain Elevator at 540 County Road

**Date:** April 21, 2026

**Prepared By:** Jessica Daniels, Senior Planner

**Presented By:** Jessica Daniels, Senior Planner

**Summary:**
The applicant is proposing to rehabilitate and redevelop the Louisville historic Grain Elevator into a commercial use for a Drinking Establishment and Mobile Food Court. The historic restoration work includes rebuilding a porte cochere and boardwalk on the front side of the building and incorporating a historic wagon scale. The proposal also includes building a new, small “boxcar” building addition on the rear of the Grain Elevator.
Staff recommends approval of the following grants, totaling $1,535,789.00:

- Extraordinary Circumstances Preservation, Restoration, and Rehabilitation grant up to $1,460,789.00.
- New Construction grant up to $75,000.00.

**Background / Prior Discussions:**
The Grain Elevator represents a unique part of Louisville’s agricultural history and is among the last remaining historic grain elevators in the State of Colorado. It has been considered a high value property for local historic preservation. The grain elevator was established as a national landmark in 1986 and a local landmark in 2015. In 2012, the City purchased the Louisville Grain Elevator property for $950,000 using Historic Preservation Funds (HPF) in order to avoid the demolition of the historic building. The City’s acquisition at that time included the Grain Elevator property and the adjoining commercial property at 544 Front Street (previously a NAPA auto parts store and currently houses E-Bike of Colorado).

The City then published a request for proposals (RFP) for a public-private partnership to redevelop the properties, which included the restoration and activation of the Grain Elevator property for commercial use. The City initially entered into an agreement with a redevelopment company (Olde Town Group) for restoration of the Grain Elevator property and approved up to $2.1M in HPF grants to assist with development costs.

Issues arose around property boundaries and a building encroachment onto the

adjoining property to the south (500 Front Street). Due to a lack of resolution around these issues, the project with Olde Town Group was dropped, and instead the City entered into an agreement with a different entity, Louisville Mill Site, LLC. This new development partnership included the owner of 500 Front Street and facilitated resolution of the outstanding encroachment and property boundary issues.

The agreement with Louisville Mill Site, LLC included selling the property for a discounted price of $200,000, a grant from the HPF for $500,000 for initial stabilization work on the Grain Elevator, waiver of public land dedication fees or requirements, and rebates on application fees associated with the redevelopment of the property. The initial stabilization work was completed in 2016 and the property transferred to Louisville Mill Site, LLC.

*Previous Applications (2015)*
The City has previously approved the following applications related to the Grain Elevator property:

1. Historic Preservation
   Designation of the Grain Elevator building as a local landmark and establishment of a conservation easement for the building, and approval of a historic preservation "Alternation Certificate" for the restoration work on the building and to allow a small building addition on the east side of the Grain Elevator.

2. Louisville Mill Site Subdivision
   The Louisville Mill Site Subdivision, which established three lots and an outlot in front of the Grain Elevator (see Attachment No. 2). Lot 1 encompassed the existing commercial building on the south side of the development, Lot 2 encompassed the Grain Elevator, and Lot 3 encompassed the existing commercial building on the north side of the development. Outlot A is located in front of the Grain Elevator. Outlot A and portions of Lots 2 and 3 include a conservation easement (Note No. 8 on plat) that provides "No Build Areas" limiting development in order to preserve public view corridors to the Grain Elevator building.

3. Planned Unit Development (PUD) and Special Review Use (SRU)
   The Louisville Mill Site Redevelopment PUD/SRU, which approved the demolition of the NAPA building (Lot 3) to be replaced by a new 19,000 sq. ft. three-story commercial building, a three-story addition to the existing commercial building on Lot 3, a small building addition on the east side the Grain Elevator (Lot 2), and an outdoor gathering area on Outlot A with an alternative plan for development as a parking lot. The development plans also included use of a leased area from BNSF for additional parking in the BNSF right of way on the east side of the development. The SRU authorized an "outdoor activity area" on Outlot A and Lot 2 to include food and beverage service. The PUD and SRU approvals have since expired.

*Current Applications (2025-2026)*

1. Historic Preservation
   The current proposal is for redevelopment and renovation of the historic Louisville Grain Elevator on Lot 2 (landmarked) to facilitate a commercial use. The plans include restoring the porte cochere and boardwalk on the front side of the grain elevator building, including a historic wagon scale, and building a new, small "boxcar" building addition on the rear of the Grain Elevator to include restrooms (Attachment No. 3).

2. Planned Unit Development (PUD) and Special Review Use (SRU)
   A concurrent PUD and SRU to allow an Outdoor Eating and Drinking Establishment and Mobile Food Court at 500-544 Front Street is proposed. Most of the development is proposed on Outlot A (not landmarked) which is located directly in front of Lot 2 (landmarked; location of Grain Elevator) and includes the proposed location of the outdoor gathering area, which would be fenced and include food truck pads, outdoor seating, a relocated historic accessory structure used as a tap house, and a small stage in the southwest corner of the lot. Limited development for parking, drive aisles, and drainage infrastructure would occur on Lot 1 and Lot 3 and in the BNSF right of way. Grain Yard, LLC, intends to lease and occupy the space as a bar, gathering space, and Mobile Food Court. See Attachment No. 4 for PUD/SRU application materials and supporting documentation.

The new PUD and SRU applications were considered by the Planning Commission on November 13, 2025 and recommended to City Council for approval, following a recommendation by the Historic Preservation Commission.
LINK: November 13, 2025, Planning Commission Meeting.

*Prior and Current City Financial Contributions*
The City and the City's Urban Renewal Authority have previously provided $1,470,439 in assistance for the redevelopment of the property.

*Table 1: Prior City Financial Contributions*

| | |
|---|---|
| Sale of Property* | $750,000 |
| HPF Stabilization Grant | $500,000 |
| Urban Renewal Public Streetscape Improvements** | $163,526 |
| Urban Renewal Façade Grant for Mural | $14,989 |
| Public Land Dedication Waiver | $48,989 |
| Fee Waivers | $7,986 |
| ***TOTAL*** | ***$1,485,490*** |

** $950,000 acquisition cost minus $200,000 sale price*
*** Required Infrastructure by Subdivision Improvement Agreement*

The applicant is also in the process of requesting additional funding through the Louisville Urban Renewal Authority (URA), including a Tax Increment Financing (TIF) rebate, and Façade and Property Improvement grants. The Louisville Revitalization Commission (LRC) has approved the Façade and Property Improvement grants. The TIF rebate will be included in an upcoming Council agenda for consideration.

The LRC conducted a third-party gap analysis as part of the TIF review, which identified the project funding gap at $1,950,000. The following table summarizes how the combined HPF grant and URA funding will fill the total project gap if awarded.

*Proposed Grant and TIF Funding*

| | *Staff Recommendation* |
|---|---|
| *Tax Increment Rebate* | $216,000 |
| *Façade Improvement Grant* | $108,500 |
| *Property Improvement Grant* | $91,500 |
| *Historic Preservation Grant* | $1,535,789 |
| ***Totals*** | **$1,951,789** |
| *Third-Party Gap Determination* | $1,950,000 |
| ***Difference*** | ***$1,789*** |

Following the discovery of the adjustment needed to the New Construction HPF grant, the LRC increased the Façade Improvement Grant amount by $36,000 to address the remaining gap in funding that has resulted in the adjustments to the HPF grant request.

**HISTORICAL BACKGROUND:**

Louisville Grain Elevator History
*Information from Gigi Yang, Louisville Historical Museum*
This building is considered to be one of the area's last remaining wooden grain elevators. It was placed on the National Register of Historic Places in 1986 due to the elevator being "historically and visually the most significant structure associated with the agricultural history of the community." It is also listed on the Colorado Register of Historic Places. Its stacked plank construction style is considered to be rare. A review of the available evidence shows that the date of construction of this building was most likely 1905-06.

This building was constructed by John K. Mullen, an Irish immigrant who built and operated a number of grain elevators in Colorado in his capacity as President of the Colorado Milling & Elevator Co. Besides being associated with John K. Mullen, the building was also associated with the Moore and Thomas families. The elevator was managed for about 35 years by Louisville resident Howard A. Moore and then his son, Donald Moore. In 1957, it was purchased by Louisville residents Charles Thomas and Quentin Thomas. Advertisements for the Grain Elevator show that this was a longtime,

active business that played a vital role in the economy of the Louisville area. The building has been vacant since the Grain Elevator closed in the late 1960s.

Please see attached social history report for more information (Attachment No. 5).

**ARCHITECTURAL INTEGRITY:**
*Stories in Places: Putting Louisville's Agricultural, Railroad, and Mining Development in Context* identifies the historical impact of grain elevators in a post WWII era. A shift to larger volumes of grain along with declining railroad service and bankruptcies led to the abandonment of many small, rail-dependent country grain elevators between 1930 and 1960, including Louisville's in 1956. Louisville's grain elevator was a typical wooden "cribbed" country elevator—built from interlocking stacked lumber with a triangular cupola roof—designed to store and transfer grain from farmers to broader markets, though it is notable for retaining its original wood siding despite common later upgrades to metal cladding for fire protection.

A Historic Structure Assessment was completed for the property in 2011 (Attachment No. 6). Louisville's grain elevator is unique in that it has never had metal siding placed on it. The HSA concluded that the building is structurally sound, barring a few areas of deterioration, and that planned restoration and rehabilitation work would bring it a high level of integrity to complement its historical significance. A structural assessment supplemental was completed by Ascent Structural Engineering in November, 2025 (Attachment No. 7).

The Louisville Grain Elevator building has been the subject of three different architectural and historical surveys, including the State of Colorado Survey (1982), National Designation Statement of Significance (1986), and State of Colorado Survey (2000), all of which identify its local, state, and national historical significance.



Louisville Grain Elevator, 2/8/1916, Louisville Historical Museum



Recent image of Grain Elevator

**Development Proposal:**
The applicant is proposing to rehabilitate and redevelop the Louisville historic Grain Elevator into a commercial use for a Drinking Establishment and Mobile Food Court. The historic restoration work includes rebuilding a porte cochere and boardwalk on the

front side of the building and incorporating a historic wagon scale. The proposal also includes building a new, small “boxcar” building addition on the rear of the Grain Elevator. The applicant is requesting City Council approval of HPF grants totaling $1,586,000.00.

**Analysis:**
The applicant is requesting approval of a Preservation and Restoration Grant to rehabilitate the grain elevator. As per the current Historic Preservation Fund Resolution (No. 102, Series 2025) (Section 12, e):

> *e. Owners of properties landmarked prior to enactment of this resolution shall have access to the grant funds available through the resolutions in effect at the time of landmarking approval. Such owners may also apply for additional grants through the extraordinary circumstances process described above.*

The resolution in effect at the time was Resolution No. 2, Series 2012 wherein the following sections apply:

*Section 7. Maximum grant amounts and procedures:*
*The maximum combined amount of incentive and grant funding from the Historic Preservation Fund that any property may receive is limited to the following:*

1. *$ 181,000 per property for a landmark commercial structure*

*b. These limitations may be exceeded upon recommendation of the Historic Preservation Commission and approval by City Council upon a showing of extraordinary circumstances. Any grant exceeding the above limitations shall be conditioned on the applicant matching at least one hundred percent (100%) of the amount of the grant with expenditures of an equivalent value of approved in-kind services that are integral to the Project that is deemed eligible for a grant from the Historic Preservation Fund.*

A $500,000 extraordinary circumstances stabilization grant was previously provided by the City.

As per Resolution 102, Series 2025, Section 8 (e), “extraordinary circumstances” shall mean additional grant funds are appropriate to:

1. *Preserve, restore, and rehabilitate the integrity of historic architectural features and materials of the exterior of the buildings, including but not limited to historic windows, doors, siding, and other historic features that, without the additional grant funds, would be replaced by new materials; or*

*ii. Pay for vital structural work and building code compliance-related work that exceed Tier 1 grant amounts, if identified in an approved HSA.*

**Staff analysis**: Staff evaluated the grant request and summarized the extraordinary circumstances findings in Attachment No. 8. The proposed scope includes repair where possible of historic materials including windows, siding, and stacked plank walls. These materials are proposed to be repaired or replaced to match the original materials. The proposed scope includes critical code deficiency work, including plumbing, electrical, fire, water and sewer improvements. Staff find that the project meets the definition of extraordinary circumstances, and that the applicant is eligible for up to $1,460,789 in additional matching funds for vital structural and code compliant work, as well as for scope that preserves original historic features and preserves, restores, and rehabilitates the integrity of historic architectural features and materials of the exterior of the buildings. Full scope of work and construction bid documents can be found in Attachment No. 1 and Attachment No. 8.

<u>New Construction Grant Request</u>
The proposed new construction grant is requested for an east addition to the historic grain elevator which would include restrooms. The addition is proposed to be a one-story structure to appear like a traditional boxcar moved to the siding location where trains would load and unload material from the grain elevator in the past. It is proposed to be a historically sensitive interpretation of the environment of the grain elevator to add to the historic context, while differentiating the new construction from the historic grain elevator.

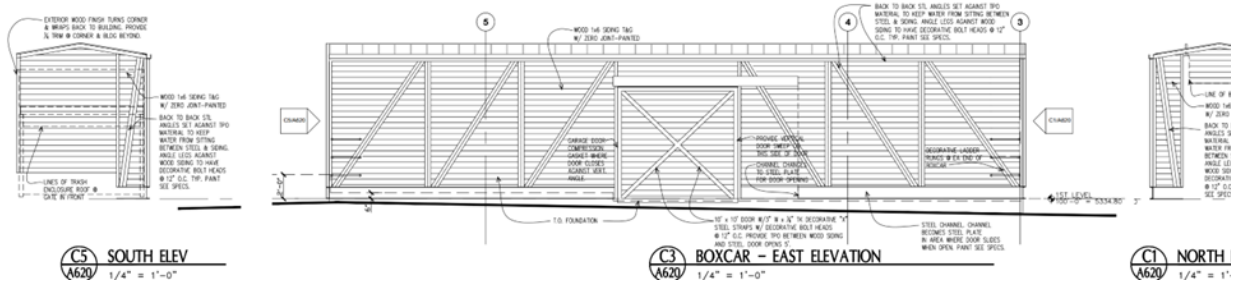



Figure 1: Boxcar addition elevations (page 49, Attachment No. 9).

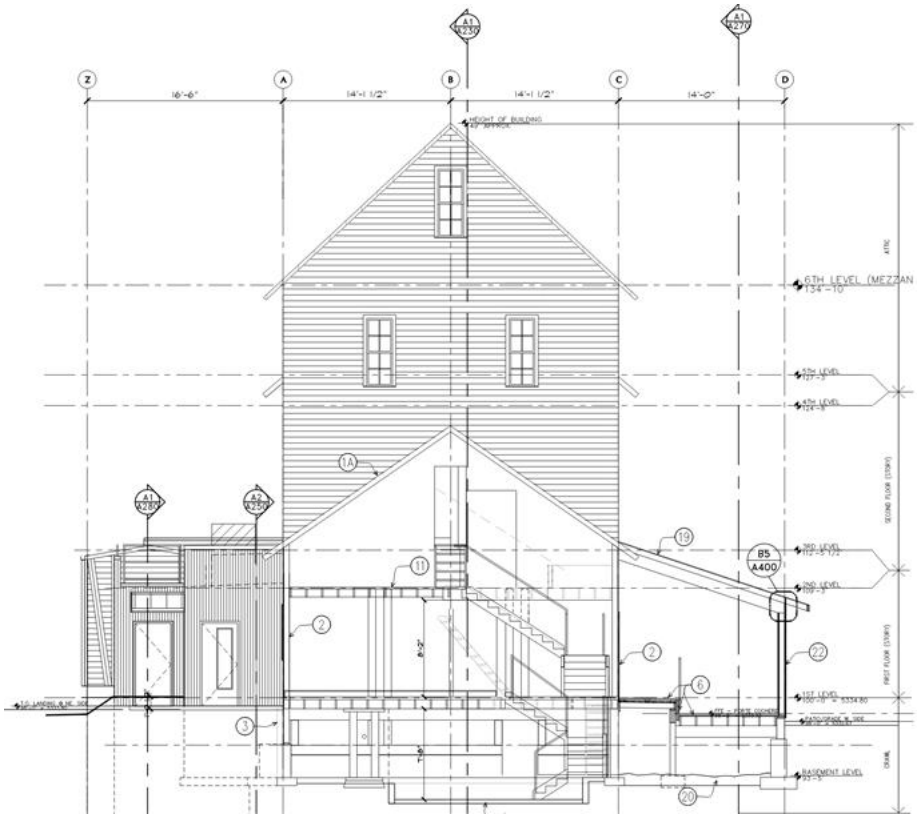


Figure 2: Boxcar addition in relation to building (page 35, Attachment No. 9).

**Staff Analysis:** The proposed addition is 1 story and is limited in mass and scale and meets the requirements under Resolution No. 2, Series 2012. Resolution No. 2, Series 2012, allowed for new construction grants under Section 6:

> *Owners of property on which new commercial structures or additions to existing commercial structures are proposed* ***are eligible for grants of up to $ 75,000 total*** *from the Historic Preservation Fund in order to limit mass, scale, and number of stories; to preserve setbacks, to preserve pedestrian walkways between buildings; and to utilize materials typical of historic buildings, above mandatory requirements.*

| **Table 2. Analysis of New Construction Grant Request** | |
|---|---|
| **Requests** | |
| Description | Amount |

| | |
|---|---|
| All work related to the east addition to the grain elevator, similar to a train boxcar | $838,622 |
| Owner costs, including contingency, permit and professional fees, taxes and insurance | $232,960 |
| **Half of Project Cost** | $1,071,582 |
| **Total Requested** | $111,000 |
| **Total Recommended** | $75,000 |

**Summary**
Staff recommends approval of the following grants, totaling $1,535,789.00:

- Extraordinary Circumstances Preservation, Restoration, and Rehabilitation grant up to $1,460,789.00. Staff finds that this is the total amount of eligible work as outlined in the construction bid provided by the applicant.
- New Construction grant up to $75,000.00.

The original proposal included a New Construction grant totaling $111,000.00, which was based on the recently updated incentives allowances under Resolution No. 102, Series 2025. However, the project is subject to the funding resolution in place at the time the City approved the local landmark designation for the property (Resolution No. 2, Series 2012), which allows a new construction grant up to $75,000.00. This discrepancy was discovered after the Historic Preservation Commission meeting, and staff has adjusted the recommended HPF grants to align with the applicable funding resolution. To address the remaining gap in funding that has resulted in the adjustments to the HPF grant request, the LRC increased the Façade Improvement Grant amount by $36,000.00. A detailed discussion of the gap funding analysis is provided below.

HPC Recommendations:
The Historic Preservation Commission (HPC) recommended approval of grants totaling $1,571,789.00. As previously mentioned, this included a new construction grant totaling $111,000.00, while the project is only eligible for $75,000.00, which accounts for the difference (i.e. $36,000.00) in the Staff and HPC recommended grant amounts. The HPC also approved an Alteration Certificate as part of their review that is consistent with the development plans as proposed.

**Council Work Plan:**
This is not an item on the Council Work Plan

**Fiscal Impact:**

The unencumbered fund balance is estimated at $4.05M and the average income of the Fund over the past two years is approximately $885,000. The grant would reduce the fund balance to $2.5M.

**Alternatives:**

1. That Council deny the request for a preservation and restoration grant
2. That Council approve an alternative grant amount.

**Recommendation:**

*Historic Preservation Commission Recommendation*

The Historic Preservation Commission (HPC) held a public hearing on the application at the February 23, 2026 meeting. The HPC approved Resolution 1, Series 2026 to approve an alteration certificate for the proposed development (Attachment No. 10). The Commission approved Resolution 2, Series 2026, recommending to City Council approval of a preservation and restoration grant totaling $1,571,789, including a new construction grant of $111,000.00 (Attachment No. 11). LINK: February 23, 2026, Historic Preservation Commission Communication.

**STAFF RECOMMENDATION**

Approval of Resolution No. 39, Series 2026, approving HPF grants under the following categories:

1. Extraordinary Circumstances grant up to $1,535,789.00
2. New Construction grant up to $75,000.00

**Attachments:**

1. Resolution 39, Series 2026
2. Louisville Mill Site Subdivision
3. Application
4. Mill Site PUD
5. Social History Report
6. Historic Structure Assessment (HSA) (2011)
7. Historic Structure Assessment Supplemental (2025)
8. Analysis of Grant Request
9. Grain Elevator Renovation Plans
10. Resolution No. 1, Series 2026 (HPC Alteration Certificate)
11. Resolution No. 2, Series 2026 (HPC Grant Request)
12. Staff Presentation

**RESOLUTION NO. 39**
**SERIES 2026**

**A RESOLUTION APPROVING A PRESERVATION AND RESTORATION GRANT FOR THE GRAIN ELEVATOR AT 540 COUNTY ROAD**

**WHEREAS,** there has been submitted to the City Council an application requesting a preservation and restoration grant for the Grain Elevator, which is a historic structure located on 540 County Road and legally described as Lot 2, Louisville Mill Site (the "Property"); and

**WHEREAS,** the Property was previously designated as a historic landmark by the City Council in 2015; and

**WHEREAS,** City staff and the Louisville Historic Preservation Commission have reviewed the application and found the request to be eligible for grant funds in accordance with Section 3.20.605.D of the Louisville Municipal Code and Resolution No. 102, Series 2025; and

**WHEREAS,** the Louisville Historic Preservation Commission held a properly noticed public meeting on the grant application and has forwarded to the City Council its recommendation of approval; and

**WHEREAS,** the City Council has duly considered the proposed grant application and the Commission's recommendation and report, and has held a properly noticed public meeting on the application; and

**WHEREAS,** the City Council finds the repairs to the existing structure to be funded by the preservation and restoration grant will assist in the preservation of the Property, and the requested grant for the same should be approved.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** The City Council hereby approves a preservation and restoration grant application for the Property in the amount of **$1,571,789.00**, for work as described in **Exhibit A** attached hereto and incorporated herein by this reference.

**PASSED AND ADOPTED** this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

## EXHIBIT A

| Table 1: Extraordinary Circumstances Grant | | |
|---|---|---|
| Description | Amount* | Preservation, Restoration, Rehabilitation |
| 1. Final site grading (includes excavation and backfill for foundation insultation/damproofing) | $117,694 | Preservation |
| 2. New water service for fire sprinklers | $128,836 | Rehabilitation |
| 3. New sanitary sewer service | $76,102 | Rehabilitation |
| 4. Granular backfill at all crawlspace areas (hand placed over vapor barrier) | $13,101 | Preservation |
| 5. Sump to drain at scale pit (Including plumbing equipment) | $74,627 | Rehabilitation |
| 6. Replace/reinforce section of wood foundation wall at Section 1 | | Preservation |
| 7. Complete miscellaneous foundation construction in areas not previously addressed in stabilization phase. | | Preservation |
| 8. At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge | $103,965 | Preservation |
| 9. Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure that provides lateral bracing for the building. | | Preservation |
| 10. Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation | $32,040 | Preservation |
| 11. Miscellaneous drag strut and collector elements as indicated Will drag some force into existing bin walls in order to minimize number of new wood shear walls. | | Preservation |

| | | |
|---|---|---|
| 12. Repair, re-frame, or replace percentage of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc. | $279,920 | Preservation |
| 13. Sister or replace floor framing having grade limiting size knots or slope | | Preservation |
| 14. Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated | | Preservation |
| 15. Remove and replace structural elements affected by previous fire damage (to be reviewed on site with structural engineer and architect) | | Preservation |
| 16. New structural steel elements for reinforcing structure | $254,395 | Preservation |
| 17. Reconstruction of original Porte Cochere wall and roof to cover wagon ramp | $109,887 | Restoration |
| 18. Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp | | Restoration |
| 19. Reconstruct wood boardwalk along west side of building with stairs on each end. Add railings for safety where required. | | Restoration |
| 20. Disassemble scales, move and reassemble scale equipment and infill excavated scale pit at existing site | $20,000 | Restoration |
| 21. Miscellaneous structural repairs and unknown conditions | $30,000** | N/A |
| 22. Selective repair or replacement of severely damaged wood shiplap siding. Additional siding replacement as required | $131,562 | Preservation |

| | | |
|---|---|---|
| 23. Selective repair or replacement of severely damaged wood tongue and groove siding | | Preservation |
| 24. Repaint exterior of building including moderate preparation and some siding repair remains. | | Restoration |
| 25. Paint new boardwalk, porte cochere, and wagon ramp) with two pain coats | | Restoration |
| 26. Code compliant wall and roof/attic insulation enclosing conditioned spaces | $79,764 | N/A |
| 27. New metal roofing, flashings gutters & downspouts for new (Porte Cochere only) | $13,319 | Restoration |
| 28. Membrane roofing and flashing at wagon ramp over basement space | $3,897 | Restoration |
| 29. Below Grade Damproofing for entire perimeter of existing building | $6,245 | Preservation |
| 30. Reconfigure gutters as required for proper drainage, discharge to rain gardens for water quality | $24,230 | Preservation |
| 31. Replace (7) eight lite double hung wood windows and frames to match original. | $74,163 | Restoration |
| 32. Replace (4) two lite double hung windows. | | Restoration |
| 33. Repair (2) fixed four lite windows (2'x2') | | Restoration |
| 34. Reconstruct existing eight lite double hung wood window | | Restoration |
| 35. Replace 50% of the wood on the sliding doors (6'x7'). | $26,113 | Restoration |
| 36. Sand and refinish 4 panel wood door, refurbish hardware non-operating. | | Restoration |
| 37. Replace 50% of the wood boards composing exterior doors (3'x7'). | | Restoration |
| 38. Remove, wire brush and oil all hardware that remains. | | Restoration |

| | | |
|---|---|---|
| 39. Install new hardware to match historic as closely as possible. | | Restoration |
| 40. New barn door rollers and track for sliding door to match original | | Restoration |
| 41. Crawlspace ventilation to mitigate moisture and potential wood deterioration and mold. | $26,724 | Rehabilitation |
| 42. Fire sprinkler system | $136,226 | Rehabilitation |
| 43. Dry system to avoid freezing | | Rehabilitation |
| 44. Fire alarm system | | Rehabilitation |
| 45. Plumbing system rough-in (no interior tenant finish) | $269,929 | Rehabilitation |
| 46. Electric heat pump system | $187,417 | Rehabilitation |
| 47. Electric Main Switchgear and Service to Transformer | $ 370,482 | Rehabilitation |
| 48. Branch Circuits, Panels, Outlets & Lighting | | Rehabilitation |
| 49. Xcel New Service Connection | $50,000 | Rehabilitation |
| 50. Follow up testing and mitigation allowance due to time of vacancy | $18,000 | Rehabilitation |
| 51. 10% Owner's Construction Contingency for Hidden Conditions & Unforeseen Events | $274,286** | N/A |
| 52. Engineering Fees subsequent to initial stabilization | $109,714 | Preservation |
| 53. Architecture Fees subsequent to initial stabilization | $174,857 | Preservation |
| 54. Geotechnical Engineering Fees & Construction Phase Material Testing | $5,368 | Preservation |
| 55. Wood Scientist to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | $1,000 | Restoration |
| 56. Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive re-use | $2,000 | Preservation |
| **Total Recommended Grant** | **$ 1,535,789.00** | |

* Line items may go above or below cost estimates if meet eligible preservation, rehabilitation, and restoration work, subject to the total grant cap of $1,535,789.

** Flexibility to use amounts for eligible preservation, rehabilitation, and restoration expenses.

| Table 2. New Construction Grant Request | |
|---|---|
| **Requests** | |
| Description | Amount |
| All work related to the east addition to the grain elevator, similar to a train boxcar | $838,622 |
| Owner costs, including contingency, permit and professional fees, taxes and insurance | $232,960 |
| **Half of Project Cost** | $1,071,582 |
| **Total Recommended Grant** | **$75,000.00** |

**TOTAL GRANT AWARD INCLUDING NEW CONSTRUCTION: $1,571,789.00**

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Page: 1 of 1
DF: $0.00
RF: $11.00
12/13/2016 01:21 PM
Boulder County Clerk, CO
Unofficial Copy

# LOUISVILLE MILL SITE SUBDIVISION

*LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 69 WEST OF THE 6TH P.M.,*
*CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO*

SHEET 1 OF 1

## DEDICATION AND LEGAL DESCRIPTION

KNOW ALL MEN BY THESE PRESENTS, THAT THE UNDERSIGNED BEING THE OWNERS OF A PARCEL OF LAND LOCATED IN THE SOUTHEAST QUARTER SECTION 8, TOWNSHIP 1 SOUTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, CITY OF LOUISVILLE, BOULDER COUNTY, STATE OF COLORADO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

CONSIDERING THE WEST RIGHT OF WAY LINE OF BURLINGTON NORTHERN RAILROAD TO BEAR S08°15'46"E BETWEEN A FOUND #5 REBAR WITH A 2" ALUMINUM CAP, STAMPED "PLS 24310" AT THE NORTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 03267645 AND A FOUND #5 REBAR WITH 1 1/2" ALUMINUM CAP, STAMPED "LS 5428" AT THE SOUTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 253376, AS SHOWN HEREON. ALL BEARINGS SHOWN HEREON ARE RELATIVE THERETO.

COMMENCING AT THE EAST 1/4 CORNER SECTION 8, BEING A FOUND #6 REBAR WITH 3 1/4" ALUMINUM CAP STAMPED "T1S R69W 1/4 S8 S9 1995, LS 13155"; THENCE S23°38'21"W, A DISTANCE OF 1448.46 FEET TO A POINT ON SAID WEST RIGHT OF WAY LINE OF THE BURLINGTON NORTHERN RAILROAD, SAID POINT ALSO BEING THE POINT OF BEGINNING; THENCE ALONG SAID WEST RIGHT OF WAY LINE S08°15'46"E, A DISTANCE OF 429.38 FEET TO THE NORTHEAST CORNER OF LOT 2, MANSOUR-ENGEL SUBDIVISION, RECORDED WITH BOULDER COUNTY AT P-19 F-1 #40; THENCE ALONG THE NORTH LINE OF SAID LOT 2, S81°38'33"W, A DISTANCE OF 129.09 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF COUNTY ROAD 124; THENCE ALONG SAID EAST RIGHT OF WAY LINE N14°15'13"W, A DISTANCE OF 456.82 FEET TO A POINT ON THE SOUTH LINE OF THE PLAT OF THE TOWN OF LOUISVILLE, RECORDED WITH BOULDER COUNTY AT BOOK 2, PAGE 6; THENCE ALONG SAID SOUTH LINE N89°42'07"E, A DISTANCE OF 178.49 FEET TO THE POINT OF BEGINNING.

CONTAINING 67,281 SQ. FT. OR 1.54 ACRES OF LAND, MORE OR LESS.

HAVE LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AND OUTLOT A UNDER THE NAME OF LOUISVILLE MILL SITE SUBDIVISION AS LAID OUT AND DESIGNATED ON THIS PLAT, A SUBDIVISION OF A PART OF THE CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO, AND BY THESE PRESENTS DO HEREBY DEDICATE TO THE CITY OF LOUISVILLE AND THE PUBLIC, EXCEPT WHERE NOTED HEREON, THE ACCESS, DRAINAGE AND UTILITY EASEMENTS AS SHOWN ON THE ACCOMPANYING PLAT FOR VEHICULAR, PEDESTRIAN AND EMERGENCY ACCESS; TO THE CITY OF LOUISVILLE THE EXCLUSIVE UTILITY EASEMENT AND CITY MAINTENANCE AND ACCESS EASEMENTS AS SHOWN ON THE ACCOMPANYING PLAT; TO THE CITY OF LOUISVILLE THE NO-BUILD EASEMENT AS SHOWN AND ESTABLISHED ON THE ACCOMPANYING PLAT; AND DO FURTHER DEDICATE TO THE USE OF THE CITY OF LOUISVILLE AND ALL MUNICIPALLY OWNED AND/OR FRANCHISED UTILITIES AND SERVICES SUCH OTHER PORTIONS OF SAID REAL PROPERTY WHICH ARE SO DESIGNATED AS EASEMENTS AND RIGHT-OF-WAYS FOR THE CONSTRUCTION, INSTALLATION, OPERATION, MAINTENANCE, REPAIR AND REPLACEMENT FOR ALL SERVICES, INCLUDING WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, TELEPHONE AND ELECTRIC LINES, WORKS, POLES AND UNDERGROUND CABLES, GAS PIPELINES, WATER PIPELINES, SANITARY SEWER LINES, STREET LIGHTS, CULVERTS, HYDRANTS, DRAINAGE DITCHES AND DRAINS AND ALL APPURTENANCES THERETO, IT BEING EXPRESSLY UNDERSTOOD AND AGREED BY THE UNDERSIGNED THAT ALL EXPENSES AND COSTS INVOLVED IN CONSTRUCTING AND INSTALLING SANITARY SEWER SYSTEM WORKS AND LINES, GAS SERVICE LINES, ELECTRICAL SERVICE WORKS AND LINES, STORM SEWERS AND DRAINS, STREET LIGHTING, GRADING AND LANDSCAPING, CURBS, GUTTERS, STREET PAVEMENT, SIDEWALKS AND OTHER SUCH UTILITIES AND SERVICES SHALL BE GUARANTEED AND PAID FOR BY THE SUBDIVIDER OR ARRANGEMENTS MADE BY THE SUBDIVIDER THEREOF WHICH ARE APPROVED BY THE CITY OF LOUISVILLE, COLORADO, AND SUCH SUMS SHALL NOT BE PAID BY THE CITY OF LOUISVILLE, COLORADO, AND THAT ANY SUCH ITEMS SO CONSTRUCTED OR INSTALLED WHEN ACCEPTED BY THE CITY OF LOUISVILLE, COLORADO, SHALL BECOME THE SOLE PROPERTY OF SAID CITY OF LOUISVILLE, COLORADO, EXCEPT PRIVATE ROADWAY CURBS, GUTTER AND PAVEMENT AND ITEMS OWNED BY MUNICIPALLY FRANCHISED UTILITIES AND/OR U.S. WEST COMMUNICATION, INC. WHICH WHEN CONSTRUCTED OR INSTALLED, SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL NOT BECOME THE PROPERTY OF THE CITY OF LOUISVILLE, COLORADO.

## OWNERSHIP CERTIFICATE

OWNER: RCC LTD., A PARTNERSHIP OF RAYMOND CARL CARANCI AND RANDALL CARL CARANCI

BY: [signature]

TITLE: Managing General Partner

OWNER: CITY OF LOUISVILLE, A COLORADO HOME RULE MUNICIPAL CORPORATION

BY: [signature]
ROBERT P. MUCKLE, MAYOR

ATTEST: [signature]
~~NANCY VARRA~~, CITY CLERK
MEREDYTH MUTH

## ACKNOWLEDGMENT

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BY ME THIS 12 DAY OF December, 2016, BY Randall C. Caranci as Managing General Partner of RCC LTD.

WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES ____________

[signature]
NOTARY NAME AND SIGNATURE

REBECCA RINGMAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19984016968
MY COMMISSION EXPIRES JUNE 20, 201

## ACKNOWLEDGMENT

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BY ME THIS 6th DAY OF December, 2016, BY Robert P. Muckle

WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES 12-4-2019

Carol Hanson
NOTARY NAME AND SIGNATURE

CAROL HANSON
NOTARY PUBLIC
STATE OF COLORADO

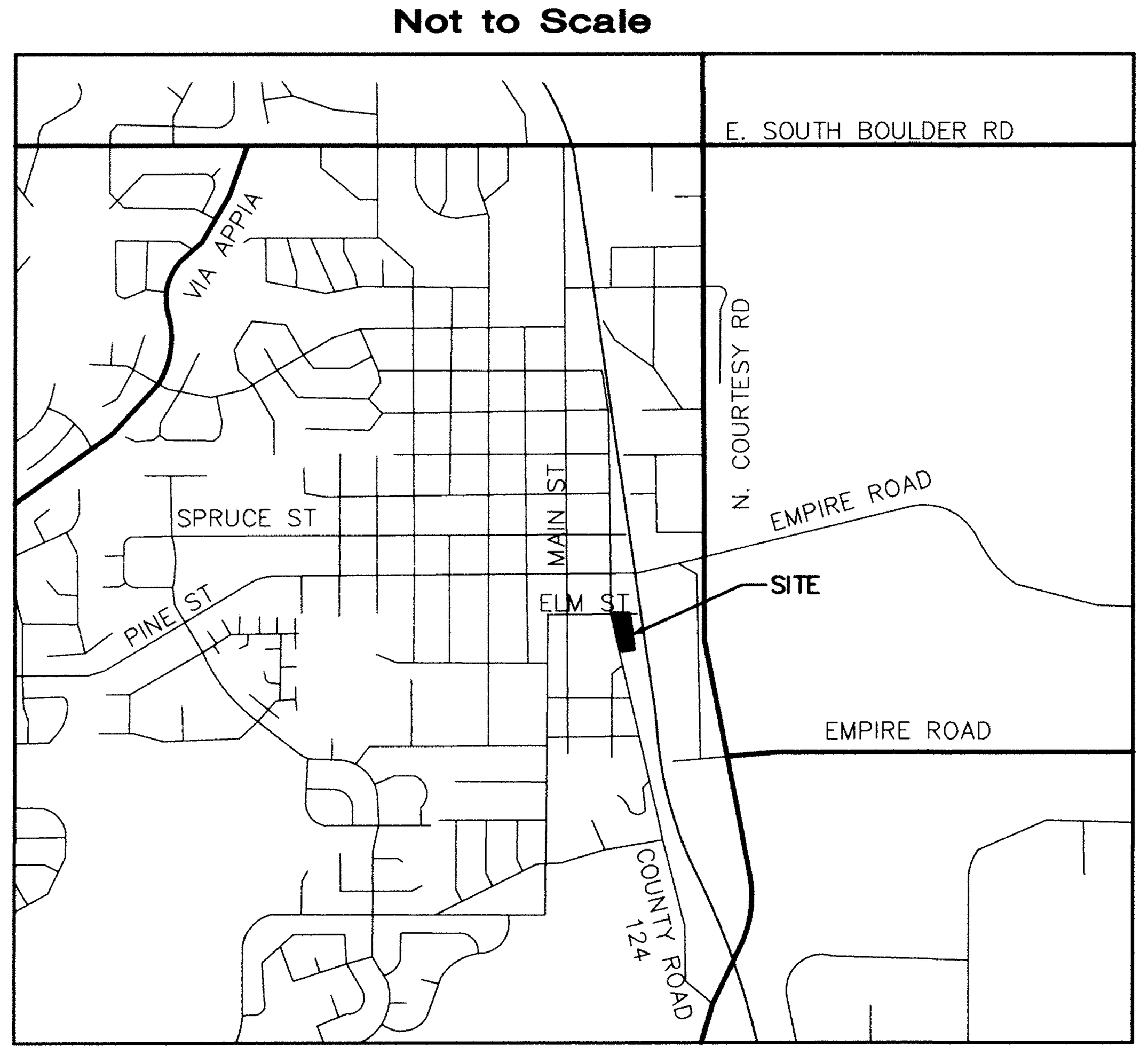
## LENDER CONSENT

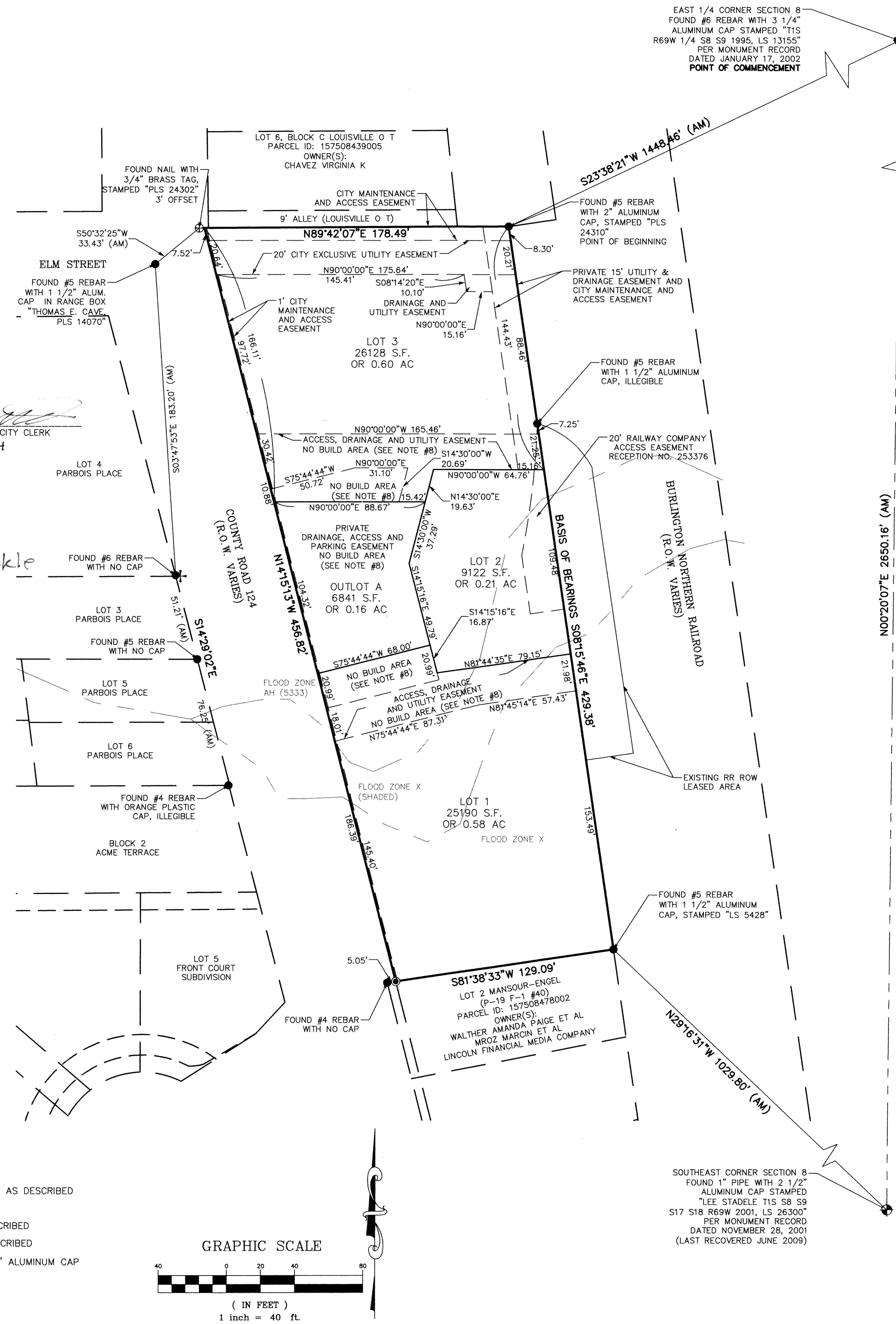
THE UNDERSIGNED, COLORADO BUSINESS BANK, A COLORADO BANKING CORPORATION, AS THE BENEFICIARY OF A DEED OF TRUST RECORDED WITH THE BOULDER COUNTY CLERK AND RECORDER, APRIL 19, 2006 AT RECEPTION NO. 540838 AND ALL SUBSEQUENT MODIFICATIONS THERETO AND THAT CONSTITUTES A LIEN UPON PORTIONS OF THE PROPERTY DESCRIBED ON THIS PLAT, DOES HEREBY CONSENT TO THE PLATTING OF THE PROPERTY AND TO THE DEDICATION AND ESTABLISHMENT OF ALL EASEMENTS, COVENANTS AND RESTRICTIONS AS SET FORTH ON THE FINAL PLAT OF "LOUISVILLE MILL SITE SUBDIVISION," AND HEREBY SUBORDINATES ITS LIEN TO THE INTERESTS OF THE CITY OF LOUISVILLE UNDER SAID EASEMENTS, COVENANTS AND RESTRICTIONS.

BY: [signature]

TITLE: Vice President

## Vicinity Map
## Not to Scale




## Legend

- FOUND ALIQUOT MONUMENT AS DESCRIBED
- FOUND CHISELED CROSS
- FOUND MONUMENT AS DESCRIBED
- FOUND BRASS TAG AS DESCRIBED
- SET #5 REBAR WITH 1 1/2" ALUMINUM CAP "FLATIRONS SURV 16406"

## Notes

1. FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT NUMBER 515-F0467807-170-BL7, AMENDMENT NO. 1, DATED SEPTEMBER 4, 2015 AT 7:00 A.M., WAS ENTIRELY RELIED UPON FOR RECORDED INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES IN THE PREPARATION OF THIS SURVEY. THE PROPERTY SHOWN AND DESCRIBED HEREON IS ALL OF THE PROPERTY DESCRIBED IN SAID TITLE COMMITMENT.
2. ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. THIS SURVEY IS VALID ONLY IF PRINT HAS SEAL AND SIGNATURE OF SURVEYOR.
4. BASIS OF BEARINGS: AN ASSUMED BEARING OF S08°15'46"E ALONG THE WEST RIGHT OF WAY LINE OF BURLINGTON NORTHERN RAILROAD, BETWEEN A FOUND #5 REBAR WITH A 2" ALUMINUM CAP, STAMPED "PLS 24310" AT THE NORTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 03267645 AND A FOUND #5 REBAR WITH 1 1/2" ALUMINUM CAP, STAMPED "LS 5428" AT THE SOUTHEAST CORNER OF THAT PARCEL OF LAND IN DEED RECORDED WITH BOULDER COUNTY AT RECEPTION NO. 253376, AS SHOWN HEREON. ALL BEARINGS SHOWN HEREON ARE RELATIVE THERETO.
5. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SEC 18-4-508. WHOEVER WILLFULLY DESTROYS, DEFACES, CHANGES, OR REMOVES TO ANOTHER PLACE ANY SECTION CORNER, QUARTER-SECTION CORNER, OR MEANDER POST, ON ANY GOVERNMENT LINE OF SURVEY, OR WILLFULLY CUTS DOWN ANY WITNESS TREE OR ANY TREE BLAZED TO MARK THE LINE OF A GOVERNMENT SURVEY, OR WILLFULLY DEFACES, CHANGES, OR REMOVES ANY MONUMENT OR BENCH MARK OF ANY GOVERNMENT SURVEY, SHALL BE FINED UNDER THIS TITLE OR IMPRISONED NOT MORE THAN SIX MONTHS, OR BOTH. 18 U.S.C. § 1858.
6. THE DISTANCE MEASUREMENTS SHOWN HEREON ARE U.S. SURVEY FOOT.
7. FLOOD INFORMATION: THE SUBJECT PROPERTY IS LOCATED IN ZONES AH, FLOOD DEPTHS OF 1 TO 3 FEET (USUALLY AREAS OF PONDING); BASE FLOOD ELEVATIONS DETERMINED (5330), X (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREA OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAT 1 SQUARE MILE; AND AREA PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD AND X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP; COMMUNITY-PANEL NO. 08013C-0582 J, DATED DECEMBER 18, 2012. FLOOD INFORMATION IS SUBJECT TO CHANGE.
8. NO- BUILD AREA: THE NO-BUILD AREAS NOTED ON THIS PLAT ARE SUBJECT TO THE FOLLOWING RESTRICTION: NO BUILDINGS OR OTHER IMPROVEMENTS SHALL BE CONSTRUCTED WITHIN THE NO-BUILD AREA WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE CITY OF LOUISVILLE, AS EVIDENCED BY WRITTEN RESOLUTION OF THE CITY OF LOUISVILLE CITY COUNCIL. THE OWNERS HEREBY ESTABLISH THAT THE FOREGOING RESTRICTION SHALL CONSTITUTE A COVENANT RUNNING WITH OUTLOT A AND THOSE PORTIONS OF LOTS 1 AND 3 WITHIN THE NO-BUILD AREA, AND THAT SUCH RESTRICTION SHALL ENCUMBER THE NO-BUILD AREA AND BE BINDING UPON ALL OWNERS OF ANY OWNERSHIP OR OTHER INTEREST IN THE NO-BUILD AREA. THE OWNERS HEREBY FURTHER DEDICATE TO THE CITY OF LOUISVILLE A PERPETUAL CONSERVATION EASEMENT IN GROSS TO ENFORCE THE FOREGOING PROHIBITION ON THE CONSTRUCTION OF BUILDINGS OR OTHER IMPROVEMENTS WITHIN THE NO-BUILD AREA, IT BEING THE INTENT THAT SUCH PROHIBITION IS FOR THE PRESERVATION OF VIEW CORRIDORS FOR HISTORIC PRESERVATION PURPOSES. THE RESTRICTION AND EASEMENT HEREIN ESTABLISHED SHALL NOT BE SUBJECT TO ABANDONMENT OR MERGER AND MAY ONLY BE MODIFIED, TERMINATED, EXTINGUIHSED OR RELEASED BY INSTRUMENT APPROVED BY RESOLUTION OF THE LOUISVILLE CITY COUNCIL AND EXECUTED BY THE MAYOR AND CITY CLERK. IMPROVEMENTS AUTHORIZED BY THE LOUISVILLE MILL SITE PLANNED UNIT DEVELOPMENT PLAN, AS APPROVED BY CITY COUNCIL RESOLUTION, SHALL BE PERMITTED IMPROVEMENTS IN THE NO-BUILD AREA.
9. THE 20' CITY EXCLUSIVE UTILITY EASEMENT SHOWN HEREON IS AN EXCLUSIVE CITY UTILITY EASEMENT FOR WATER, SANITARY AND STORM SEWER AND MAY NOT BE USED FOR OTHER UTILITIES WITHOUT CITY CONSENT.
10. OWNERSHIP INFORMATION IS PER THE BOULDER COUNTY WEBSITE AS RESEARCHED ON MARCH 30, 2014 AND IS SUBJECT TO CHANGE.

## PLANNING COMMISSION CERTIFICATE

RECOMMENDED APPROVED THIS 9TH DAY OF APRIL, 2015 BY THE PLANNING COMMISSION OF THE CITY OF LOUISVILLE, COLORADO. RESOLUTION NO. 14, SERIES 2015.

PLANNING COMMISSION CHAIRMAN ____________ SECRETARY ____________

## CITY COUNCIL CERTIFICATE

APPROVED THIS 19th DAY OF May, 2015 BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO. RESOLUTION NO. 29, SERIES 2015.

[signature]
MAYOR SIGNATURE

[signature]
CITY CLERK SIGNATURE

CITY OF LOUISVILLE SEAL COLORADO

## CLERK AND RECORDER CERTIFICATE

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED IN MY OFFICE AT 1:21 O'CLOCK, P.M., THIS 13 DAY OF December, 2016, AND IS RECORDED IN PLAN FILE ——, FEE $11.00 PAID. —— FILM NO. 03563028 RECEPTION.

Hillary Hall
CLERK & RECORDER

Cessica Martinez
DEPUTY

## Surveyor's Statement

I, JOHN B. GUYTON, A DULY REGISTERED LAND SURVEYOR, LICENSED IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT OF LOUISVILLE MILL SITE SUBDIVISION TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE BY ME OR UNDER MY DIRECTION, AND THAT SAID PLAT COMPLIES WITH THE REQUIREMENTS OF TITLE 38, ARTICLE 51, COLORADO REVISED STATUTES.

JOHN B. GUYTON COLORADO P.L.S. #16406
CHAIRMAN & CEO, FLATIRONS, INC.

COLORADO LICENSED PROFESSIONAL LAND SURVEYOR JOHN B. GUYTON 16406 12/5/16

| REVISION | DATE |
|---|---|
| 1 REVISED FOR CITY COMMENTS | M. VOYLES 06/12/2014 |
| 2 REVISED FOR CITY COMMENTS | M. VOYLES 03/12/2015 |
| 3 REVISED FOR CHANGES TO EASEMENTS | M. VOYLES 03/13/2015 |
| 4 REVISED PER CITY COMMENTS | M. VOYLES 10/17/2016 |
| 5 - | - |
| 6 - | - |
| 7 - | - |
| 8 - | - |
| 9 - | - |

FINAL PLAT

LOUISVILLE MILL SITE SUBDIVISION

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**Flatirons, Inc.**
*Surveying, Engineering & Geomatics*
www.FlatironsInc.com

655 FOURTH AVE, LONGMONT, CO 80501, PH: (303) 776-1733, FAX: (303) 776-4355
3825 IRIS AVE, STE 395, BOULDER, CO 80301, PH: (303) 443-7001, FAX: (303) 443-9830
3660 DOWNING ST, UNIT E, DENVER, CO 80205, PH: (303) 936-6997

JOB NUMBER: 14-63,228
DATE: 06-03-2014
DRAWN BY: M. VOYLES
CHECKED BY: JZG/NV

SHEET 1 OF 1

# LOUISVILLE MILL SITE LLC

950 Spruce Street, Suite 2C, Louisville, CO 80027 303.673.9304


Mr. Rob Zuccaro, Community Development Director
City of Louisville, Colorado
749 Main Street
Louisville, CO 80027

12 February, 2026

Re: Historic Louisville Grain Elevator
Redevelopment for The Grain Yard
HPF Grant Application
520, 540 County Road (Front Street)

Rob,

Per your request, we are pleased to provide this addendum to our initial Grant Application (original application dated 06/25/25, amended 09/20/25). We understand that the magnitude of this grant request requires a great deal of review and scrutiny on your part and we are happy to provide any additional information that is required for the HPC review of our grant application.

This resubmittal is based on the city's request that we provide actual contractor bids in lieu of the contractor's estimate that we provided last September. I have provided you with a bid summary indicating the 3 bids that we received from pre-qualified general contractors. The bid that we are prepared to accept, subject to adequate funding, is the low bid received from Melton Construction, (copy attached).

Attached, as requested please find the following information, revised as noted:

Grant Application Fillable Form-Louisville Mill Site 021226-REV-Signed.pdf
LMS-LLC_GrainElev-Sabilization&Rehab-HPC_ScopeOfWork-021226-REV.pdf
Grant Application Fillable Form-Louisville Mill Site 021226-REV-New_Construction-Signed.pdf
LouisvilleGrainElevator-bid.pdf

The Construction Drawings and Specification package as submitted for building permit and used for the general contractor bidding is in the DropBox below, as well as the structural engineer's review letter, and the PUD drawings:

DropBox Folder: Louisville_Grain_Elevator-Permit-CDs

https://www.dropbox.com/scl/fo/qp0xg8itbrzaf4fhl2q48/APzBy22Z8waDVrx_BLUBryQ?rlkey=urp0lisq7nilr064491h8yhdn&st=liuwc7o6&dl=0

We have included the original PUD narrative herein for reference.

The redevelopment of Louisville's historic Grain Elevator is intended to transform this iconic 120-year-old utilitarian agrarian structure into a vibrant venue that will become a community gathering place, contributing to Downtown Louisville's vitality. Please see the attached letter from the owners of The Grain Yard LLC, who will be the tenants of the building and site. Please note that the managing

partners of the Grain Yard LLC are also partners in the ownership of the property as part of Louisville Mill Site LLC/Louisville's Living Room LLC ownership group.

The design for the Grain Yard redevelopment retains all of the original features of this historic landmark and provides for reconstructing the original porte cochere, wagon ramp and wagon scales, which were an integral part of the original building design and function. We have proposed a small addition on the back of the building which will emulate a boxcar, in the location of the railroad siding that used to run behind the building. The proposed design for this first phase is consistent with the original PUD and SRU that was approved in 2015. This amendment to that PUD is intended to allow for some minor changes to the original approval, but is mainly a separation of this first phase from the rest of the development that is not currently moving forward. The grain elevator building will be fully renovated inside in the areas that will accommodate this new use, while preserving the historic fabric of the wooden structure, (even preserving evidence of the major fire that occurred in the past). The building will be ADA accessible, and energy upgrades will be provided as well as structural upgrades and new mechanical, plumbing, and electrical systems. A new, safe electrical service to the building will be provided to replace the antiquated electrical system, as well as new water and sewer services.

The site will be improved with landscaping, fencing and lighting for the open space in front of the grain elevator, (the 'Yard') which will be an area for community gathering, events and relaxing at this historic site, with spaces for food trucks. We envision interpretive historic signage and displays documenting the agrarian history of Louisville's early years and this building and site. We would like to work with the City of Louisville and the Museum to bring this history to life on this site. We would also like to move a small private granary from the Warembourg farm to the Grain Yard as a demonstration of how farmers stored grain on their private land versus this commercial grain elevator. We will utilize that small structure as a seasonal tap house for the Grain Yard in good weather. We may also propose landmark status for this structure.

We truly envision this project as a significant community benefit from an experiential and educational perspective. Again, the ability to have this type of a tenant utilize the building is perfect to sustain the history of this site, and Louisville's history into the future. It will activate the site and give people access inside this amazing wooden agricultural cathedral. The revenue from the commercial use of the building will provide the ability to properly maintain the property, which is not possible without a significant revenue stream and private investment into the building and the business.

As we will demonstrate with our grant assistance submittals to the LRC and the HPC, the redevelopment of this site and the renovation and adaptive reuse of this unique historic structure will not be possible without significant public assistance. Such assistance will be an investment together with a private venture for economic revitalization of this area, and also an investment in preserving and maintaining one of the most significant (if not the most significant) remaining structures from Louisville's early history. We look forward to accomplishing this project together with the City of Louisville, the Historic Preservation Commission and the Louisville Revitalization Commission. This one truly takes a village.

We are sensitive to possible concerns related to this proposed use at this site as they were expressed during the original PUD and SRU hearings. Parking is always a concern in downtown Louisville, and we have addressed this issue similar to the originally approved PUD and SRU. There are three commercial properties within this subdivision, which have entered into shared access, maintenance and parking agreements. As part of this development, we will be providing parking on site as required per the Downtown parking regulations, as well as providing 20 shared spaces on Lot 1 (including

BNSF leased ROW) and Lot 3 with formalized access lanes through the combined site. We are also showing potential for approximately 30 additional parking spaces in the adjacent BNSF ROW leased area that is controlled by the City of Louisville. We would like to work with the city and the LRC to provide additional parking spaces for downtown in this area, which has been leased by the city for parking. Please note that there are 6 street-parking spaces directly in front of the site on County Road and a city parking lot is about ½ block from the site.

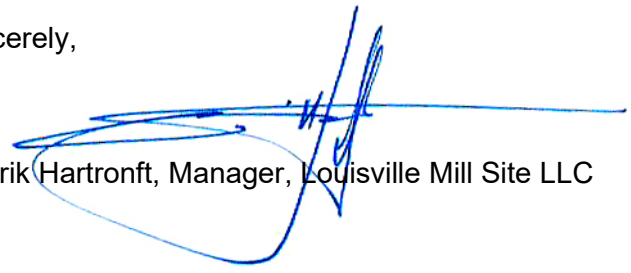
You will note that the final bid from the selected general contractor and subs is less than our estimated construction cost in September 2025 (although two other bids we received were similar to our original estimates). Please note that the contractor's bid includes the entire project construction cost, minus the Warembourg Granary relocation and rehabilitation, and the interior finish by the tenant. The grant table attachment has breakouts for the HPF-eligible scope. The contractor's bid also does not include professional and permit fees, taxes, and other owner-carried costs which are included on our detailed spreadsheet attached to the grant table.

Please note that a new construction grant request for $75,000 is attached. Resolution 17, Series 2019 provides "… for grants up to $75,000 for new commercial construction that, beyond mandatory requirements, … protects the integrity of the property and its environment by differentiating new work from the old. Qualifying new construction must limit building height to two stories …and have a floor area ratio (FAR) 20% below what is allowed by zoning."

The east addition to the historic grain elevator is a one-story structure designed to appear like a traditional boxcar moved to the siding location where trains would load and unload material from the grain elevator in the past. It is a historically sensitive interpretation of the environs of the grain elevator, and adds to the historic context, while differentiating the new construction from the historic grain elevator as an obvious addition. This development includes Lot 2 and Outlot A for the rehabilitation project for the Grain Yard development. The total lot area is 15,963sf and the total building area with the addition is 6,331sf. Therefore the FAR is .40, however no maximum FAR is specified in the LMC.

Please consider this request for the HPF grants as indicated herein. Let us know if you have any questions regarding this application.

Sincerely,



J. Erik Hartronft, Manager, Louisville Mill Site LLC

L:_MAIN_065_Proj\1252-LsvlGrainElevator\Project Admin\LRC&HPC_Grant+Loan_Applications\HPC Grant Program\26-021226-HPC_Grant_Resubmittal\Drafts\Louisville_Mill_Site-HPC_GrantApplication_Memo-021226.doc

City of Louisville,

The ownership group of The Grain Yard, LLC is excited to begin the process of working with the City to bring the grain elevator back to the community.

We are proud to be the catalyst for the Restoration, Rehabilitation, and continued Preservation of the most historic commercial building in Louisville. It is our intention to work alongside the building owner to utilize the inherent strengths of the building and honor the history of the space.

Our concept as tenants of the building is to create a community gathering space. We will be open all day, every day as a place for people to gather, talk, and learn. Beyond the casual hangout moments, we plan to host pop up events, yoga classes, business meetings, private parties and public events, like museum tours. We will utilize lots of the cool spaces inside the building and also the yard between the building and the street.

We plan to sell all sorts of beverages from coffee and tea to kombucha and mocktails to beer and cocktails. We do not plan on having a kitchen, but rather we will partner with local restaurants like Azul Fuego and Lucky Pie during their slow hours and bring in food trucks during busy times. We will need to apply for a liquor license that includes the building and the outlot. The outlot will be fenced in to create a boundary for the license, but will be minimal in design to honor the conservation easement that requires the building not be obstructed.

We will also be coming to the City for a Special Review Use for outdoor dining and live music. The live music will be limited in frequency and size, with the sound directed to the North East, away from the residential neighbors.

Finally, we intend on submitting an application for a Business Assistance Package with the City prior to signing any lease agreement with the building owners. We hope for some use tax rebates for the tenant improvements that are quite complicated in this old building and a sales tax rebate for our first few years to help us get off to a profitable beginning.

We can’t wait to work with a great team of building owners, architects, builders, City staff, boards and commissions, neighbors, and all residents to bring this idea to life and return the grain elevator to the community.

Sincerely,

Ownership Group of the The Grain Yard

City of Louisville **Historic Preservation Program**

# PRESERVATION & RESTORATION GRANT APPLICATION

## APPLICATION MATERIALS REQUIRED (submit final docs to abrackett@louisvilleco.gov)

- ☐ Application form (3 pages)
- ☐ Separate list with detailed descriptions of proposed work
- ☐ Alteration Certificate Application, if relevant (for work that alters the exterior of a property)
- ☐ Optional: Cover letter describing the proposal
- ☐ Optional: Invoices, estimates, and other cost-related materials to support request

## GENERAL INFORMATION



## FILLING OUT THE GRANT TABLE ON PAGE 2

**Column 1:** Give a title to each line item. Include the same title in your list of descriptions of the work so that it is clear which description corresponds to which estimate.

**Column 2:** Provide the total cost of the line item.

**Column 3:** Check if relevant. Work completed within the past 5 years prior to landmarking is eligible for grants.

**Total Project Cost:** Fill in the total cost of all of the line items.

**Half of Total:** Divide the total project cost in half. This becomes your Total Grant Request. Preservation & Restoration Grants are 50/50 matching grants.

**Grant requests greater than maximum allowed**: If the Total Grant Request is greater than the maximum allowed, you must submit a letter describing your request. Applications for grants above the maximum must begin with a specific meeting with staff to discuss the request above maximum.

## GRANT TABLE

| 1 | 2 | 3 |
|---|---|---|
| **Title of Line Item** | **Total Cost of Line Item** | **Check box if work will be completed prior to hearing.** |
| 3.1 Site - Final Grading, Water Service for Fire Sprinklers, Sanitary Sewer (Rehabilitation) | $322,632 | ☐ |
| 3.2 Foundations - Most work complete in previous phase. Minor repair and new footings | $87,728 | ☐ |
| 3.3 Building Structural System - Completion of the structural reinforcing and repairs for re-use | $830,207 | ☐ |
| 3.4 Exterior Wall Construction & Envelope - Addl repair/repaint ext. & add insulation for re-use | $211,326 | ☐ |
| 3.5 Envelope Roofing & Waterproofing - Porte Cochere roof plus minor G/DS reworking | $47,691 | ☐ |
| 3.6 Windows & Doors - Repair and/or replace all windows and doors for full rehabilitation | $100,276 | ☐ |
| 3.7 Interior Rehabilitation - Code, Safety, Struct. - Floor and stair repair/replace incl. charred wd. | $84,223 | ☐ |
| 3.8 Mechanical Systems & Fire Protection - New HVAC (at exstg) plus Fire Sprinklers | $620,296 | ☐ |
| 3.9 Electrical Systems - New electrical at existing building only, utility lighting only | $420,482 | ☐ |
| 4.0 Hazardous Material Mitigation - Most done previously, minor re-clean & inspection | $18,000 | ☐ |
| **Total Project Cost:** | $2,742,861 + Owner Costs = 3,513,058 | |
| **Half of total:** $1,756,529 | $1,475,000 | **← Total Grant Request** |
| If Total Grant Request is greater than the maximum allowed, you must first meet with staff as part of the application process. | | |

**The Property Owner (or Grantee) hereby agrees and acknowledges that:**

A. Funds received as a result of this application will be expended as reimbursements of up to half of actual expenses and must be completed within established timelines.

B. Awards from the Historic Preservation Fund may differ in type and amount from those requested on an application.

C. Recipients must submit their project for any required design review by the Historic Preservation Commission and acquire any required building permits before work has started.

D. All projects are subject to zoning and building code review and approval of a grant does not constitute building permit approval.

E. All work approved for grant funding must be completed even if only partially funded through this incentives program.

F. Unless the conditions of approval provide otherwise, disbursement of grant or rebate funds will occur after completion of the project and shall be accompanied by proof of payment. Reimbursements are processed as payments to the Property Owner or Grantee.

G. The incentive funds may be considered taxable income and Applicant should consult a tax professional if they have questions.

H. The grant application will be reviewed in accordance with all relevant City policy, including but not limited to the categories of eligible expenses described below.

Eligible expenses fall into one or more of the categories below. Interior improvements for protection, stabilization, or code-required work are eligible for grants. Other interior improvements are not.

- **Preservation** applies methods to sustain existing form, integrity, and materials. Approved work focuses on repairing exterior historic materials and features rather than extensive replacement and new construction.
- **Rehabilitation** facilitates new uses and standards for a building through repair, alterations, and additions that preserve those portions or features that convey its historical, cultural, or architectural significance. Rehabilitation acknowledges the need to alter or add to a historic property while retaining the property's historic character. Upgrading mechanical, electrical, and plumbing systems and other code-related work may be considered rehabilitation.
- **Restoration** accurately depicts the form, features, and character of a property as it appeared at a particular period of time. Approved work focuses on exterior work and includes the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

## SIGNATURES AND DATES



02/12/26

Owner (or Grantee) Signature Date

If Grantee is not Property Owner, describe relationship to property:

---

## CITY USE ONLY – INTAKE VERIFICATION

- ☐ Table is filled out completely
- ☐ List of Line Item Descriptions is attached
- ☐ Title of Line Items matches Line Item Description Addendum
- ☐ Accompanied by Alteration Certificate, if needed
- ☐ Line items correspond to one of the 3 eligible categories (preservation, restoration, rehabilitation)
- ☑ Applicant has met with staff if grant request is above maximum allowed

# Louisville Grain Elevator - Rehabilitation
# Louisville Mill Site LLC

## BID DETAIL FORM - HISTORIC PRESERVATION SCOPE OF WORK

| | |
|---|---|
| **Bidder:** | |
| **Melton Design Build** | 2/6/2026 |
| | |
| Note - The Scope of Work listed on this Bid Detail Form is only Historic Preservation Scope that is qualified per Louisville's Historic Preservation Grant Program. No interior tenant finish work shall be included in this Scope of Work. Also, no costs related specifically to the east building addition ("Boxcar addition") shall be included in this Scope of Work. | |
| This bid detail information is supplemental to the Bidder's Schedule of Values and Lump Sum Bid which will be utilized for the Contract for Construction. Bidder shall indicate the total lump sum contract amount for each numbered section below (no breakdown is required for each of the descriptive sub-categories in each section). If allowance is included, indicate by notation above the section amount. Note - Detail/Section costs do not preclude bidder from allocating actual costs differently when on-site construction dictates such modifications within the total bid amount which shall only be modified by change order to the Contract. | |
| The Section Subtotal Costs indicated in each numbered section below shall be the total cost of the work included in the bid, including general conditions, General Contractor's fee, overhead and profit, etc. and any contingencies or allowances applicable to the section. | |
| | |
| **3.1 Site** | |
| Provide final grading around structure (incl. excavation and backfill for foundation insulation/damproofing) | 117,694 |
| Water Service - 1" Domestic, 4" Fire Service | 128,836 |
| Sanitary Sewer Service | 76,102 |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$322,632** |
| **3.2 Foundations** | |
| Granular backfill at all crawlspace areas - hand placed over vapor barrier | 13,101 |
| Sump to drain at scale pit (Incl. plumbing equip.) | 74,627 |
| Replace/Reinforce section of wood foundation wall at section 1 as indicated. | |
| Complete misc. foundation construction in areas not previously addressed in stabilization phase | |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$87,728** |
| **3.3 Building Structural System** | |
| 1st Floor: Remove abandoned stairs; re-frame floor around stair opening at section 1 and 2 - reframe for new stairs as indicated. | 103,965 |
| At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphram elevation to brace wall studs at hinge | |
| **Section 4; Bins** | |
| Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure which provides lateral bracing for the building (Incl. $30k allowance) | |
| **All Sections; Lateral Force Resisting System** | |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation. | 32,040 |
| Miscellaneous drag strut and collector elements as indicated. Will drag some force into existing bin walls in order to minimize number of new wood shear walls. See lateral connections to new east addition. | |
| **All Sections; Floor Framing and Wall Framing** | |
| Repair, re-frame, or replace % of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc. per allowance. | 279,920 |
| Sister or replace floor framing having grade limiting size knots or slope of grain (#3) VIF | |
| Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated, VIF. | |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. Review on site with structural engineer and architect. | |
| New structural steel elements for reinforcing structure | 254,395 |

# Louisville Grain Elevator - Rehabilitation
# Louisville Mill Site LLC

## BID DETAIL FORM - HISTORIC PRESERVATION SCOPE OF WORK

| | |
|---|---|
| **Reconstruct wagon ramp, porte cochere & boardwalk** | |
| Reconstruction of original Porte Cochere wall and roof to cover wagon ramp | |
| Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp. | 109,887 |
| Reconstruct wood Boardwalk along west side of building with stairs on each end. Add railings for safety where required (to be differentiated from original construction per NPS guidelines). | |
| Allowance to disassemble scales, move and reassemble Scale equip. & infill excavated scale pit at existing site, including scale platform is BOSC. (Cost not included in GC scope bid detail.) | 20,000 |
| **General** | |
| Allowance for miscellaneous structural repairs and unknown conditions | 30,000 |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$830,207** |
| **3.4 Exterior Wall Construction & Envelope** | |
| Selective repair or replacement of severely damaged wood shiplap siding (extensive at section 5 and upper north wall of section 3 completed). Addl. siding replacement as required (VIF w/Arch) Total $20k Allow. | |
| Selective repair or replacement of severely damaged wood tongue and groove siding (VIF w/Arch) | 131,562 |
| Repaint exterior of building - repainting with moderate prep required & some siding repair remains | |
| Paint new elements with primer + 2 coats (boardwalk, porte cochere, wagon ramp) | |
| Provide code compliant wall and roof/attic insulation enclosing conditioned spaces in existing bldg. | 79,764 |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$211,326** |
| **3.5 Envelope - Roofing & Waterproofing** | |
| Metal roofing, flashings gutters & downspouts -Porte Cochere only | 13,319 |
| Membrane roofing, flashing, etc. at wagon ramp over basement space | 3,897 |
| Below Grade Damproofing for entire perimeter of existing building | 6,245 |
| Reconfigure gutters as required for proper drainage, discharge to rain gardens for WQ | 24,230 |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$47,691** |
| **3.6 Windows & Doors** | |
| Restore/replace all windows | |
| Replace (7) eight lite double hung wood windows and frames to match original | |
| Replace (4) two lite double hung windows | 74,163 |
| Repair (2) fixed four lite windows (2'x2') section 5 | |
| Reconstruct existing eight lite double hung wood window (no glass - inside section 3) | |
| Restore Doors | |
| Replace 50% of the wood on the sliding doors (6'x7') | |
| Sand and refinish 4 panel wood door, refurbish hardware non-operating | |
| Replace 50% of the wood boards composing exterior doors (3'x7') | 26,113 |
| Restore/Replace Hardware | |
| Remove, wire brush and oil all hardware that remains | |
| Install hardware to match historic as closely as possible | |
| New barn door rollers and track for sliding door to match original | |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$100,276** |
| **3.7 Interior Rehabilitation (Code, Safety, and Structure)** | |
| Provide code compliant stair from first to second level and from first level to basement in similar location to existing. Remove non-compliant access ladders (ship ladders). | |
| Replace floor board subfloor - all Sections (varies from 1"x6" or 1"x8" or 1 1/2" x 10) - Allowance | 84,223 |
| Media blast wood surfaces in the building - (Tenant option BOSC - Only at peeling painted areas or similar) Treat chared wall areas to avoid dusting for safety. Not in GC costs. BOSC | |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$84,223** |

# Louisville Grain Elevator - Rehabilitation
# Louisville Mill Site LLC

## BID DETAIL FORM - HISTORIC PRESERVATION SCOPE OF WORK

| | |
|---|---|
| **3.8 Mechanical Systems and Fire Protection (includes only cost for existing building)** | |
| Provide crawlspace ventilation to mitigate moisture and potential wood deterioration and mold. | 26,724 |
| Provide fire sprinkler system in existing building to protect structure - dry system to avoid freezing | 136,226 |
| Provide fire alarm system in existing building to protect structure (required with fire sprinklers) | |
| Provide plumbing system rough-in (no interior tenant finish) in existing building only | 269,929 |
| Provide all electric heat pump system for conditioning the occupied portions of existing building | 187,417 |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$620,296** |
| **3.9 Electrical Systems (includes only cost for existing building)** | |
| Electric Main Switchgear and Service to Transformer (Xcel cost by owner) | 370,482 |
| Branch Circuts, Panels, Outlets & Lighting for existing building only (no specialty fixtures) | |
| **Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&P, etc. =** | **$370,482** |
| **Xcel Service Cost Allowance - Paid By Owner (no GC Fee/OH&P) =** | **$50,000** |
| **4.0 Hazardous Material** | |
| Follow up testing and mitigation allowance due to time of vacancy (By Owner's Separate Contractor) | |
| **Section Subtotal Allowance - By Owner's Separate Contractor (no GC Fee/OH&P) =** | **$18,000** |
| **Subtotal Construction Costs Including General Conditions & GC's Fee/OH&P** | |
| **Total General Contractor Bid Amount for this Bid Detail Form - Historic Preservation =** | **$2,742,861** |

| **Estimated Soft Costs, Fees, Taxes, & other costs By Owner (not included above) prorated for Scope:** | **By Owner (not GC)** |
|---|---|
| Owner's Construction Contingency for Hidden Conditions & Unforseen Events 10% | $274,286 |
| Building Permit & Plan Review Fees | $35,657 |
| Taxes, other fees, etc. paid at permit | $90,514 |
| Tap Fees paid at permit (not included in Grant Request) | |
| Builder's Risk Insurance - Carried by Owner | $76,800 |
| Engineering Fees subsequent to initial stabilization - This Scope % only | $109,714 |
| Architecture Fees subsequent to initial stabilization - This Scope % - Note 25% discount (Owner/Architect) | $174,857 |
| (3.2.1) Geotechnical Engineering Fees & Construction Phase Material Testing | $5,368 |
| (3.3.9) Wood Scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete - Allowance | $1,000 |
| (3.3.17) Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive re-use - Allowance | $2,000 |
| Planning/Architectural Fees for PUD/SRU @25% discount (Not included in Grant Request) | |
| Owner's Representative / Project Manager (Not included in Grant Request) | |
| Note - Other Public Approval & Grant processing costs, legal & accounting (Not included in Grant Request) | |
| ***Estimated - Direct Project Soft Costs*** | **$770,197** |

| | |
|---|---|
| **Total Qualifying Project Costs - (Not Including Stabilization Previously Completed)** | |
| **Total GC Bid Amount plus Soft Costs for this Bid Detail Form - Historic Preservation =** | **$3,513,058** |
| **Half of Total GC Bid Amount plus Soft Costs for this Bid Detail Form - Historic Preservation =** | **$1,756,529** |
| **Total HPF Preservation Grant Request - Historic Preservation =** | **$1,475,000** |
| Note - The sums on this form are not additive to the LRC Grant form as categories are duplicated. | |

City of Louisville **Historic Preservation Program**

# PRESERVATION & RESTORATION GRANT APPLICATION

## APPLICATION MATERIALS REQUIRED (submit final docs to abrackett@louisvilleco.gov)

- ☐ Application form (3 pages)
- ☐ Separate list with detailed descriptions of proposed work
- ☐ Alteration Certificate Application, if relevant (for work that alters the exterior of a property)
- ☐ Optional: Cover letter describing the proposal
- ☐ Optional: Invoices, estimates, and other cost-related materials to support request



## FILLING OUT THE GRANT TABLE ON PAGE 2

**Column 1:** Give a title to each line item. Include the same title in your list of descriptions of the work so that it is clear which description corresponds to which estimate.

**Column 2:** Provide the total cost of the line item.

**Column 3:** Check if relevant. Work completed within the past 5 years prior to landmarking is eligible for grants.

**Total Project Cost:** Fill in the total cost of all of the line items.

**Half of Total:** Divide the total project cost in half. This becomes your Total Grant Request. Preservation & Restoration Grants are 50/50 matching grants.

**Grant requests greater than maximum allowed**: If the Total Grant Request is greater than the maximum allowed, you must submit a letter describing your request. Applications for grants above the maximum must begin with a specific meeting with staff to discuss the request above maximum.

## GRANT TABLE

| 1 | 2 | 3 |
|---|---|---|
| **Title of Line Item** | **Total Cost of Line Item** | **Check box if work will be completed prior to hearing.** |
| All construction work related to the east addition to the grain elevator, similar to a train boxcar. | $838,662 | ☐ |
| | | ☐ |
| | | ☐ |
| | | ☐ |
| | | ☐ |
| | | ☐ |
| | | ☐ |
| | | ☐ |
| | | ☐ |
| Owner Costs, including contingency, permit and professional fees, taxes, & insurance | $232,960 | ☐ |
| **Total Project Cost:** | $1,071,622 | |
| ~~**Half of total**~~**:** | $75,000 | **← Total Grant Request** |
| If Total Grant Request is greater than the maximum allowed, you must first meet with staff as part of the application process. | | |

**The Property Owner (or Grantee) hereby agrees and acknowledges that:**

A. Funds received as a result of this application will be expended as reimbursements of up to half of actual expenses and must be completed within established timelines.

B. Awards from the Historic Preservation Fund may differ in type and amount from those requested on an application.

C. Recipients must submit their project for any required design review by the Historic Preservation Commission and acquire any required building permits before work has started.

D. All projects are subject to zoning and building code review and approval of a grant does not constitute building permit approval.

E. All work approved for grant funding must be completed even if only partially funded through this incentives program.

F. Unless the conditions of approval provide otherwise, disbursement of grant or rebate funds will occur after completion of the project and shall be accompanied by proof of payment. Reimbursements are processed as payments to the Property Owner or Grantee.

G. The incentive funds may be considered taxable income and Applicant should consult a tax professional if they have questions.

H. The grant application will be reviewed in accordance with all relevant City policy, including but not limited to the categories of eligible expenses described below.

Eligible expenses fall into one or more of the categories below. Interior improvements for protection, stabilization, or code-required work are eligible for grants. Other interior improvements are not.

- **Preservation** applies methods to sustain existing form, integrity, and materials. Approved work focuses on repairing exterior historic materials and features rather than extensive replacement and new construction.
- **Rehabilitation** facilitates new uses and standards for a building through repair, alterations, and additions that preserve those portions or features that convey its historical, cultural, or architectural significance. Rehabilitation acknowledges the need to alter or add to a historic property while retaining the property's historic character. Upgrading mechanical, electrical, and plumbing systems and other code-related work may be considered rehabilitation.
- **Restoration** accurately depicts the form, features, and character of a property as it appeared at a particular period of time. Approved work focuses on exterior work and includes the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

## SIGNATURES AND DATES

02/12/26

Owner (or Grantee) Signature Date

If Grantee is not Property Owner, describe relationship to property:

---

## CITY USE ONLY – INTAKE VERIFICATION

- ☐ Table is filled out completely
- ☐ List of Line Item Descriptions is attached
- ☐ Title of Line Items matches Line Item Description Addendum
- ☐ Accompanied by Alteration Certificate, if needed
- ☐ Line items correspond to one of the 3 eligible categories (preservation, restoration, rehabilitation)
- ☑ Applicant has met with staff if grant request is above maximum allowed

MELTON DESIGN BUILD

# The Grain Yard
# 540 County Rd., Louisville, CO 80027
# Pre-Construction Consultant/Estimator: Andrew Breen
# Architecture by Hartronft Associates

| Description | Combined Total | Summarized Totals |
|---|---|---|
| **By Ownership - Excluded in Estimate** | | |
| GeoTech/Arch Design/Engineering | $0 | |
| Tap fees, Permits, Plan Review and Use tax Fees | $0 | |
| Development fees, Dry and Wet Utility Company fees | $0 | |
| Excludes abatement of hazardous materials | $0 | |
| 3rd party inspection expenses (GC too cordinate inspections) | $0 | |
| All call out notes that mention (BOSC) | $0 | |
| **DIVISION 1 - GENERAL CONDITIONS** | | **$373,760** |
| **General Conditions** | | |
| Project Management | $91,200 | |
| Project Engineer/Coordinator | $35,200 | |
| Superintendent | $163,200 | |
| General Labor | $28,000 | |
| Accounting | $12,100 | |
| Toilets | $13,160 | |
| Dumpsters | $2,250 | |
| Jobsite security fence | $15,400 | |
| Job Trailer (We plan to office inside the building) | $0 | |
| Office Supplies, printing, software | $3,850 | |
| Final Clean | $9,400 | |
| **Weather Conditions** | | |
| BID Allowance #1 - Weather Conditions | $40,000 | **$40,000** |
| **DIVISION 2 - SITE WORK** | | **$412,596** |
| **Irrigation/Landscaping** | | |
| Contractor to install all sleeving for the Irrigation per sheet IR100 | $2,650 | |
| Irrigation system and Landscaping (BOSC) | | |
| **Site Work & Utilities** | | |
| Site Demolition | $11,230 | |
| Erosion Control | $2,848 | |
| Excavation/Export/Import/backfill/Compaction | $122,049 | |
| New Utilities | $222,394 | |
| Surveying | $19,500 | |
| **Asphalt Paving** | | |
| Asphalt Paving | $31,925 | |
| **DIVISION 3 - CONCRETE** | | **$157,355** |
| Footings, Foundation walls and Slab | $62,566 | |
| Site concerete | $94,789 | |

| | | |
|---|---|---|
| **DIVISION 4 - MASONRY** | | **$0** |
| N/A | $0 | |
| | | |
| **DIVISION 5 - STEEL** | | **$251,800** |
| Steel columns/Beams/stairs/handrails/Architectural metals | $251,800 | |
| Custom barn door (Frame is included in number above) | $0 | |
| | | |
| **DIVISION 6 - WOODS** | | **$ 388,602** |
| **Rough Framing** | | |
| BID Allowance #2 - Existing siding repair/replacement | $20,000 | |
| BID Allowance #3 - Wood stud, floor joist & subfloor repair | $15,000 | |
| BID Allowance #4 - Bin floor & Wall Repair | $30,000 | |
| Rough framing material | $133,890 | |
| Rough framing Labor | $137,172 | |
| South Deck (material) - Provide decking material | $9,695 | |
| South Deck (labor) - Labor to install decking material | $8,320 | |
| Window installation | $3,375 | |
| Jobsite cleaning | $7,650 | |
| Dumpsters/Recycling | $7,500 | |
| Rental equipment | $16,000 | |
| **Millwork** | | |
| All millwork and finishes are (BOSC) | $0 | |
| | | |
| **DIVISION 7 - THERMAL PROTECTION** | | **$157,012** |
| **Damproof/Waterproofing** | | |
| Damproof/Waterproofing | $3,210 | |
| Gravel on Vapor barrier | $4,900 | |
| Exterior Site caulking | $2,450 | |
| **Insulation** | | |
| Wall, ceiling, rigid insulation & vapor barrier | $67,500 | |
| | | |
| **Roofing** | | |
| Membrane roofing, standing seam & Corten panels | $60,312 | |
| Gutters/Downspouts | $18,640 | |
| | | |
| **DIVISION 8 - DOORS & WINDOWS** | | **$131,030** |
| **Doors** | | |
| Doors/Frames (Material fabricated and delivered) | $41,474 | |
| Door Frame/slab and hardware install | $3,135 | |
| Rolling doors 105A & 105C (Refurbish and replace hardware) | $3,800 | |
| Storefront Doors/frames | $14,397 | |
| **Windows** | | |
| Operable windows & sliding doors - Material | $53,263 | |
| Install - (Included in framers number) | $0 | |
| **Skylights** | | |
| (4) new Skylights & wagon ramp skylight/walkable | $14,961 | |
| | | |
| **DIVISION 9 - FINISHES** | | **$126,566** |
| **Drywall & Paint** | | |
| Drywall & Cement board (restrooms) | $6,712 | |
| Drywall - boxcar walls/ floor insulation assembly/Drywall where spray foam | $25,102 | |
| Corten Wall panels (restrooms) | $5,338 | |
| Painting and coating | $47,065 | |
| Lead Abatement contingency | $15,000 | |
| **Flooring** | | |

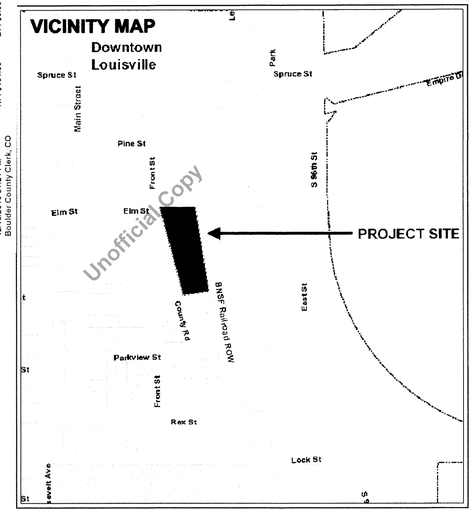
| | | |
|---|---|---|
| Sealed concrete (basement & boxcar) | $6,320 | |
| Floor and wall tile in restrooms | $18,104 | |
| Carpet walk off tile and rubber base | $2,925 | |
| | | |
| **DIVISION 10 - SPECIALTIES/ACCESSORIES** | | **$26,496** |
| **Specialties** | | |
| Code signage | $3,500 | |
| FRP | $2,451 | |
| Bathroom accessories | $19,595 | |
| Knoxbox | $950 | |
| | | |
| **DIVISION 11 - EQUIPMENT** | | **$0** |
| Any kitchen equipment, appliances and bar/tap equipment is (By Owner) | $0 | |
| | | |
| **DIVISION 12 - FURNISHINGS** | | **$0** |
| N/A | $0 | |
| | | |
| **DIVISION 13 - SPECIAL EQUIPMENT** | | **$1** |
| N/A | $1 | |
| | | |
| **DIVISION 14 - ELEVATORS** | | **$65,818** |
| New Lift for Kegs | $65,818 | |
| Optional enclosure & gate package - Excluded | $0 | |
| | | |
| **DIVISION 15 - MECHANICAL** | | **$575,708** |
| **Fire Supression** | | |
| Fire Supression (dry system) | $96,208 | |
| | $0 | |
| **Plumbing** | | |
| Plumbing Building | $295,000 | |
| **HVAC** | | |
| Unit heaters, new RTU's, ventilation | $184,500 | |
| | | |
| **DIVISION 16 - ELECTRICAL** | | **$490,558** |
| **Electrical** | | |
| New panels, switchgear, power, occupancy sensors & light fixtures | $469,462 | |
| Fire Alarm | $21,096 | |
| Low Voltage (Conduit runs only) | $0 | |
| | | |
| Subtotal | $3,197,302 | **$3,197,302** |
| | | |
| Subtotal | $3,197,302 | **$3,197,302** |
| **(FEE) - General Liability / Overhead / Profit** | $239,798 | **$239,798** |
| **Estimated Permit Fees (By Owner)** | $0 | **$0** |
| **General Contractor - Contingency** | **$159,865** | **$159,865** |
| **General Conditions - Contingency due to weather delay notices** | **$31,000** | **$31,000** |
| **(In the event of overrun on CPM schedule)** | | |
| **Estimate Total:** | **$3,627,965** | **$3,627,965** |

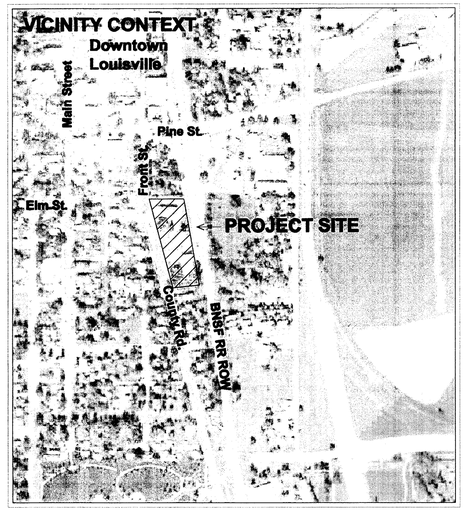
***Please note all Change orders will be marked up at 10% OH&P**

Page: 1 of 10
DF: $0.00
RF: $101.00
20153240 01/13/2015 01:13 PM
Boulder County Clerk, CO

# FINAL P.U.D.
# LOUISVILLE MILL SITE REDEVELOPMENT
## 500, 540, 544 County Road
## LOUISVILLE MILL SITE SUBDIVISION

**LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO**




* Note: Prior to closing date, property for 540/544 County Rd. Owner is City of Louisville, 749 Main Street, Louisville, CO 80027. Louisville Mill Site LLC has a contract with the property owner to purchase the property and has an agreement to renovate the buildings on site. 'Owner' as referenced herein for 540/544 County Rd. shall refer to Louisville Mill Site LLC. See related agreements for additional information and responsibilities.

## SIGNATURES

**OWNERSHIP SIGNATURE BLOCK**

By signing this PUD, the owner acknowledges and accepts all the requirements and intent set forth in this PUD. Witness my/our hand(s) seal(s) this ___ day of _____, 20___.

J. Erik Hartronft, Member
Louisville Mill Site, LLC
Owner Name and Signature

Randall C. Caranci, Member
Louisville Mill Site, LLC
Owner Name and Signature

Randall C. Caranci
RCC Ltd.
Owner Name and Signature

_____ (Notary Seal)
Notary Name (print)

_____
Notary Signature

My Commission Expires _____

**PLANNING COMMISSION CERTIFICATE**

Approved this 9th day of APRIL, 2015 by the Planning Commission of the City of Louisville, Colorado.
Resolution No. 14, Series 2015

**CLERK AND RECORDER CERTIFICATE**
**(COUNTY OF BOULDER, STATE OF COLORADO)**

I hereby certify that this instrument was filed in my office at 1:21 o'clock, P. M., this 13 day of December, 2016, and is recorded in Plan File _____, Fee $101.00 paid. — Film No. 03563038 Reception.

Hillary Hall
Clerk & Recorder

Jessica Martinez
Deputy

**CITY COUNCIL CERTIFICATE**

Approved this 9th day of May, 2015 by the City Council of the City of Louisville, Colorado.
Resolution No. 29, Series 2015

(City Seal)

Mayor Signature

City Clerk Signature

## SHEET INDEX

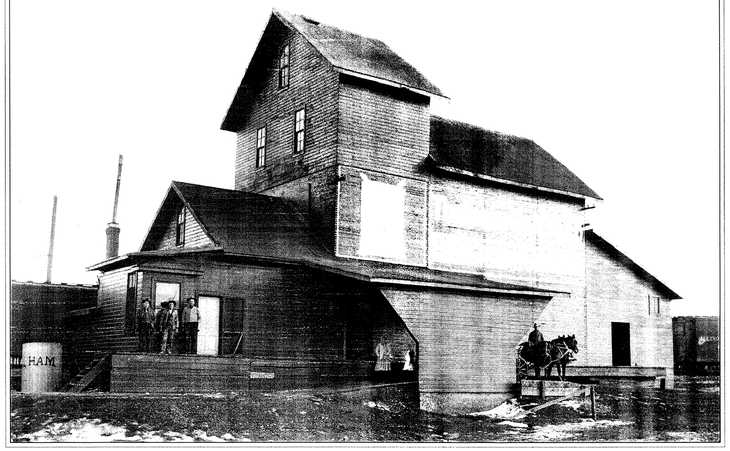

| SHEET | DESCRIPTION |
|---|---|
| ARCHITECTURAL | |
| A1 | Cover Sheet, Project Data & Renderings |
| A2 | Site Plan |
| A3 | Landscape & Parking Plan, Alt Parking Plan |
| A4 | Plans |
| A5 | Building Elevations |
| A6 | Site Photometric |
| SURVEY | |
| 1 | ALTA/ACSM Land Title Survey |
| CIVIL | |
| C1.0 | Drainage Plan |
| C2.0 | Utility Plan |
| EX-1 | Autoturn Firetruck Exhibit |
| EX-2 | Autoturn Firetruck Exhibit |


## PROJECT DIRECTORY

| | |
|---|---|
| OWNER | Louisville Mill Site LLC *<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft<br>303-673-9304 |
| ARCHITECT/PLANNER | Hartronft Associates, p.c.<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft, AIA<br>303-673-9304 |
| CIVIL ENGINEER | JVA, Incorporated<br>1319 Spuce Street<br>Boulder, Colorado 80302<br>Contact: Darren Stewart<br>303-444-1951 |

## HISTORIC VIEW OF GRAIN ELEVATOR FROM THE NORTHWEST

Carnegie Branch Library for Local History / Boulder Historical Society Collection




## VIEW OF PROPOSED MILL SITE BUILDING AND HISTORIC GRAIN ELEVATOR FROM THE SOUTHWEST




## Louisville Mill Site - Use and Zoning Information

Final PUD and Plat - 11/6/14 (rev. 3/13/15)

**Project Description:**

The Louisville Mill Site Redevelopment project will combine two adjacent properties, and subdivide the combined land area into 3 building lots and one outlot for common use. The northern property currently contains the historic Louisville Grain Elevator building which will be landmarked and rehabilitated for commercial use with minor additions, and a 3,360sf commercial building, and small shed which will be both be removed. The southern property currently contains a commercial structure, formerly used as a warehouse, now home to a fitness-related business. An addition is planned for this building. The proposed uses for all buildings on the property is commercial, with retail, restaurant/bar, and similar allowable uses on the ground level, with offices anticipated on upper levels. There is a potential for some public or private museum space in the grain elevator structure.

**Building Bulk and Density Standards:**

| Required Setbacks: | | Proposed Setbacks: |
|---|---|---|
| Front | 5'-25' | 5' minimum |
| Rear | 20' | Variance requested - see plan |
| Side (internal) | 5' | 10' minimum |

| Allowable Height: | Proposed Height: |
|---|---|
| 2 story - 35' * | 3 story - 36.5' * |

* 35' from Main Level FFE to flat roof with allowance for rooftop screening
Due to floodplain grading requirements, building height from average Main Level FFE to flat roof is 36.5' with tower and roof screening to 41.5'

**Addresses and Legal Descriptions:**

See Plat and Survey for Legal Descriptions

| | | Caranci Lot 1 | Grain Lot 2 | Green Outlot A | Mill Site Lot 3 |
|---|---|---|---|---|---|
| Address | - County Road | 500 | 540 | - | 544 |

## Louisville Mill Site - Plat Areas & PUD Yield Per Lot Including Parking

Final PUD and Plat - 11/6/14 (rev. 3/13/15)

**Existing Property Areas:**

| | | | |
|---|---|---|---|
| Existing Mill Site Land Area | 46,546 | sf +/- | 69.18% |
| Existing Caranci Property Land Area | 20,735 | sf +/- | 30.82% |
| Total Plat Area | 67,281 | sf +/- | 100.00% |
| RR ROW Lease Area 1 (Caranci) | 5,298 | sf +/- | -existing |
| RR ROW Lease Area 2 (Proposed-Mill Site) | 3,576 | sf +/- | -future |
| Total Plat Area plus RR ROW | 76,155 | sf +/- | |

**Proposed Plat Areas:**

| | | | |
|---|---|---|---|
| Lot 1 - Caranci | 25,190 | sf | 37.44% |
| Lot 2 - Grain Elevator | 9,122 | sf | 13.56% |
| Outlot A - Mill Site Green | 6,841 | sf | 10.17% |
| Combined Lot 2 + Outlot | 15,963 | | |
| Lot 3 - Mill Site Building | 26,128 | sf | 38.83% |
| Total Plat Area | 67,281 | sf | 100.00% |

Public Land Dedication: Public Land Dedication waiver was requested and approved as a condition of the purchase agreement between Louisville Mill Site LLC and the City of Louisville. Refer to the Purchase and Sale Agreement, Article 9, Paragraph 9.15 'Public Use Dedication Waived' which applies to all land in the Subdivision.

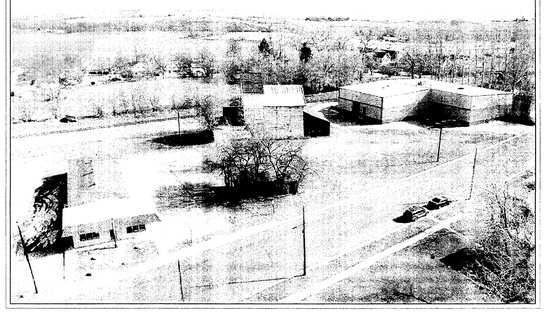
**PUD Yield From Redevelopment**

| | | Caranci Lot 1 | Grain Lot 2 | Green Outlot A | Mill Site Lot 3 | Total |
|---|---|---|---|---|---|---|
| Lot Area | | 25,190 | 9,122 | 6,841 | 26,128 | 67,281 |
| Additional RR ROW Area | | 5,298 | | | 3,576 | 8,874 |
| | | | | | proposed | |
| Existing Building Area* | | 10,000 | 4,094 | | 3,360 | 17,454 |
| Additional Building Area / Lot | | 6,500 | 1,500 | | 15,640 | |
| Total Proposed Usable Building Area | | 16,500 | 3,560 | 0 | 19,000 | 39,060 |
| Bldg Area Percentage of total | | 42.24% | 9.11% | | 48.64% | 100.00% |
| Total Unconditioned in Grain Elev. | | | 2,034 | +/- | | |
| Net Area (-1ksf -util, circ, kit, etc) | 0.9 | 13,950 | 1,404 | | 17,100 | 32,454 |
| Parking Required | @ 1sp per 500 | 28 | 3 | | 34 | 65 |
| Parking Proposed | | | | | | |
| On Site | | 19 | 3 | 0 | 34 | 56 |
| Existing RR ROW | | 9 | | | | 9 |
| Potential addl on-site spaces** | | | | | 9 | 5 | 14 |
| Potential addl RR ROW*** | | | | 12 shared/common | | 12 |

Notes:
* Existing bldg. area of Grain Elevator not all usable/not all counted "proposed usable"
* Existing Lot 3 Commercial (former Napa) to be removed, total is all new construction
** 9 net spaces if green space replaced by parking, 5 potential spaces tuck under bldg
*** Dependent upon successful negotiation with BNSF for extended lease area

A shared parking/access/maintenance agreement shall be executed by all Mill Site Subdivision property owners and recorded concurrently with the Final PUD and Plat.

## AERIAL VIEW OF MILL SITE - EXISTING CONDITIONS



## VIEW OF LOT 1 BUILDING AND GRAIN ELEVATOR FROM THE NORTHWEST



HARTRONFT ASSOCIATES
A Professional Corporation
*Planning Architecture Interior Design*
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO
JOE GRIX
HARTRONFT
8-2236
12-5-14
REGISTERED ARCHITECT

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/06/15

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COVER SHEET
PROJECT DATA
RENDERINGS
SIGNATURES

Sheet
A1
1 of 9 Sheets

Boulder County, CO 03563038 2 of 10

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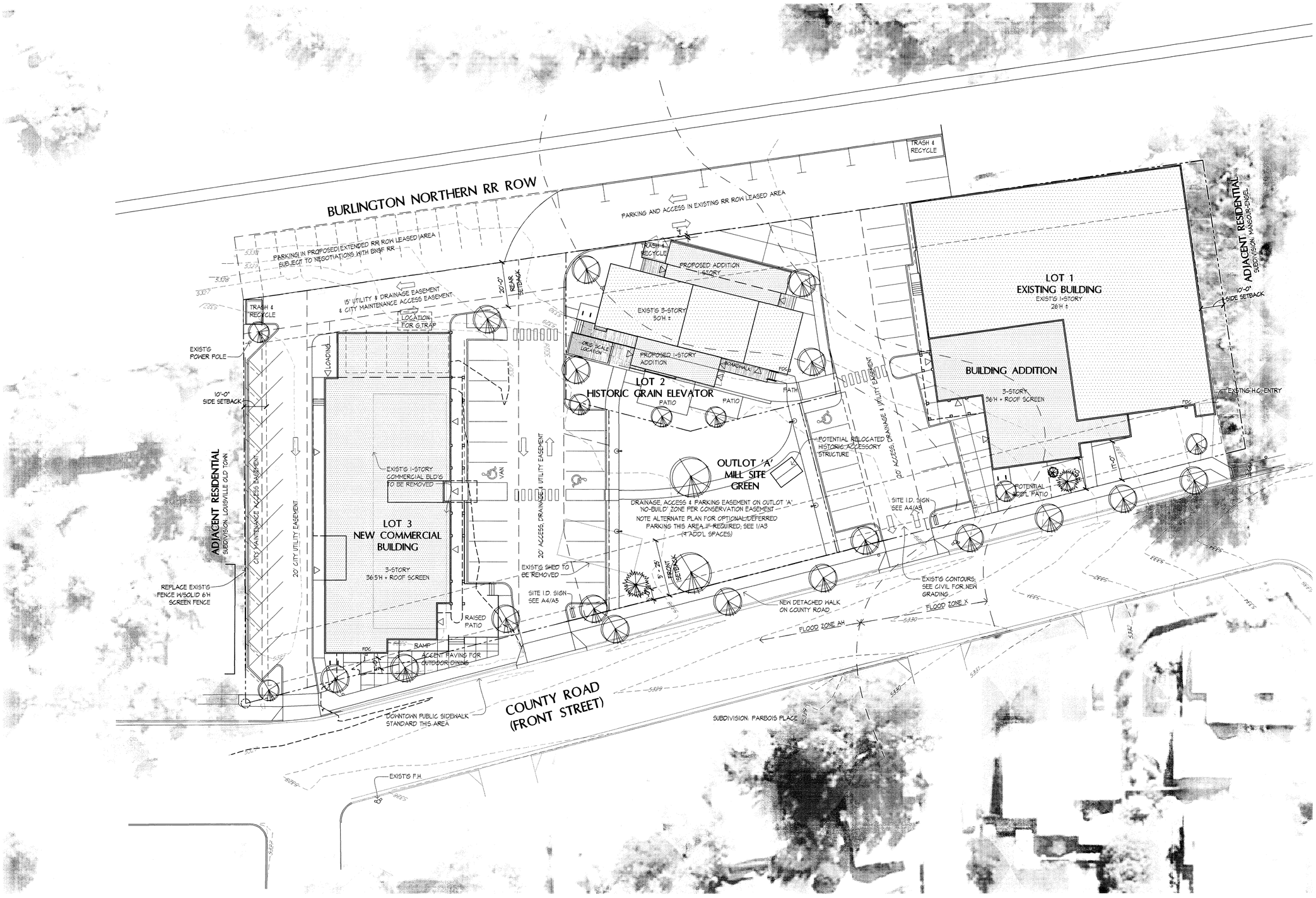


1/A2 ARCHITECTURAL SITE PLAN

1" = 20'

NORTH

0 5 10 25 50 100 FEET

HARTRONFT ASSOCIATES
A Professional Corporation

*Planning*
*Architecture*
*Interior Design*

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Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO
JEAN EDWARD HARTRONFT
PE-29318
12-5-14
LICENSED ARCHITECT

**PROJECT #** 1252.10
**DATE:** 04/03/14
**DRAWN BY:** HAPC
**CHECKED BY:** JEH
**REVISIONS:**
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/06/15

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**SITE PLAN**

Sheet
**A2**
2 of 9 Sheets

Boulder County, CO 03563038 3 of 10
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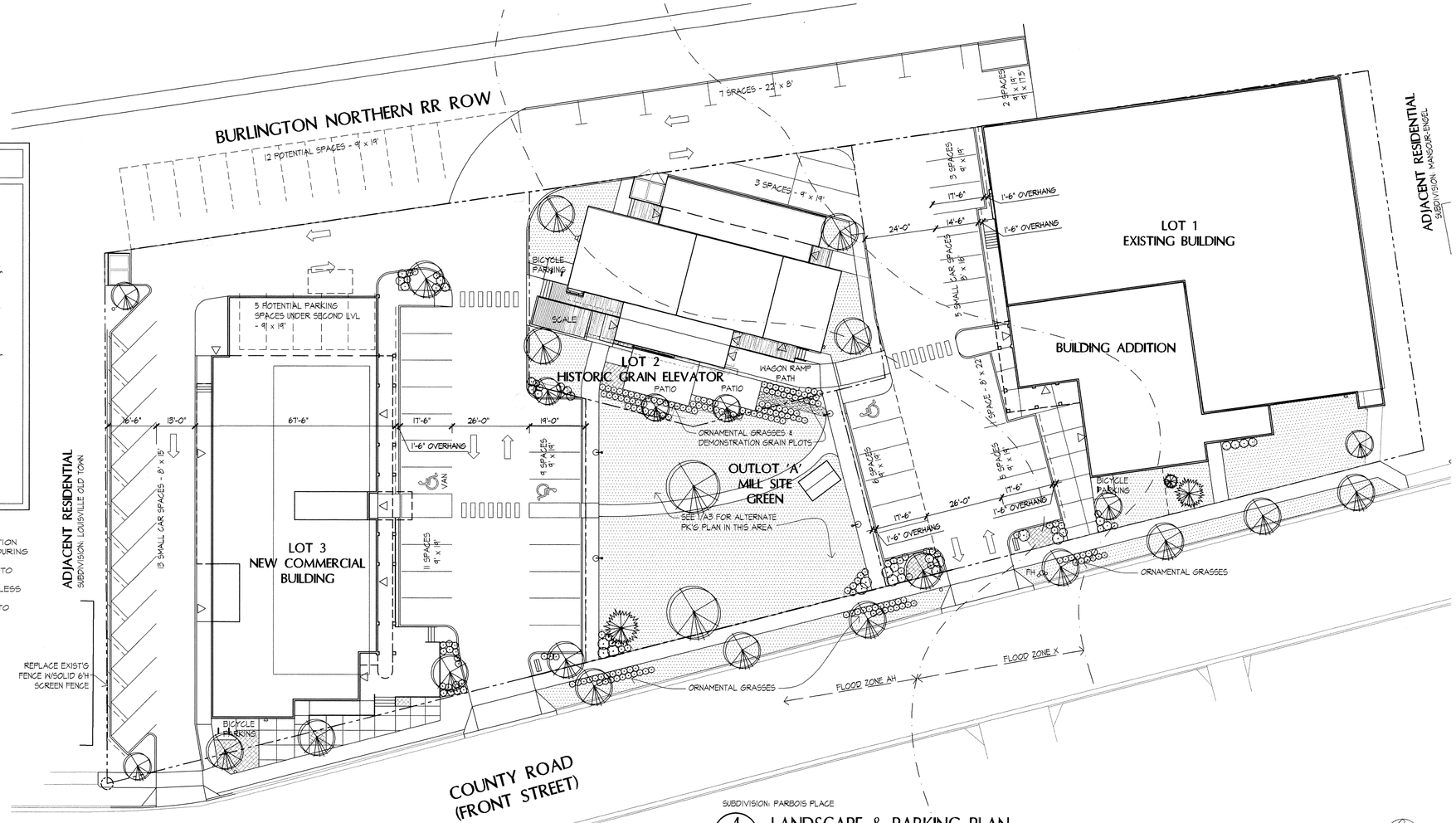
## LANDSCAPE LEGEND

- Planting bed - perrentials/ annuals
- Sod/Turf areas - 90% fescue/ 10% bluegrass
- Ornamental Grasses
- Coniferous Shrub 5 GAL.
- Deciduous Shrub 5 GAL.
- 2" - 3" Caliper Deciduous Tree
- Deciduous Tree 1-1/2" - 2" Caliper
- Coniferous Tree Min. 6 Ft.
- Existing Coniferous Tree over 10" Caliper
- Existing Coniferous Tree 2" - 8" Caliper
- Existing Deciduous Tree over 10" Caliper
- Existing Deciduous Tree 6" - 10" Caliper
- Existing Deciduous Tree 3" - 6" Caliper
- Existing Deciduous Tree 1" - 3" Caliper
- Existing Shrub

NOTES:

1. APPLICANT TO PROVIDE DETAILED LANDSCAPE & IRRIGATION DRAWINGS TO PUBLIC WORKS FOR REVIEW & APPROVAL DURING THE CIVIL PLAN REVIEW
2. PARKWAY TREES SHALL BE PLANTED NO CLOSER THAN 5' TO CURB OR WALK.
3. THE USE OF ROOT BARRIER IS REQUIRED FOR ALL TREES LESS THAN 5' FROM CURB OR WALK.
4. THE PARKWAY IRRIGATION SYSTEM SHALL NOT SPRAY ONTO PAVED SERVICES



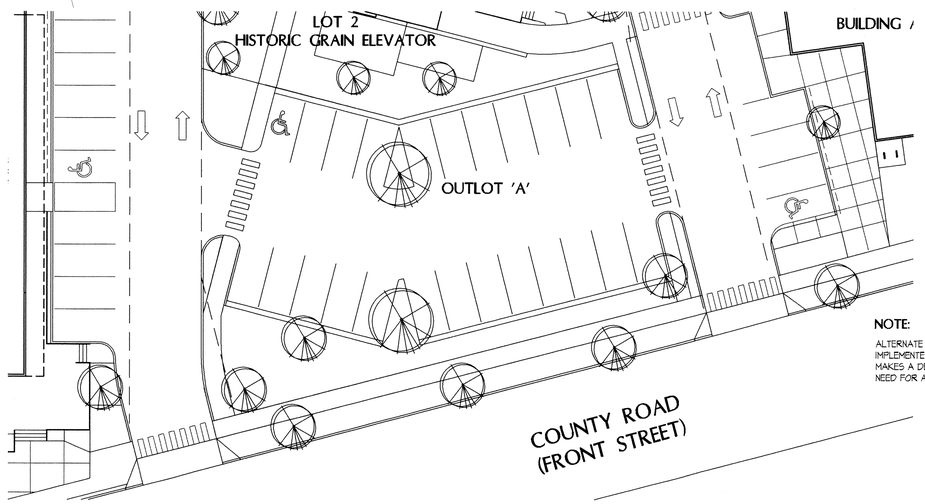

SUBDIVISION: PARBOIS PLACE

4 / A3 LANDSCAPE & PARKING PLAN

1" = 20'

0 1 5 10 25 50 100 FEET

NORTH




**NOTE:**

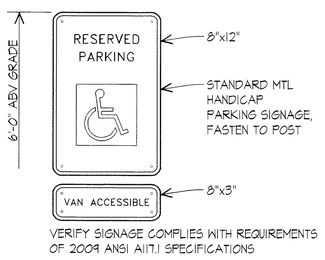
ALTERNATE PARKING PLAN SHALL ONLY BE IMPLEMENTED BY THE OWNER IF THE CITY MAKES A DETERMINATION THAT THERE IS A NEED FOR ADDITIONAL PARKING ON SITE.

1 / A3 ALTERNATE PARKING PLAN

1" = 20'

0 1 5 10 25 50 100 FEET

NORTH



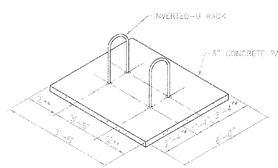

VERIFY SIGNAGE COMPLIES WITH REQUIREMENTS OF 2009 ANSI A117.1 SPECIFICATIONS

3 / A3 H.C. PK'G SIGN DETAIL

N.T.S.

NOTES:

EXPOSED CONCRETE SURFACE TO BE BROOM FINISHED. PAD SIZE MAY VARY AS DIRECTED BY THE ENGINEER. PAD IS TO BE CONSTRUCTED WITH CLASS B CONCRETE. EXCAVATION AND/OR EMBANKMENT REQUIRED FOR PAD CONSTRUCTION WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAD. CONCRETE SHALL BE SLOPED AT 2% TO DRAIN.




* 3'-4" MINIMUM WHEN INSTALLED PERPENDICULAR TO A WALL OR CURB.

** 3' MINIMUM WHEN INSTALLED PARALLEL TO A WALL OR CURB. 2' MINIMUM SEPARATION FROM CURB FACE WHEN INSTALLED ADJACENT TO A CURB WITH "HEAD-IN" AUTOMOBILE PARKING.

*** 10' MINIMUM IF MORE THAN TWO "U" RACKS IN A SERIES.

2 / A3 U-RACK DETAIL @BICYCLE PK'G

N.T.S.

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# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO — REGISTERED — HARTRONFT — 12-5-14

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/08/15

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LANDSCAPE & PARKING PLAN
ALT PARKING PLAN

Sheet
**A3**
3 of 9 Sheets

Boulder County, CO 03563038 4 of 10

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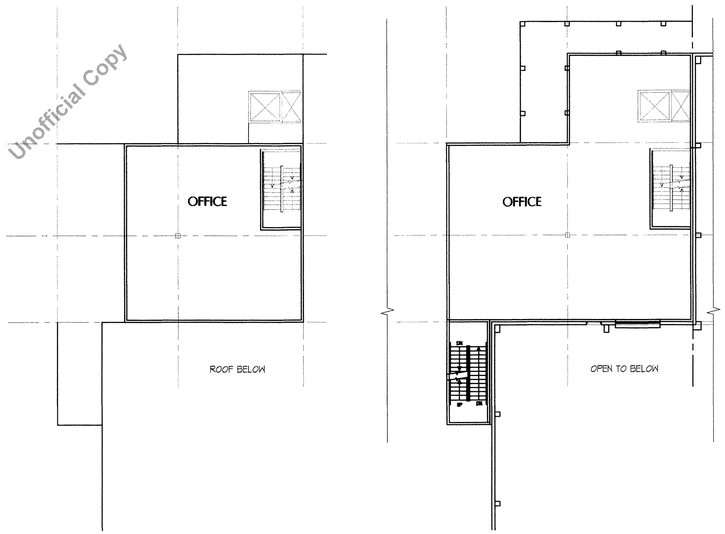
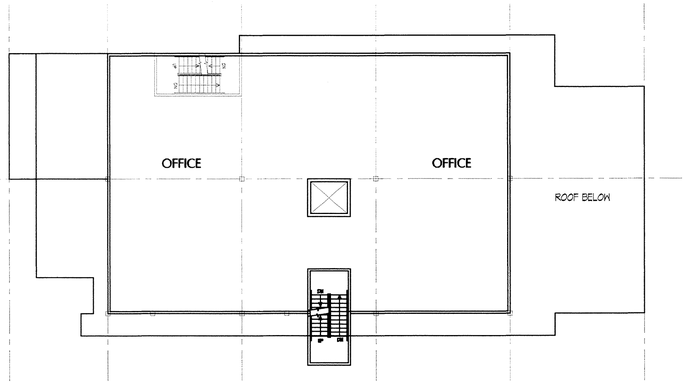
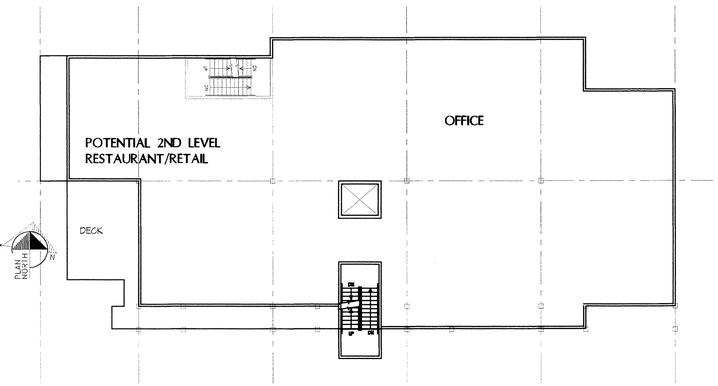



C4/A4 FLOOR PLAN – THIRD LEVEL
SCALE: 1/16" = 1'-0"

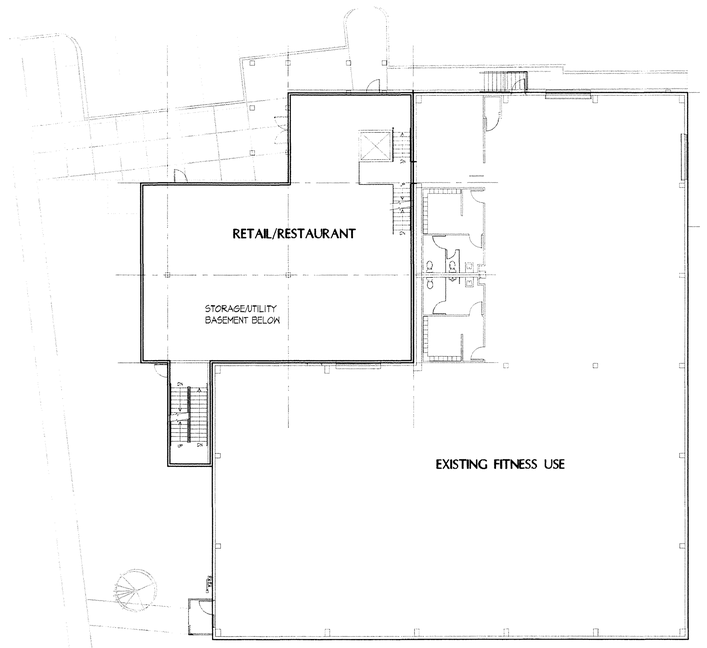
C3/A4 FLOOR PLAN – SECOND LVL
SCALE: 1/16" = 1'-0"




C2/A4 FLOOR PLAN – THIRD LEVEL
SCALE: 1/16" = 1'-0"

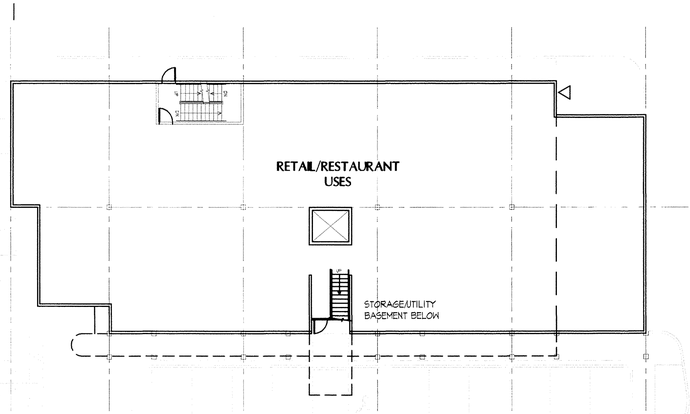



B2/A4 FLOOR PLAN – SECOND LEVEL
SCALE: 1/16" = 1'-0"



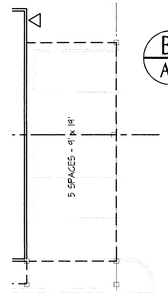

A4/A4 FLOOR PLAN – MAIN LEVEL
SCALE: 1/16" = 1'-0"

**LOT 1 - CARANCI BUILDING**




A2/A4 FLOOR PLAN – MAIN LEVEL
SCALE: 1/16" = 1'-0"

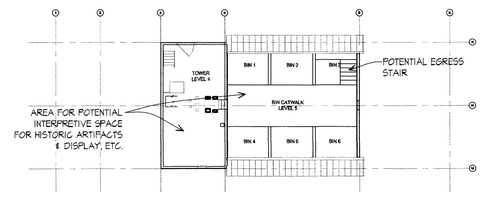
**LOT 3 - MILL SITE BUILDING**




PLAN @PK'G

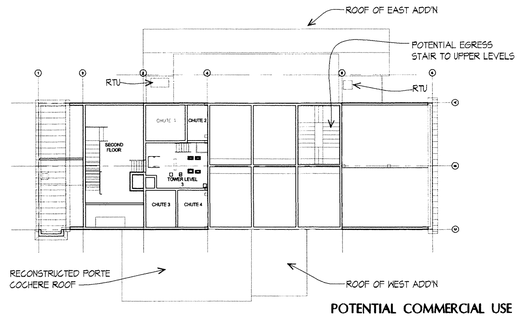
**COMMERCIAL USE NOTES:**

USE DESIGNATIONS ARE INTENDED TO DESCRIBE THE INTENDED CHARACTER OF THE SPACE TO BE CONSTRUCTED & DO NOT LIMIT ANY PERMITTED USE PER ZONING REGULATIONS OR AS OTHERWISE APPROVED, TYP.



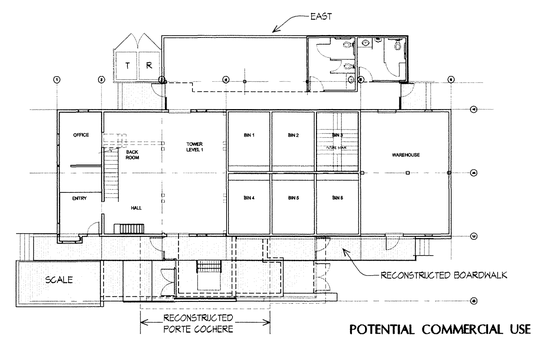

UNFINISHED

D1/A4 FLOOR PLAN – FOURTH/FIFTH LEVEL (3RD STORY)
SCALE: 1/16" = 1'-0"



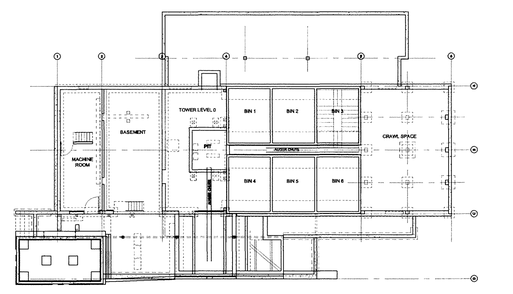

POTENTIAL COMMERCIAL USE

C1/A4 FLOOR PLAN – SECOND/THIRD LEVEL (2ND STORY)
SCALE: 1/16" = 1'-0"




POTENTIAL COMMERCIAL USE

B1/A4 FLOOR PLAN – FIRST LEVEL (1ST STORY)
SCALE: 1/16" = 1'-0"




UNFINISHED

A1/A4 FLOOR PLAN – BASEMENT/CRAWL SPACE
SCALE: 1/16" = 1'-0"

**LOT 2 - HISTORIC GRAIN ELEVATOR**

HARTRONFT ASSOCIATES
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Planning
Architecture
Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
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FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO — JAMES E. HARTRONFT — REGISTERED ARCHITECT — 12-5-16

**PROJECT # 1252.10**
**DATE:** 04/03/14
**DRAWN BY:** HAPC
**CHECKED BY:** JEH
**REVISIONS:**
PPC/PCC – 06/13/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/08/15

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PLANS

Sheet
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4 of 9 Sheets

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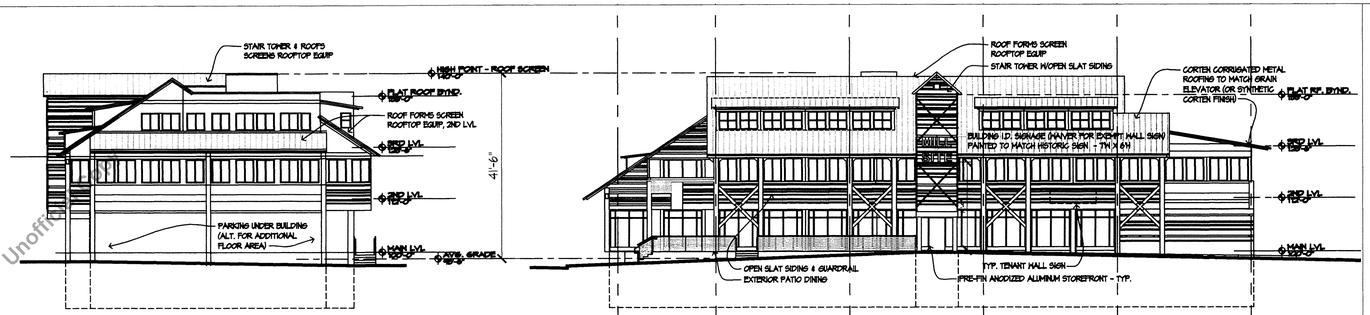
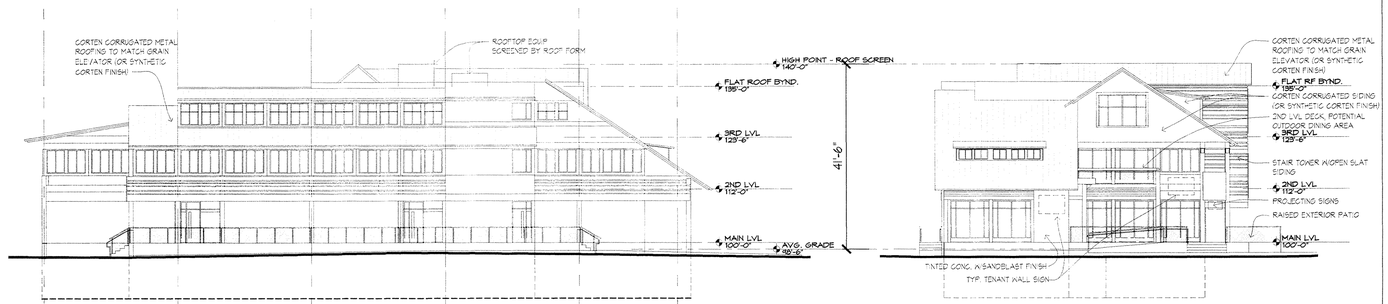



D4 A5 EAST ELEVATION
SCALE: 1/16" = 1'-0"

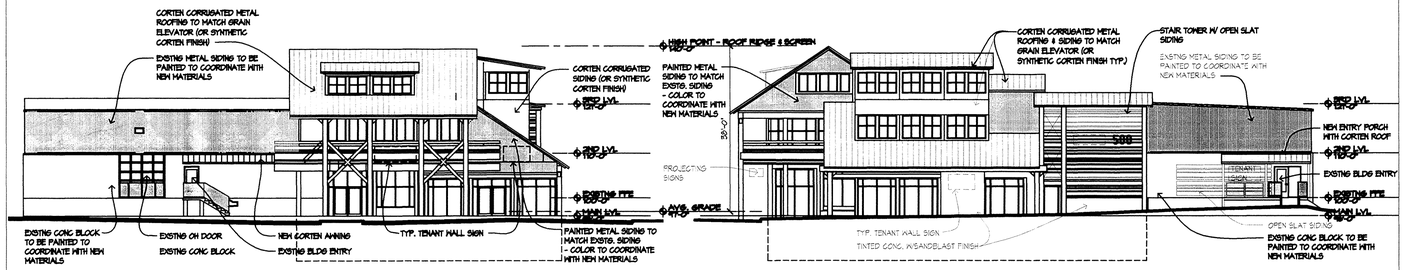
D3 A5 SOUTH ELEVATION
SCALE: 1/16" = 1'-0"




C4 A5 NORTH ELEVATION
SCALE: 1/16" = 1'-0"

C3 A5 WEST ELEVATION
SCALE: 1/16" = 1'-0"

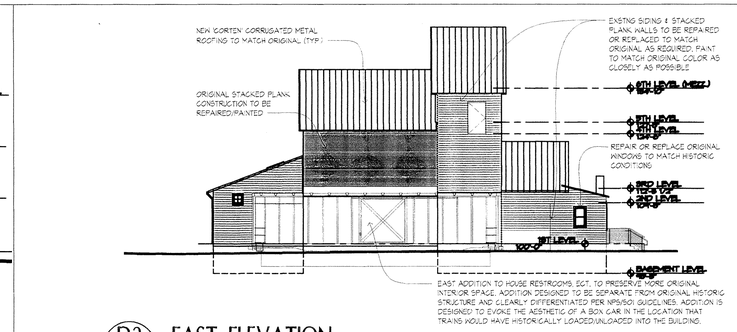
## LOT 3 - NEW MILL SITE BUILDING



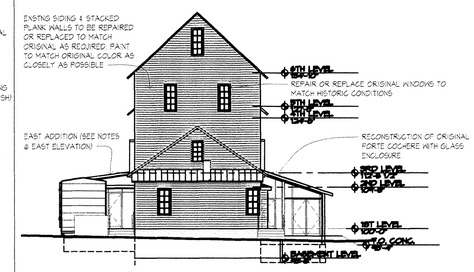

B4 A5 NORTH ELEVATION
SCALE: 1/16" = 1'-0"

B3 A5 WEST ELEVATION
SCALE: 1/16" = 1'-0"

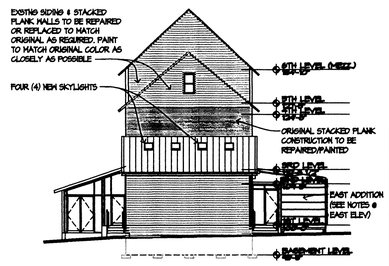
## LOT 1 - CARANCI BUILDING ADDITION / RENOVATION



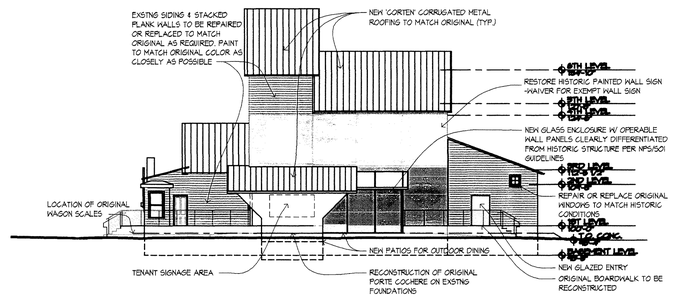

D2 A5 EAST ELEVATION
SCALE: 1/16" = 1'-0"




C2 A5 NORTH ELEVATION
SCALE: 1/16" = 1'-0"



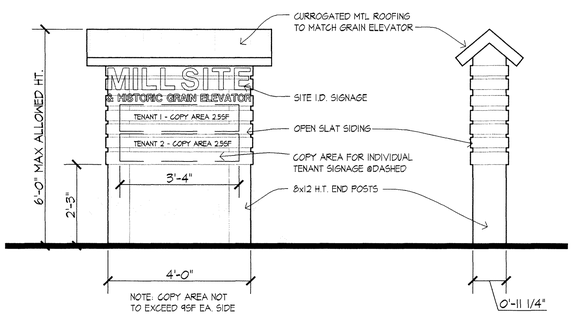

C1 A5 SOUTH ELEVATION
SCALE: 1/16" = 1'-0"




NOTE: HISTORIC LOUISVILLE GRAIN ELEVATOR TO BE STRUCTURALLY STABILIZED AND RENOVATED FOR COMMERCIAL USE PER THE NATIONAL PARK SERVICE AND SECRETARY OF THE INTERIOR (NPS/SOI) STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES ACCORDING TO THE GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS.

B2 A5 WEST ELEVATION
SCALE: 1/16" = 1'-0"

## LOT 2 - HISTORIC GRAIN ELEVATOR




A4 A5 SITE FREE STANDING SIGN
SCALE: 1/2" = 1'-0"

## SIGN AREA CALCULATIONS

NOTE: SIGN AREA LOCATIONS ON BLD'G ELEVATIONS ARE GENERAL GUIDELINES & NOT POTENTIAL SIGNAGE AS SHOWN. FINAL SIGNAGE DESIGN, SIZE & LOC'N SHALL BE PROVIDED DURING PERMIT PROCESS.

### LOT 1

MAXIMUM SIGN COPY AREA
MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARQUEE, AWNINGS/CANOPY, & FREE STANDING SIGN

| | | | |
|---|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 121.3 L.F. x 2SF PER L.F. = | 242.7 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 122.1 L.F. x 1SF PER L.F. = | 122.6 SF |

WALL SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF WALL SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 121.3 L.F. x 2SF PER L.F. = | 242.7 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 122.1 L.F. x 1SF PER L.F. = | 122.6 SF |

AWNING & CANOPY SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF AWNING & CANOPY SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 121.3 L.F. x 1SF PER L.F. = | 121.3 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 122.1 L.F. x 1SF PER L.F. = | 122.6 SF |

PROJECTING SIGNS
TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS

THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLD'G FRONTAGES IS (4) SF PER SIDE

MULTI TENANT BUILDINGS MAY UTILIZE ONE PROJECTING SIGN PER TENANT

### LOT 2

MAXIMUM SIGN COPY AREA
MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARQUEE, AWNINGS/CANOPY, & FREE STANDING SIGN

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 88.0 L.F. x 2SF PER L.F. = | 176.0 SF |

WALL SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF WALL SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 88.0 L.F. x 2SF PER L.F. = | 176.0 SF |

AWNING & CANOPY SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF AWNING & CANOPY SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 88.0 L.F. x 1SF PER L.F. = | 88.0 SF |

PROJECTING SIGNS
TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS

THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLD'G FRONTAGES IS (4) SF PER SIDE

MULTI TENANT BUILDINGS MAY UTILIZE ONE PROJECTING SIGN PER TENANT

### LOT 3

MAXIMUM SIGN COPY AREA
MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARQUEE, AWNINGS/CANOPY, & FREE STANDING SIGN

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 56.0 L.F. x 2SF PER L.F. = | 112.0 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 142.0 L.F. x 1SF PER L.F. = | 142.0 SF |

WALL SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF WALL SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 56.0 L.F. x 2SF PER L.F. = | 112.0 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 142.0 L.F. x 1SF PER L.F. = | 142.0 SF |

AWNING & CANOPY SIGN COPY AREA
TOTAL ALLOWED COPY AREA OF AWNING & CANOPY SIGNS

| | | |
|---|---|---|
| PRIMARY FRONTAGE (FACING COUNTY RD) | 56.0 L.F. x 1SF PER L.F. = | 56.0 SF |
| SECONDARY FRONTAGE (FACING THE GREEN) | 142.0 L.F. x 1SF PER L.F. = | 142.0 SF |

PROJECTING SIGNS
TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS

THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLD'G FRONTAGES IS (4) SF PER SIDE

MULTI TENANT BUILDINGS MAY UTILIZE ONE PROJECTING SIGN PER TENANT

FREE STANDING SIGN: TWO FREE STANDING SIGNS FOR THE 3 LOTS ARE PROPOSED TO ACCOMMODATE MAJOR TENANT(S) & PROJECT IDENTIFICATION (SEE DETAIL & SITE PLAN). MAX 9 SF COPY AREA PER SIDE WHICH COUNTS TOWARDS MAX. SIGN COPY AREA

GENERAL NOTE: ALL SIGNAGE SHALL COMPLY WITH THE DOWNTOWN SIGN MANUAL UNLESS SPECIFIC WAIVER IS INDICATED OR REQUESTED

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A Professional Corporation
Planning
Architecture
Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9349

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO — JOHN CHRISTOPHER HARTRONFT — ARCHITECT — 12-5-14

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
PPC/PCC – 06/3/14
FINAL – 11/06/14
FPC – 03/13/15
FCC – 05/06/15

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BUILDING ELEVATIONS

Sheet
A5
4 of 9 Sheets

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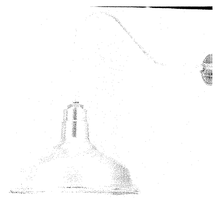
Boulder County, CO 03563038 6 of 10

**Luminaire Schedule**

| Symbol | Label | Quantity | Manufacturer | Catalog Number | Description | Lamp | Number Lamps | Filename | Lumens Per Lamp | Light Loss Factor | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | 18 | BASELITE 16" WAREHOUSE CORD HUNG LUMINAIRE | W516/BLC | WITH WHITE INTERIOR AND NO LENS | lumens for 1 32 trt | 1 | W516-BLC INC.IES | 2400 | 0.85 | 32 |
| | B | 5 | Lithonia Lighting | DSXW1 LED 10C 700 40K T3M MVOLT | DSXW1 LED WITH 1 LIGHT ENGINE, 10 LED's, 700mA DRIVER, 4000K LED, TYPE 3 MEDIUM OPTIC | LED | 1 | DSXW1_LED_10C_700_40K_T3M_MVOLT.ies | 2272.285 | 0.98 | 27 |
| | C | 4 | Antique Street Lamps | EH16XT 63LED 350mA 50K R3 MVOLT 1DS ANWH | EUROTIQUE HANOVER SERIES WITH DECORATIVE SKIRT, HLM MODULE TYPE 3 LENS, SINGLE DRIVER, TEMP 50.2C | ONE 71.6-WATT LED, AIMED DOWN POS. | 1 | EH16XT_63LED_350mA_50K_R3_MVOLT_1DS_ANWH.ies | 6299.651 | 0.85 | 71.6 |
| | D | 9 | Gotham Architectural Lighting | EVO 30/14 6AR LD 120 | 6" LED DOWNLIGHT, 3000K, 1400 LUMENS, STANDARD DISTRIBUTION WITH MATTE DIFFUSE REFLECTOR | LED | 1 | EVO_30_14_6AR_LD_120.ies | 1299.4 | 0.85 | 24.7 |
| | B1 | 4 | Lithonia Lighting | DSXW1 LED 10C 700 40K T2S MVOLT | DSXW1 LED WITH 1 LIGHT ENGINE, 10 LED's, 700mA DRIVER, 4000K LED, TYPE 2 SHORT OPTIC | LED | 1 | DSXW1_LED_10C_700_40K_T2S_MVOLT.ies | 2233.988 | 0.98 | 27 |
| | E | 2 | BASELITE 12" ANGLE REFLECTOR - WALL MOUNT LUMINAIRE | A812/E3 | WITH WHITE INTERIOR AND NO LENS | lumens for 1 32 trt | 1 | A812-E3 INC.IES | 2400 | 0.85 | 198 |
| | F | 36 | ECOSENSE | 11LC-12-40-120-17 | Linear HP EXT Wall Wash, 12in, 4000K, 110V, 17x35deg | 4000K LED | 1 | 11LC-12-40-120-17-IESNA.IES | 990.92 | 0.85 | 16.63 |



TYPE A



TYPE B



TYPE C



TYPE D




TYPE E



TYPE F

**Luminaire Locations**

| | | Location | | | | | | Aim | | |
|---|---|---|---|---|---|---|---|---|---|---|
| No. | Label | X | Y | Z | MH | Orientation | Tilt | X | Y | Z |
| 1 | A | 294.70 | 204.44 | 15.00 | 15.00 | 81.71 | 0.00 | 294.70 | 204.44 | 0.00 |
| 2 | A | 298.34 | 174.22 | 15.00 | 15.00 | 84.58 | 0.00 | 298.34 | 174.22 | 0.00 |
| 3 | A | 301.34 | 150.43 | 15.00 | 15.00 | 82.82 | 0.00 | 301.34 | 150.43 | 0.00 |
| 4 | A | 305.42 | 124.07 | 15.00 | 15.00 | 77.72 | 0.00 | 305.42 | 124.07 | 0.00 |
| 5 | A | 327.06 | 114.64 | 15.00 | 15.00 | 0.00 | 0.00 | 327.06 | 114.64 | 0.00 |
| 6 | A | 345.92 | 106.86 | 15.00 | 15.00 | 0.00 | 0.00 | 345.92 | 106.86 | 0.00 |
| 7 | A | 373.57 | 112.71 | 15.00 | 15.00 | 0.00 | 0.00 | 373.57 | 112.71 | 0.00 |
| 8 | A | 426.07 | 130.50 | 15.00 | 15.00 | 0.00 | 0.00 | 426.07 | 130.50 | 0.00 |
| 9 | A | 37.09 | 18.74 | 14.00 | 14.00 | 0.00 | 0.00 | 37.09 | 18.74 | 0.00 |
| 10 | A | 59.00 | 18.13 | 14.00 | 14.00 | 0.00 | 0.00 | 59.00 | 18.13 | 0.00 |
| 11 | A | 74.52 | 26.04 | 14.00 | 14.00 | 0.00 | 0.00 | 74.52 | 26.04 | 0.00 |
| 12 | A | 88.52 | 31.82 | 14.00 | 14.00 | -90.00 | 0.00 | 88.52 | 31.82 | 0.00 |
| 13 | A | 95.52 | 146.25 | 14.00 | 14.00 | 180.00 | 0.00 | 95.52 | 146.25 | 0.00 |
| 14 | A | 94.91 | 160.56 | 14.00 | 14.00 | -90.00 | 0.00 | 94.91 | 160.56 | 0.00 |
| 19 | A | 155.00 | 180.00 | 14.00 | 14.00 | 111.52 | 0.00 | 155.00 | 180.00 | 0.00 |
| 20 | A | 246.00 | 157.00 | 14.00 | 14.00 | -77.91 | 0.00 | 246.00 | 157.00 | 0.00 |
| 21 | A | 239.00 | 178.00 | 14.00 | 14.00 | -73.61 | 0.00 | 239.00 | 178.00 | 0.00 |
| 22 | A | 184.00 | 192.00 | 14.00 | 14.00 | 104.47 | 0.00 | 184.00 | 192.00 | 0.00 |
| 4 | B | 88.51 | 164.77 | 14.00 | 14.00 | 0.00 | 0.00 | 88.51 | 164.77 | 0.00 |
| 5 | B | 47.12 | 166.38 | 14.00 | 14.00 | 0.00 | 0.00 | 47.12 | 166.38 | 0.00 |
| 1 | B1 | 31.31 | 138.34 | 12.00 | 12.00 | -90.00 | 0.00 | 31.31 | 138.34 | 0.00 |
| 12 | B | 200.97 | 202.20 | 12.00 | 12.00 | 17.98 | 0.00 | 200.97 | 202.20 | 0.00 |
| 13 | B | 228.30 | 195.34 | 12.00 | 12.00 | 13.51 | 0.00 | 228.30 | 195.34 | 0.00 |
| 14 | B | 302.29 | 223.99 | 14.00 | 14.00 | -10.47 | 0.00 | 302.29 | 223.99 | 0.00 |
| 5 | B1 | 31.31 | 88.34 | 12.00 | 12.00 | -90.00 | 0.00 | 31.31 | 88.34 | 0.00 |
| 6 | B1 | 31.31 | 34.34 | 12.00 | 12.00 | -90.00 | 0.00 | 31.31 | 34.34 | 0.00 |
| 7 | B1 | 39.21 | 158.99 | 12.00 | 12.00 | -90.00 | 0.00 | 39.21 | 158.99 | 0.00 |
| 1 | C | 251.20 | 86.57 | 14.00 | 14.00 | 80.19 | 0.00 | 252.43 | 88.78 | 0.00 |
| 2 | C | 241.98 | 121.29 | 14.00 | 14.00 | 75.64 | 0.00 | 243.19 | 121.80 | 0.00 |
| 3 | C | 186.12 | 111.21 | 14.00 | 14.00 | 269.51 | 0.00 | 184.87 | 111.20 | 0.00 |
| 4 | C | 188.55 | 75.98 | 14.00 | 14.00 | 268.07 | 0.00 | 186.30 | 75.92 | 0.00 |
| 1 | D | 323.86 | 127.71 | 13.00 | 13.00 | 0.00 | 0.00 | 323.86 | 127.71 | 0.00 |
| 2 | D | 314.42 | 125.79 | 13.00 | 13.00 | 0.00 | 0.00 | 314.42 | 125.79 | 0.00 |
| 3 | D | 95.52 | 92.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 92.82 | 0.00 |
| 9 | D | 95.52 | 75.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 75.82 | 0.00 |
| 10 | D | 95.52 | 58.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 58.82 | 0.00 |
| 11 | D | 95.52 | 41.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 41.82 | 0.00 |
| 12 | D | 95.52 | 110.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 110.82 | 0.00 |
| 13 | D | 95.52 | 126.82 | 12.00 | 12.00 | 0.00 | 0.00 | 95.52 | 126.82 | 0.00 |
| 14 | D | 88.52 | 41.82 | 12.00 | 12.00 | 0.00 | 0.00 | 88.52 | 41.82 | 0.00 |
| 3 | E | 105.25 | 92.25 | 16.00 | 10.00 | 85.24 | 0.00 | 105.25 | 92.25 | 8.00 |
| 4 | E | 105.25 | 94.50 | 16.00 | 10.00 | -86.91 | 0.00 | 105.25 | 94.50 | 8.00 |
| 16 | F | 207.11 | 61.51 | 1.00 | 1.00 | 77.47 | 0.00 | 207.11 | 61.51 | 0.00 |
| 17 | F | 207.33 | 60.54 | 1.00 | 1.00 | 77.47 | 0.00 | 207.33 | 60.54 | 0.00 |
| 18 | F | 207.54 | 59.56 | 1.00 | 1.00 | 77.47 | 0.00 | 207.54 | 59.56 | 0.00 |
| 19 | F | 207.76 | 58.58 | 1.00 | 1.00 | 77.47 | 0.00 | 207.76 | 58.58 | 0.00 |
| 20 | F | 212.90 | 62.90 | 1.00 | 1.00 | 75.96 | 0.00 | 212.90 | 62.90 | 0.00 |
| 21 | F | 213.14 | 61.93 | 1.00 | 1.00 | 75.96 | 0.00 | 213.14 | 61.93 | 0.00 |
| 22 | F | 213.39 | 60.96 | 1.00 | 1.00 | 75.96 | 0.00 | 213.39 | 60.96 | 0.00 |
| 23 | F | 213.63 | 59.99 | 1.00 | 1.00 | 75.96 | 0.00 | 213.83 | 59.99 | 0.00 |
| 80 | F | 193.46 | 159.38 | 25.00 | 25.00 | 14.38 | 0.00 | 193.48 | 159.38 | 0.00 |
| 81 | F | 194.45 | 159.13 | 25.00 | 25.00 | 14.38 | 0.00 | 194.45 | 159.13 | 0.00 |
| 82 | F | 195.42 | 158.88 | 25.00 | 25.00 | 14.38 | 0.00 | 195.42 | 158.88 | 0.00 |
| 83 | F | 196.39 | 158.63 | 25.00 | 25.00 | 14.38 | 0.00 | 196.39 | 158.63 | 0.00 |
| 84 | F | 197.36 | 158.38 | 25.00 | 25.00 | 14.38 | 0.00 | 197.36 | 158.36 | 0.00 |
| 85 | F | 198.33 | 158.13 | 25.00 | 25.00 | 14.38 | 0.00 | 198.33 | 158.13 | 0.00 |
| 86 | F | 199.30 | 157.89 | 25.00 | 25.00 | 14.38 | 0.00 | 199.30 | 157.89 | 0.00 |
| 87 | F | 200.27 | 157.64 | 25.00 | 25.00 | 14.38 | 0.00 | 200.27 | 157.64 | 0.00 |
| 88 | F | 201.23 | 157.39 | 25.00 | 25.00 | 14.38 | 0.00 | 201.23 | 157.39 | 0.00 |
| 89 | F | 202.20 | 157.14 | 25.00 | 25.00 | 14.38 | 0.00 | 202.20 | 157.14 | 0.00 |
| 90 | F | 203.17 | 156.89 | 25.00 | 25.00 | 14.38 | 0.00 | 203.17 | 156.89 | 0.00 |
| 91 | F | 204.14 | 156.64 | 25.00 | 25.00 | 14.38 | 0.00 | 204.14 | 156.64 | 0.00 |
| 92 | F | 205.11 | 156.40 | 25.00 | 25.00 | 14.38 | 0.00 | 205.11 | 156.40 | 0.00 |
| 93 | F | 206.08 | 156.15 | 25.00 | 25.00 | 14.38 | 0.00 | 206.08 | 156.15 | 0.00 |
| 94 | F | 207.05 | 155.90 | 25.00 | 25.00 | 14.38 | 0.00 | 207.05 | 155.90 | 0.00 |
| 95 | F | 208.01 | 155.65 | 25.00 | 25.00 | 14.38 | 0.00 | 208.01 | 155.65 | 0.00 |
| 96 | F | 208.98 | 155.40 | 25.00 | 25.00 | 14.38 | 0.00 | 208.98 | 155.40 | 0.00 |
| 97 | F | 209.95 | 155.15 | 25.00 | 25.00 | 14.38 | 0.00 | 209.95 | 155.15 | 0.00 |
| 98 | F | 210.92 | 154.91 | 25.00 | 25.00 | 14.38 | 0.00 | 210.92 | 154.91 | 0.00 |
| 99 | F | 211.89 | 154.66 | 25.00 | 25.00 | 14.38 | 0.00 | 211.89 | 154.66 | 0.00 |
| 100 | F | 212.86 | 154.41 | 25.00 | 25.00 | 14.38 | 0.00 | 212.86 | 154.41 | 0.00 |
| 101 | F | 213.83 | 154.16 | 25.00 | 25.00 | 14.38 | 0.00 | 213.83 | 154.16 | 0.00 |
| 102 | F | 214.80 | 153.91 | 25.00 | 25.00 | 14.38 | 0.00 | 214.80 | 153.91 | 0.00 |
| 103 | F | 215.76 | 153.66 | 25.00 | 25.00 | 14.38 | 0.00 | 215.76 | 153.66 | 0.00 |
| 104 | F | 216.73 | 153.42 | 25.00 | 25.00 | 14.38 | 0.00 | 216.73 | 153.42 | 0.00 |
| 105 | F | 217.70 | 153.17 | 25.00 | 25.00 | 14.38 | 0.00 | 217.70 | 153.17 | 0.00 |
| 106 | F | 218.67 | 152.92 | 25.00 | 25.00 | 14.38 | 0.00 | 218.67 | 152.92 | 0.00 |
| 107 | F | 219.64 | 152.67 | 25.00 | 25.00 | 14.38 | 0.00 | 219.64 | 152.67 | 0.00 |




**Statistics**

| Description | Symbol | Avg | Max | Min | Max/Min | Avg/Min | Avg/Max |
|---|---|---|---|---|---|---|---|
| Calc Zone #1 | + | 0.5 fc | 9.2 fc | 0.0 fc | N/A | N/A | 0.1:1 |

**Note**

1.file=visual-files-sept2014-millsite2.vsl

1 / A6 SITE PHOTOMETRIC

1" = 30'

0 1.5 10 25 50 100 FEET

NORTH

HARTRONFT ASSOCIATES
A Professional Corporation
Planning
Architecture
Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9364
FAX: 303.673.9349

LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

PROJECT # 1252.10
DATE: 04/03/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
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FPC – 03/13/15
FCC – 05/06/15

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SITE PHOTOMETRIC

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A6
6 of 9 Sheets

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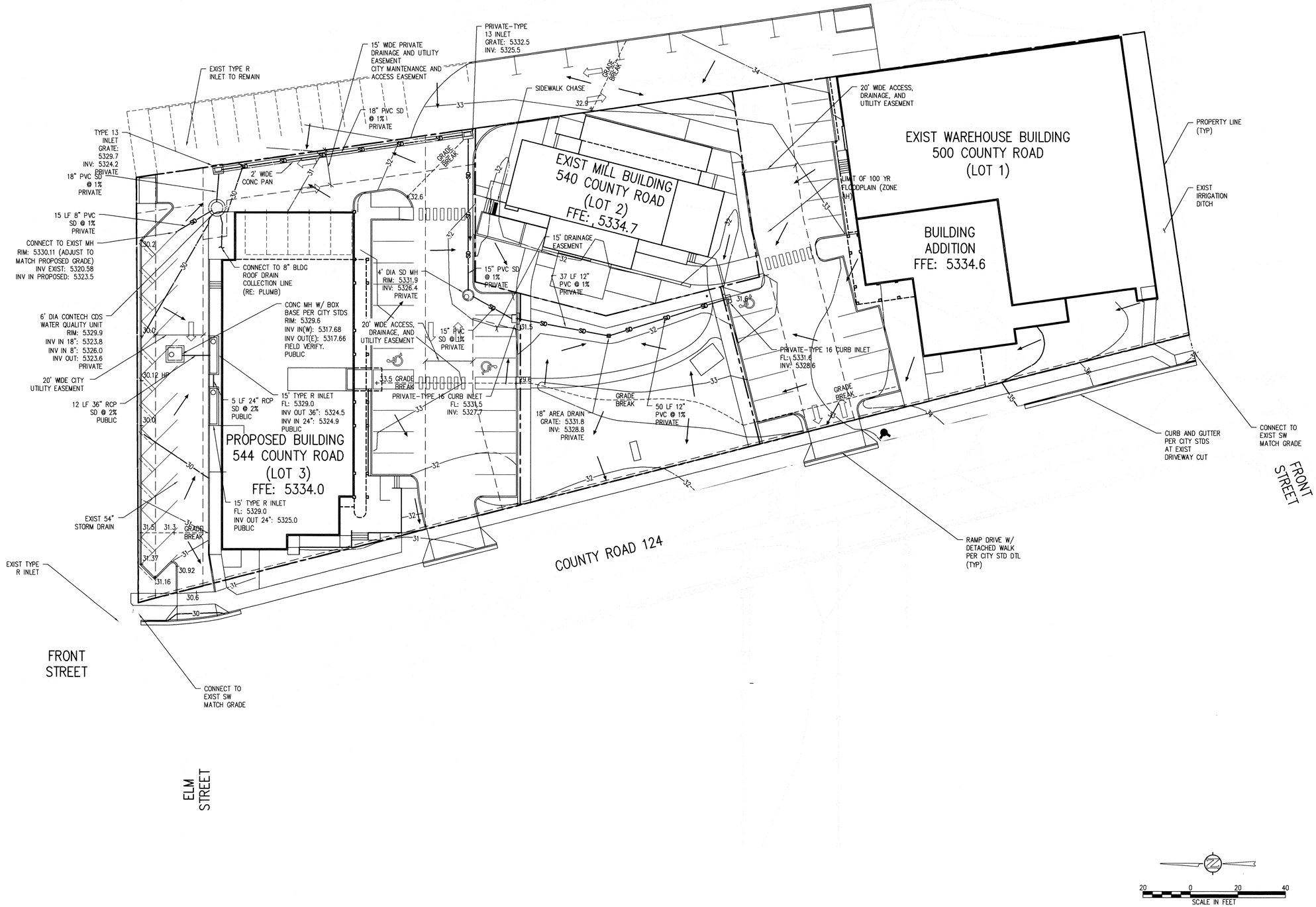


JVA, Incorporated 1319 Spruce Street
Boulder, CO 80302 Phone: 303.444.1951
www.jvajva.com E-mail: info@jvajva.com

HARTRONFT ASSOCIATES
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Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

# LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED PROFESSIONAL ENGINEER CHARLES R. HAGER 12/05/16 37146

PROJECT # 1252.10
DATE: 04/13/14
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CHECKED BY: --
REVISIONS:
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DRAINAGE PLAN

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of Sheets

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Boulder County, CO 03563038 8 of 10

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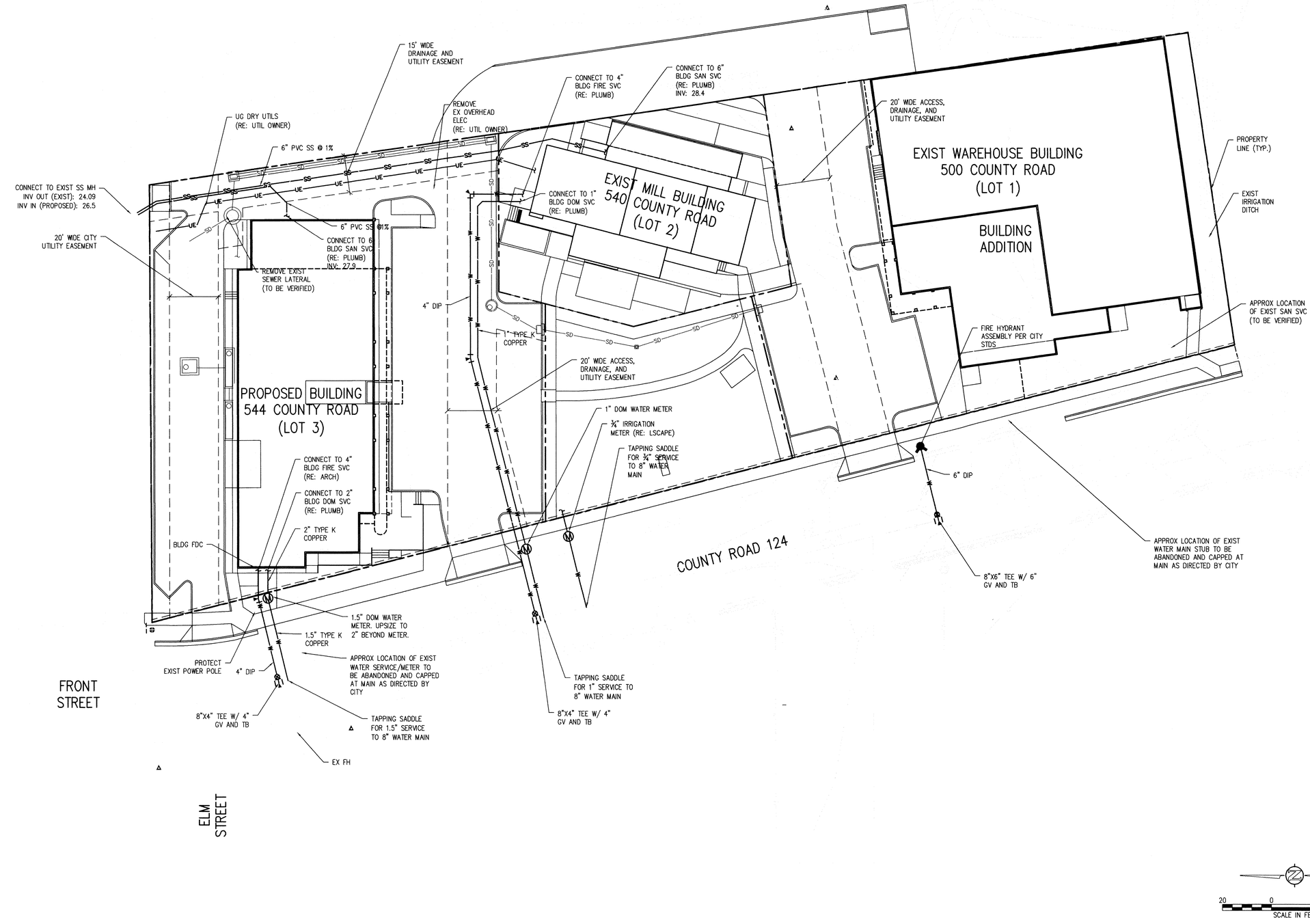
NOTES:
1. OLD WATER AND SEWER SERVICES SHALL BE ABANDONED AS DIRECTED BY THE CITY.
2. CURB STOP VALVES AND METER PITS SHALL BE LOCATED AND INSTALLED AS DIRECTED BY THE CITY.
3. FIRE LINES ARE PRIVATELY OWNED/MAINTAINED DOWNSTREAM OF WATER MAIN GATE VALVES.
4. LIMITED UTILITY SURVEY INFORMATION WAS PROVIDED. PORTIONS OF SHOWN UTILITIES ARE BASED ON CITY UTILITY MAPPING. ALL UTILITY LOCATIONS, INVERTS, SIZES, ETC. TO BE FIELD LOCATED AND SURVEYED PRIOR TO CONSTRUCTION.

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500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED CHARLES R. HARTRONFT 12/05/16 37146 PROFESSIONAL ENGINEER

**PROJECT #** 1252.10
**DATE:** 04/13/14
**DRAWN BY:** --
**CHECKED BY:** --
**REVISIONS:**
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FPC – 03/13/15
FCC – 05/06/15

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UTILITY PLAN

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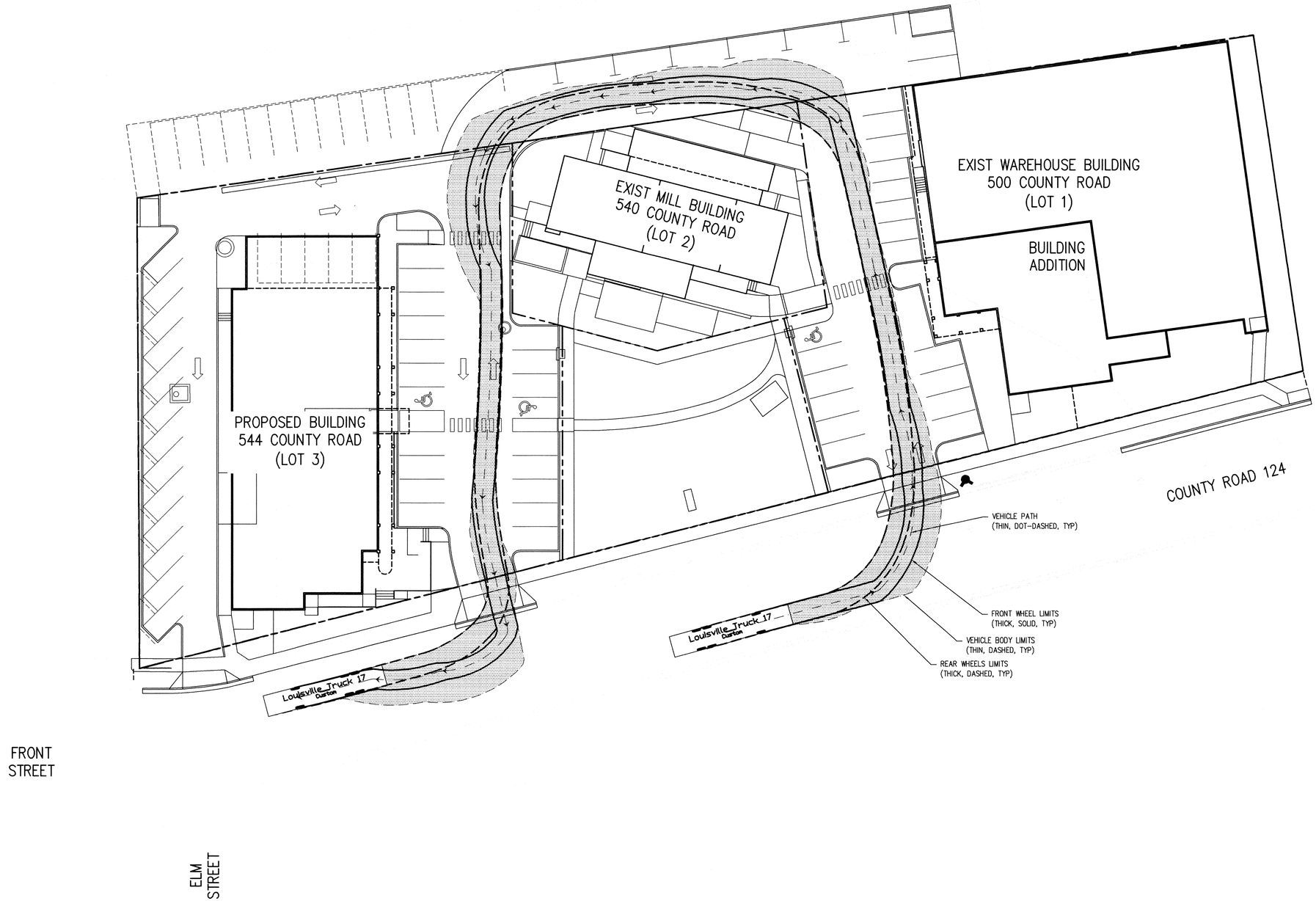
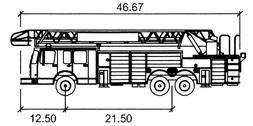
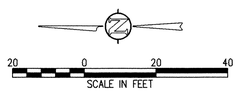



Louisville Truck 17 feet

| | |
|---|---|
| Width | : 8.00 |
| Track | : 8.00 |
| Lock to Lock Time | : 5.0 |
| Steering Angle | : 45.0 |

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Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED PROFESSIONAL ENGINEER
CHARLES R. HAGER
12/05/16
37146

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FCC –

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AUTOTURN FIRETRUCK EXHIBIT

Sheet
EX-1
of Sheets

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Boulder County, CO 03563038 10 of 10

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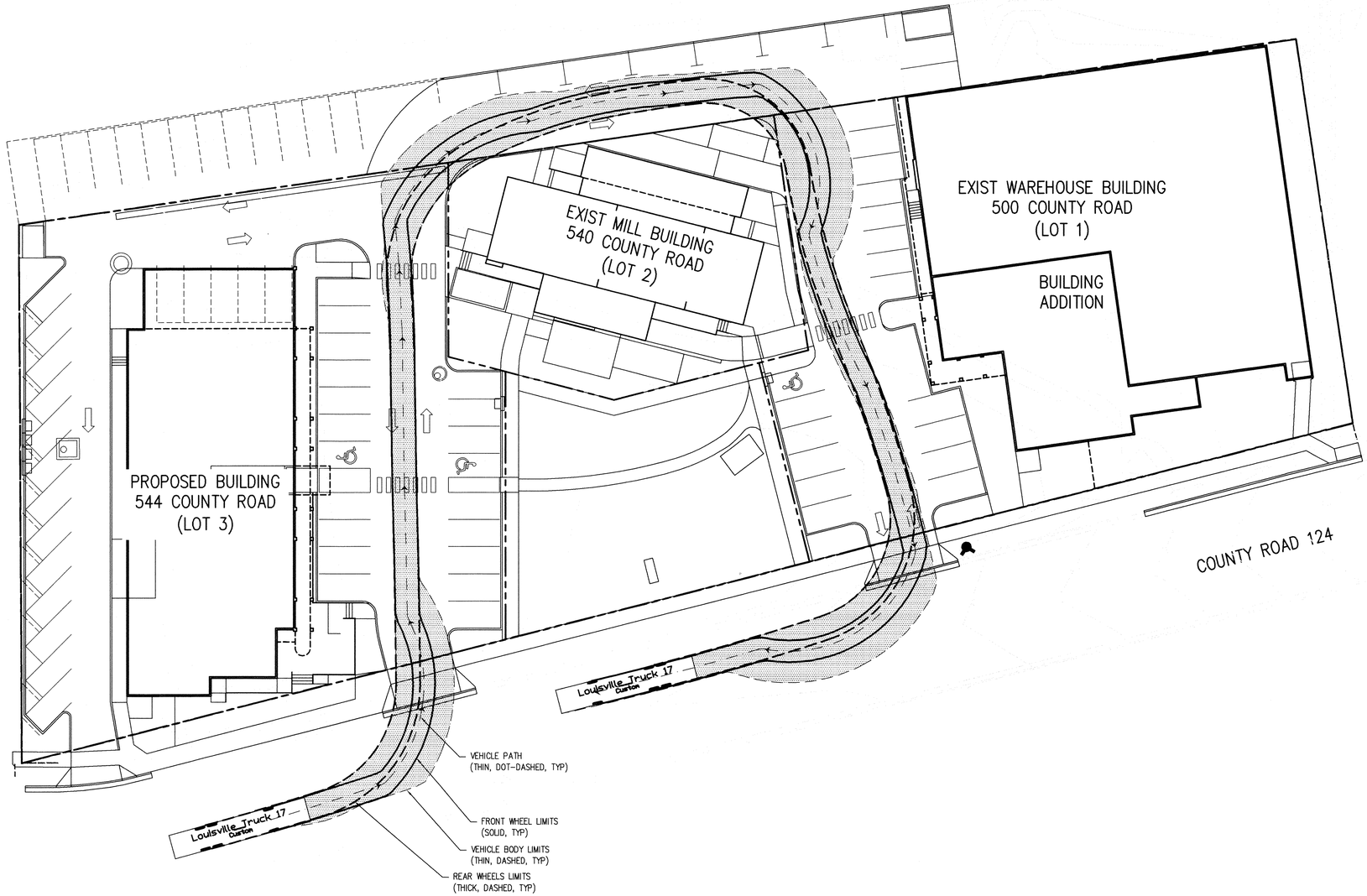
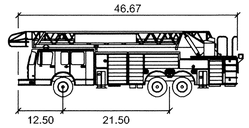
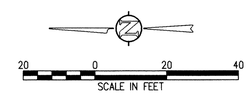



Louisville Truck 17 feet

| | |
|---|---|
| Width | : 8.00 |
| Track | : 8.00 |
| Lock to Lock Time | : 5.0 |
| Steering Angle | : 45.0 |




JVA, CONSULTING ENGINEERS
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Louisville Mill Site LLC – Caranci / Hartronft

COLORADO REGISTERED CHARLES R. HARTRONFT 12/05/16 37146 PROFESSIONAL ENGINEER

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**DATE:** 04/13/14
**DRAWN BY:** --
**CHECKED BY:** --
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FCC – 05/06/15

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AUTOTURN FIRETRUCK EXHIBIT

**Sheet**

EX-2

**of Sheets**

• D:/PROGRAM FILES/ACAD2000/LIB/_2436HAPC817.DWG • 01/01/2009 • 22:00 • 7.86/7.66 •

03563039
Page 1 of 1
DF: $0.00
RF: $11.00
12/13/2016 01:21 PM
Boulder County Clerk, CO

# SIGNATURES

**Ownership Signature Block**

By signing this PUD, the owner acknowledges and accepts all the requirements and intent set forth in this PUD. Witness my/our hand(s) seal(s) this ___ day of _____, 20___

**J. Erik Hartronft, Member**
**Louisville Mill Site, LLC**
Owner Name and Signature

**Randall C. Caranci, Member**
**Louisville Mill Site, LLC**
Owner Name and Signature

**Randall C. Caranci**
**RCC Ltd.**
Owner Name and Signature

Rebecca Ringman (Notary Seal)
Notary Name (print)
Notary Signature
My Commission Expires _____

REBECCA RINGMAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19984016968
MY COMMISSION EXPIRES JUNE 20, 2018

**Planning Commission Certificate**

Approved this 1st day of April, 20 15 by the Planning Commission of the City of Louisville, Colorado.
Resolution No. 19, Series 2015

**Clerk and Recorder Certificate**
**(County of Boulder, State of Colorado)**

I hereby certify that this instrument was filed in my office at 1:21 o'clock, P M., this 13 day of December 20 16 and is recorded in Plan File _____. Fee $11.00 paid _____ Film No. 03563039 Reception.

Hillary Hall
Clerk & Recorder

Jessica Martinez
Deputy

**City Council Certificate**

Approved this 19 day of May, 20 15 by the City Council of the City of Louisville, Colorado.
Resolution No. 29, Series 2015

Mayor Signature

City Clerk Signature

CITY OF LOUISVILLE SEAL COLORADO

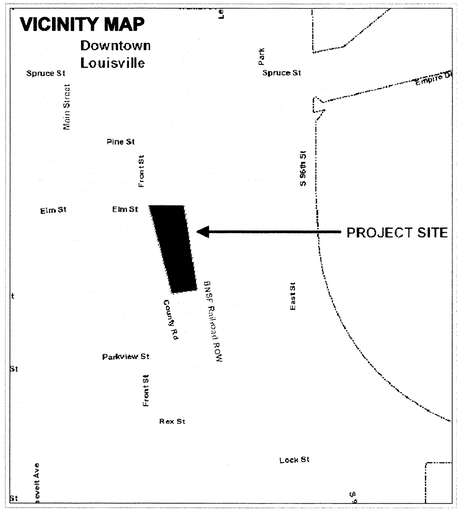
# PROJECT DIRECTORY

| | |
|---|---|
| OWNER | Louisville Mill Site LLC *<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft<br>303-673-9304 |
| ARCHITECT/PLANNER | Hartronft Associates, p.c.<br>950 Spruce Street, Suite 1A<br>Louisville, Colorado 80027<br>Contact: Erik Hartronft, AIA<br>303-673-9304 |

*** Note: Prior to closing date, property for 540/544 County Rd. Owner is City of Louisville, 749 Main Street, Louisville, CO 80027. Louisville Mill Site LLC has a contract with the property owner to purchase the property and has an agreement to renovate the buildings on site. 'Owner' as referenced herein for 540/544 County Rd. shall refer to Louisville Mill Site LLC. See related agreements for additional information and responsibilities.**

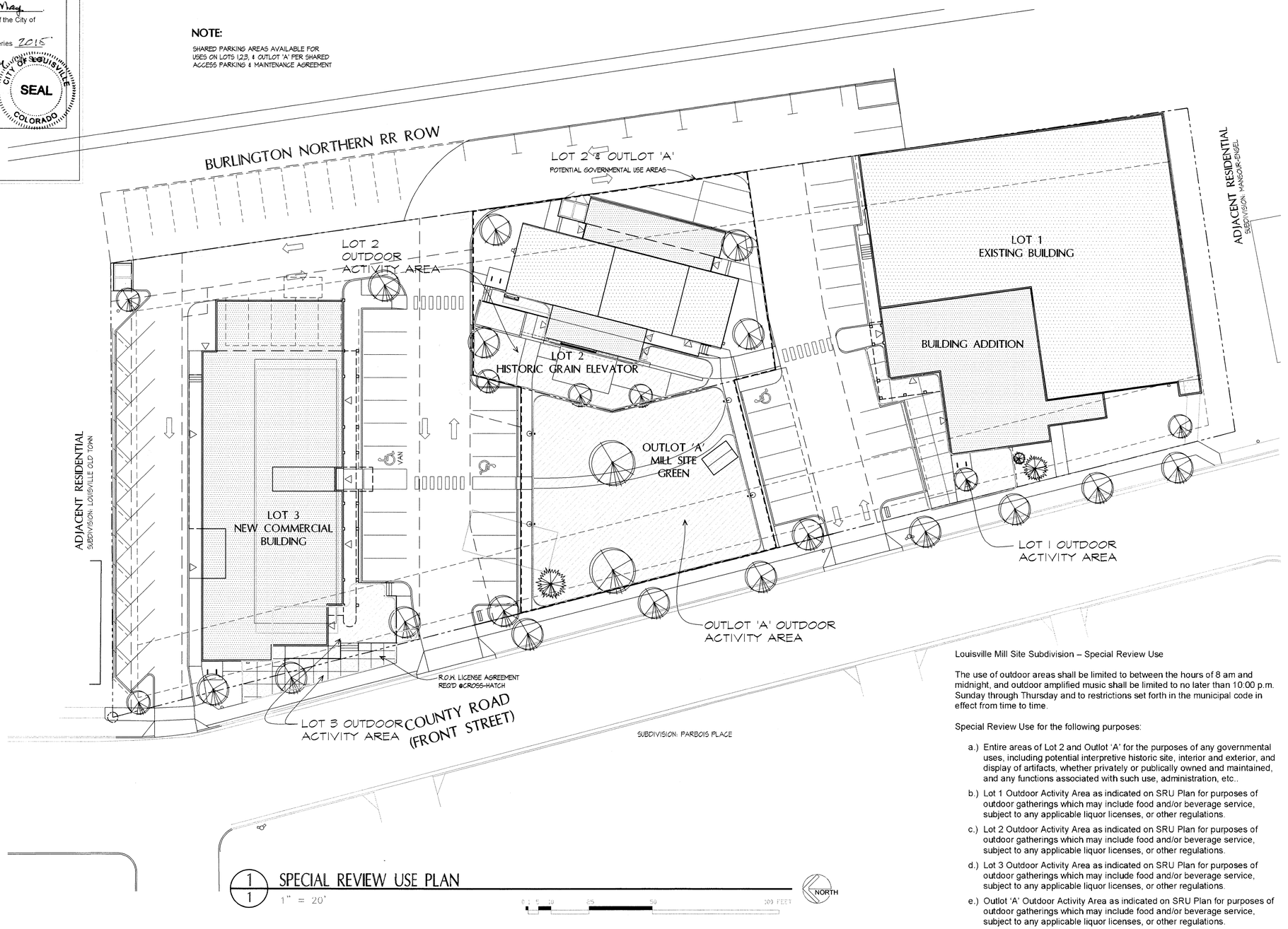
# SPECIAL REVIEW USE
# LOUISVILLE MILL SITE REDEVELOPMENT
## 500, 540, 544 County Road
## LOUISVILLE MILL SITE SUBDIVISION
### LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO

**VICINITY MAP**




**NOTE:**

SHARED PARKING AREAS AVAILABLE FOR USES ON LOTS 123, & OUTLOT 'A' PER SHARED ACCESS PARKING & MAINTENANCE AGREEMENT




1/1 SPECIAL REVIEW USE PLAN
1" = 20'

0 5 10 25 50 100 FEET
NORTH

Louisville Mill Site Subdivision – Special Review Use

The use of outdoor areas shall be limited to between the hours of 8 am and midnight, and outdoor amplified music shall be limited to no later than 10:00 p.m. Sunday through Thursday and to restrictions set forth in the municipal code in effect from time to time.

Special Review Use for the following purposes:

a.) Entire areas of Lot 2 and Outlot 'A' for the purposes of any governmental uses, including potential interpretive historic site, interior and exterior, and display of artifacts, whether privately or publically owned and maintained, and any functions associated with such use, administration, etc..

b.) Lot 1 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

c.) Lot 2 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

d.) Lot 3 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

e.) Outlot 'A' Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

HARTRONFT ASSOCIATES
Planning
Architecture
Interior Design
950 Spruce Street, #1A
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

LOUISVILLE MILL SITE REDEVELOPMENT
& HISTORIC GRAIN ELEVATOR
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC – Caranci / Hartronft

STATE OF COLORADO
JOHN ERIK HARTRONFT
REGISTERED
12-5-16
ARCHITECT

PROJECT # 1252.10
DATE: 11/06/14
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS: 03/13/15
05/06/15

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SPECIAL REVIEW USE

Sheet
1
1 of 1 Sheets

Louisville Historical Museum
Department of Library & Museum Services
City of Louisville, Colorado
March 2012

City of Louisville
COLORADO • SINCE 1878

# Louisville Grain Elevator History

**Address:** 540 County Road, Louisville, Colorado

**Legal Description:** Referred to as Tract 712, Louisville

**Year of Construction:** Likely 1905-06 (see discussion)

**Summary:** This building is considered to be one of the area's last remaining wooden grain elevators. It was placed on the National Register of Historic Places in 1986 due to the elevator being "historically and visually the most significant structure associated with the agricultural history of the community." It is also listed on the Colorado Register of Historic Places. Its stacked plank construction style is considered to be rare.

This building was constructed by John K. Mullen, an Irish immigrant who built and operated a number of grain elevators in Colorado in his capacity as President of the Colorado Milling & Elevator Co. Besides being associated with John K. Mullen, the building was also associated with the Moore and Thomas families. The elevator was managed for about 35 years by Louisville resident Howard A. Moore and then his son, Donald Moore. In 1957, it was purchased by Louisville residents Charles Thomas and Quentin Thomas. Charles Thomas was the brother-in-law of Donald Moore.

As shown below, this building is connected with not only Boulder County's agricultural heritage, but is also connected with the area's railroad history, mining history, and the history of the Irish in Colorado. It was owned by an outsider before it became a locally owned Louisville business several decades later. It is located in Louisville's historic downtown area.

Every attempt has been made in the writing of this report to give accurate factual information, to discontinue the use of incorrect information that has occasionally cropped up in past reports about the building, and to compile in this document all of the available information about the structure's history.

**Construction by John K. Mullen and Early Operation**

The story of Louisville, Colorado is often told in terms of its history as a small coal mining town. However, farming not only predated mining in the area, but local farmers continued to play an important role in the town's economy and cultural life through much of the 1900s.

It was on the farm of David Kerr that coal was first discovered in 1877. And since coal mining was seasonal in this area due to the high moisture content of the coal that caused it to disintegrate once the coal was brought out of the ground, coal mining and farming came to have a complimentary relationship. Some miners worked on farms in the warm months, while some farmers worked in coal mines in the cold months. Louisville area farmers, though they did not live in town, certainly identified themselves as Louisville residents and fully participated in the town's economic, civic, and cultural life. They attended Louisville churches, shopped in the stores, and sent their children to Louisville schools. Just as Louisville miners tended to be recent European immigrants, the area farmers also represented different ethnicities.

Louisville faced particular challenges in the 1880s and 1890s (following its founding in 1878) and finally emerged with a viable economy after the turn of the century. This development likely made it a particularly attractive site for someone to build an elevator or mill in the early 1900s. A 1902 *Denver Post* item reported that a company called the Centennial Mill and Elevator Company in Louisville had been incorporated. However, there is no evidence that this was the company that constructed the Louisville Grain Elevator.

Boulder County property records indicate that the property on which the Grain Elevator was built came from The Union Pacific Coal Company. The deeds show that Peter F. Murphy of Louisville purchased property from Union Pacific in August 1905 and resold this parcel to John K. Mullen in October 1905. Both were Irish Catholics. It could be speculated that they knew one another and that Murphy was even acting on Mullen's behalf.

John K. Mullen, who had the Louisville Grain Elevator built, was an Irish immigrant who rose to great heights as the head of an empire of grain elevators and flour mills in Colorado and some surrounding states. He was born in County Galway, Ireland in 1847 and came to the United States in 1856 at the time of the Irish Potato Famine. He and his family settled in Oriskany Falls, New York, where he worked at a flour mill. As a young man, he worked his way West and assumed more and more responsibility in the grain industry. As described on the jacket of William J. Convery's biography of Mullen, *Pride of the Rockies: The Life of Colorado's Premiere Irish Patron, John Kernan Mullen*, Mullen "ruthlessly rose to control of the West's flour milling industry and was one of the architects of early Denver's transformation from a dusty supply town to the Queen City of the Mountains and Plains. A celebrated giver during his lifetime, J.K. Mullen endowed many religious and civic monuments." For example, Mullen High School in Denver was named for him, as was the Mullen Library at Catholic University in Washington, D.C. He helped finance and oversaw the construction of Denver's Cathedral of the Immaculate Conception. At times, he was even the owner of Elitch Gardens and the famous Matchless Mine in Leadville, among other prominent Colorado properties.

The book states that "[e]vidence of Mullen's contribution to the architectural landscape stretches beyond Denver. The tallest structure in many farming towns throughout the Rocky Mountain West is the grain elevator constructed by Mullen's Colorado Milling and Elevator Company" (p. 2). "By 1924, The

Colorado Milling and Elevator Company owned nearly three hundred mills, warehouses, and elevators …" (p. 197). The following is a portrait of J.K. Mullen from 1933:



Portrait accessed online from the Denver Public Library,
Western History Collection, www.denverlibrary.org

As explained in the UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado,* Mullen was not only responsible for bringing to Colorado the Hungarian milling process, but he also played a leading role in creating high altitude flour. The fact that he owned both the grain elevators where farmers would bring their grain and the flour mills where the grain could be processed had the effect of tightening his control on the industry.

Although an accounting of the number of remaining J.K. Mullen's Colorado grain elevators and mills could not be located for this report, information was found regarding Boulder County grain buildings. According to available information, two separate milling/elevator structures in Boulder burned down in 1889 and 1931. Longmont lost a flour mill and Mullen-owned grain elevator to fire in 1934. According to the UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado,* two other elevators besides the Louisville Grain Elevator still stand in Boulder County: in Lafayette and on a private farm in Hygiene. As with many historic elevators, the elevator in Lafayette has had metal siding installed on its sides to reduce the risk of fire, something that has never been done to Louisville's, other than in a few limited sections. Specific information about the elevator in Hygiene could not be located for this report. Louisville's elevator is the only one in the County that is listed on the National Register of Historic Places.

A 1918 *Denver Post* article shows that Louisville area wheat farmers at times disputed Mullen's practices, not unlike similar conflicts of the time between Louisville coal miners and the mining companies. The articles states:

> The wheat growers of the Lafayette-Louisville district are up in arms over the practices of the J.K. Mullen elevator there. Instead of the $2.20 per bushel price fixed by the federal food commission, the elevator is paying only about $1.00 or less for the highest grade wheat. . . . [The] Mullen explanation of a deduction of the freight to Kansas City does not explain this entire discrepancy. . . . [The farmers] are told that the purchase of wheat may be abandoned if there is any complaint.

According to the UC-Denver report *Eastern Plains and Front Range Grain Elevators of Colorado*, citing Convery's biography of Mullen,

> In an effort to placate suspicious farmers who felt CM&E [the Colorado Milling & Elevator Company] was a monopoly guilty of price fixing, Mullen looked for ways to improve CM&E's image. J.K. instituted several measures designed to reestablish trust in his company. In order to provide a sense of local ownership, subsidiary mills acquired or opened by CM&E were named for the community ….

In this connection, it should be noted that the first and longtime name of the Louisville Grain Elevator was the "Louisville Milling & Elevator Company," and it appears to have been selected for the public relations reason noted. Other legal owners of the building were the Northern Colorado Elevator Company and the Colorado Milling & Elevator Company. It was also called the "Denver Elevator" and the words "The Denver Elevators" were painted on the side of the building even while it was owned by the Colorado Milling & Elevator Company. Despite the name changes, all of these companies are believed to have been under the control of John K. Mullen.

**Date of Construction**

A review of the available evidence shows that the date of construction of this building was most likely 1905-06.

(The Boulder County Assessor lists two improvements located at 540 County Road and gives the date of construction of both of them as 1936. However, the County has sometimes been found to be in error with respect to the dates of construction of Louisville buildings. The 1936 date is clearly not accurate with respect to the Grain Elevator building.)

Different reports that have been written about the history of this building have given the dates of construction as 1903, 1904, 1905, and 1908.

The 1908 Sanborn fire insurance map for Louisville showed the Elevator and stated the year of construction to have been 1903. However, an examination of the deeds reveals that it was not until August 1905 that The Union Pacific Coal Company sold the property to Peter F. Murphy, who then sold it to J.K. Mullen in October 1905. It seems unlikely that the structure would have been built prior to the transfer of these deeds. Also, in February 1905, the Longmont, Colorado *Ledger* newspaper reported that "Louisville, in Boulder County, wants a flour mill." While a flour mill is not the same as a grain elevator, the statement suggests that what Louisville may have more broadly been seeking was a way for its wheat farmers to easily get their wheat crops to a mill. The construction of a grain elevator would have fulfilled that need, and the appearance of the item in the Longmont paper could suggest that Louisville did not yet have a grain elevator.

The Elevator, and Howard Moore as its manager, were first listed in the 1907-08 directory for Louisville, which could indicate that it was built before 1907. Significantly, the Elevator is not listed in the 1904 or 1906 Louisville directories. (A 1905 directory for Louisville appears to not exist.)

For the foregoing reasons, it is believed that the Elevator was constructed in 1905-06.

**Location of Grain Elevator and Association with Railroad**

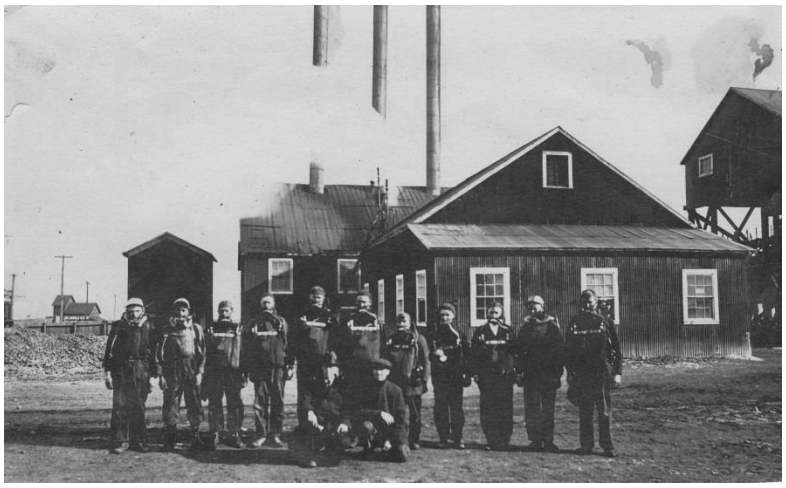
The Grain Elevator and the nearby Acme Mine that was located at Roosevelt and Hutchinson used the same railroad spur that left the main track just northeast of the Elevator and curved over to the Acme. In fact, the 1905 deed that conveyed the property from Peter F. Murphy to J.K. Mullen specifically referred to the "Acme switch" in its legal description of the parcel (a description repeated in the 1957 deed to the Thomas family). The following section of the 1909 Drumm's Wall Map of Louisville shows this relationship, with a building labeled "Elevator" on the upper right, on the spur that continued to the west past the Acme mine dump towards the Acme Mine.




1909 Drumm's Wall Map of Louisville, Louisville Historical Museum

This map shows how the Elevator was actually constructed to be parallel to the railroad spur, not the main track. This is why even today, even with the spur gone, it sits at an angle to the main track. It is believed that the reason was that it was better for the railroad cars being loaded with grain at the Elevator to not block the main line of the railroad.

This photo, looking east, shows the relationship of the Elevator to the Acme Mine, with the Elevator visible in the rear to the left of the photo:



Rescue squad by Acme Mine looking east, circa 1920s, Louisville Historical Museum

**Architecture, Physical Description, and Functions of the Grain Elevator**

The building has been the subject of three different architectural and historical surveys. These are believed to have been funded and completed jointly by the City of Louisville and the State of Colorado in 1982, 1985, and 2000. In addition, information about this building is available from the 1986 National Register listing and in the 2011 structural report by Anderson Hallas Architects that was commissioned by the City of Louisville.

It is believed that the general, original purpose of a grain elevator in this area was to receive grain, particularly wheat, from farmers. A farmer would bring a wagonload of grain to the elevator; interviews of local residents indicate that the grains brought to the Louisville Elevator included wheat, corn, oats, and barley. The Louisville Historical Museum has in its collection annual licenses given in the 1930s by the state of Colorado to Donald Moore, operator of the Grain Elevator, to inspect and grade wheat, barley, oats, corn, and rye.

The wagon would be weighed on the weigh scale, then emptied into a pit. Then the empty wagon would be weighed again in order to obtain a true weight of the contents. The manager of the grain elevator was responsible for this recordkeeping. Merwin Jay Harrison, whose father was manager of the Mullen-owned grain elevator in Broomfield, Colorado, stated in a 1996 oral history interview for the Carnegie Library for Local History that wheat would then be loaded onto boxcars and shipped to Denver, where, he believed, it would be delivered to the Hungarian Flour Mill, which was also owned by J.K. Mullen. Later, trucks rather than boxcars were used to transport the grain.

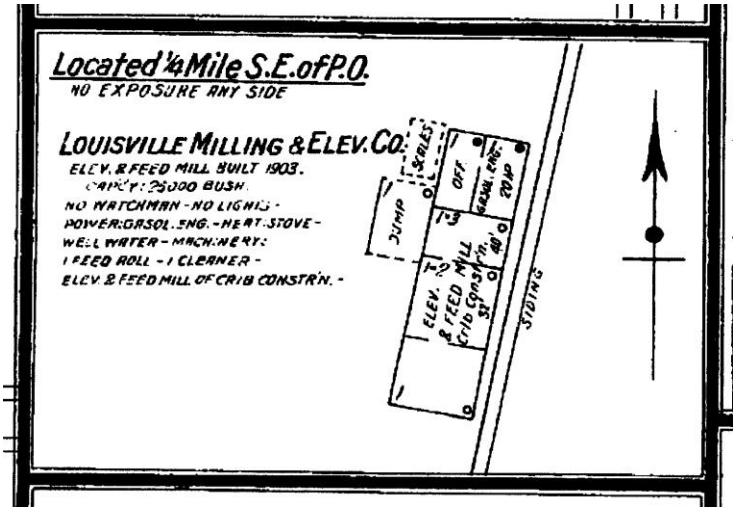
A grain elevator in this area would have also performed some processing of the grain, including separating out gravel and weed seeds from the grain brought in by farmers, and grinding.

Local residents could purchase 100-lb. sacks of flour directly from the Grain Elevator. These may have been brought from flour mills in Denver, but precise information could not be located for this report. Families in Louisville used the flour sacks from the Grain Elevator to make clothing.

Out of six possible types of materials used in the construction of grain elevators in the United States, the Louisville Grain Elevator was constructed of wood. Also, as a wooden elevator, it is considered to be of "cribbed" construction, meaning stacked lumber, as opposed to balloon frame construction.

The UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado* states that wood was the earliest construction material used for grain elevators. A disadvantage of wood was its high combustibility, particularly with elevators typically being located near railroad tracks where sparks could start a fire. The report cites the statistic that wood grain elevators had to be replaced at an average of every four years due to fires. (As noted below, the Louisville Elevator had an interior fire in the 1950s.)

The Louisville Grain Elevator is a three story building in the section of its tower. The following excerpt from the 1908 Sanborn fire insurance map for Louisville shows the layout:




Louisville, Colorado [map]. 1908. Sanborn Fire Insurance Map. (Excerpt.) Accessed at www.louisville-library.org.

The 2000 survey of the building further describes the parts of the elevator: "This structure is oriented north-northeast to south-southwest, with overall measurements of 88' by 28'. From the north-northeast end, the building is composed of five sections, including an office, an elevator, an elevator tower, grain bins, and a warehouse." More detailed information about the purpose of these sections can be found in this 2000 survey report and in the 2011 structural engineering report by Anderson Hallas Architects. The covered area shown in historic photographs is where the scales were located.

The 2011 report prepared for the City of Louisville by Anderson Hallas Architects states that the building footprint is 2,800 square feet and that there are 8,500 square feet of accessible interior floor space. The building sits on a 1.2 acre parcel.

The capacity of the elevator was stated in the 1908 Sanborn map excerpt above to be 25,000 bushels. A penciled notation on the County Assessor card completed on the building in the 1950s appears to state the capacity as having been 20,500 bushels.

The 1982 survey of the structure states that the building was partially renovated by the owners in the 1970s.

The April 4, 1999 *Denver Post* article stated: "Its stacked plank design and diminutive size make the elevator unique. Most elevators stored 35,000 bushels of grain. Louisville's held far less."

The elevator is wood sided and has never had metal siding put on, as many grain elevators have had, except in a few sections by the gabled roofs.

**Management by Howard A. Moore and Donald Moore**

Howard A. Moore operated the Grain Elevator for about thirty years (while it was owned by Mullen's companies) and was followed in this job by his son, Donald Moore. Howard Moore was living in Louisville and managing the Elevator by 1907, according to Louisville directories. He lived from 1876 to 1934. He, his wife, Zura, and their children lived in Louisville. Their children were Grace, Sadie, Donald, Ethel, Howard Jr., Lois, and Louanna. Museum records indicate that Howard A. Moore served as mayor of Louisville from 1915 to 1917.

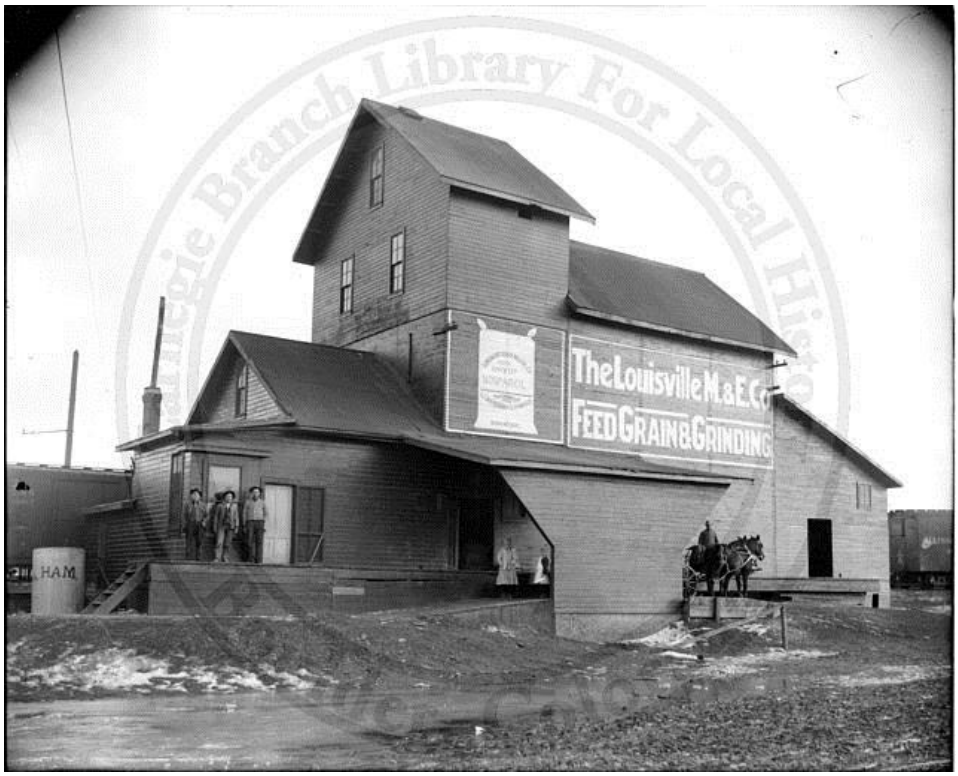
The following photos from the collections of the Louisville Historical Museum and Boulder's Carnegie Branch Library for Local History show the Grain Elevator while it was managed by Howard A. Moore:



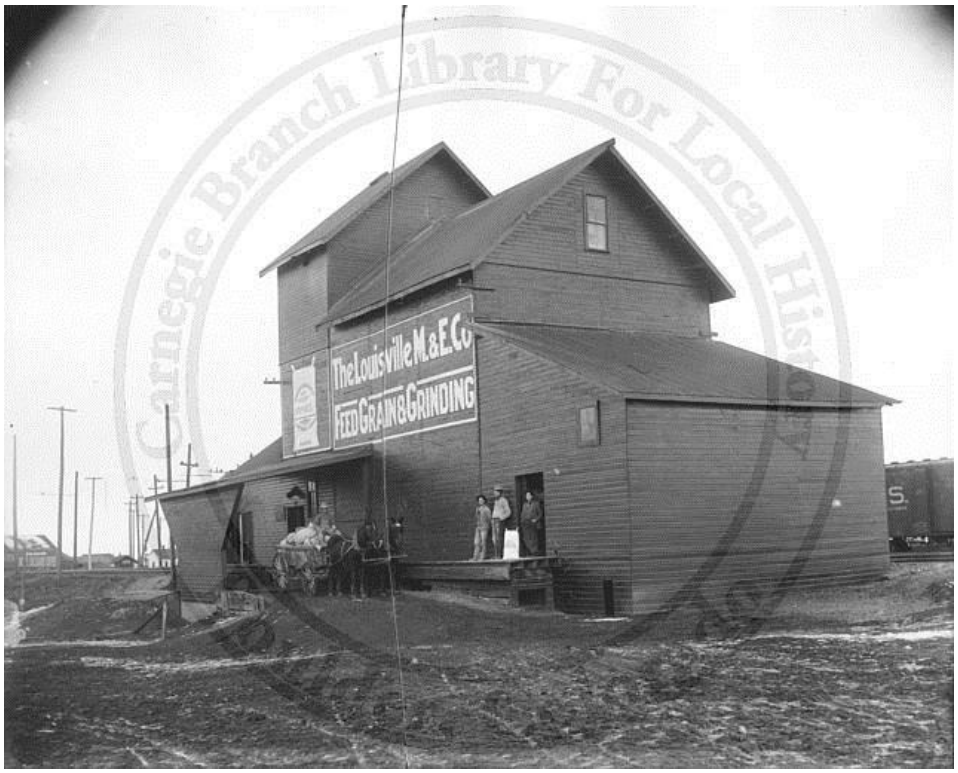

Louisville Grain Elevator, 2/8/1916, Louisville Historical Museum




Louisville Grain Elevator, 2/8/1916, Carnegie Branch Library for Local History, Boulder



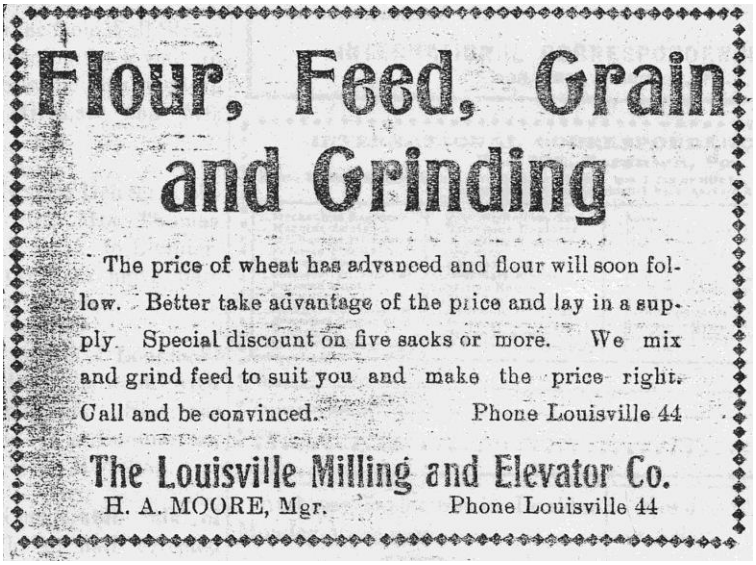

Louisville Grain Elevator, circa 1916, Carnegie Branch Library for Local History, Boulder



Louisville Grain Elevator, circa 1916, Carnegie Branch Library for Local History, Boulder

Louisville directories show that after the death of Howard Moore in 1934, his son, Donald (1909-1975), took over the management of the Elevator. Directories indicate that by 1943, Donald had left this position and the new manager was Wayne Bickel. Managers after this era are noted below.

The following advertisements for the Grain Elevator show that this was a longtime, active business that played a vital role in the economy of the Louisville area:


**Flour, Feed, Grain and Grinding**

The price of wheat has advanced and flour will soon follow. Better take advantage of the price and lay in a supply. Special discount on five sacks or more. We mix and grind feed to suit you and make the price right. Call and be convinced. Phone Louisville 44

**The Louisville Milling and Elevator Co.**
H. A. MOORE, Mgr. Phone Louisville 44

From *Louisville News*, 1909, Louisville Historical Museum

H. A. Moore, Mgr. Phone Louisville 44

∴ The ∴

**Louisville Milling & Elevator Co.**

Louisville, Colorado

**FLOUR, FEED AND GRAIN**

Agents for Nonpareil Colorado-Made Flour and Semolina, a Kansas Hard-Wheat Flour.

We Will Buy Your Wheat at Market Price—
At All Times.

R.L. Polk Directory, 1916, Boulder County, Louisville Historical Museum




Louisville Historical Museum

The Rex Theatre movie curtain, which is a painted canvas made in 1927-28 with advertisements of twenty-two Louisville businesses, includes the above advertisement for the Louisville Grain Elevator; the curtain currently is on exhibit at the Louisville Historical Museum.

**THE LOUISVILLE ELEVATOR**

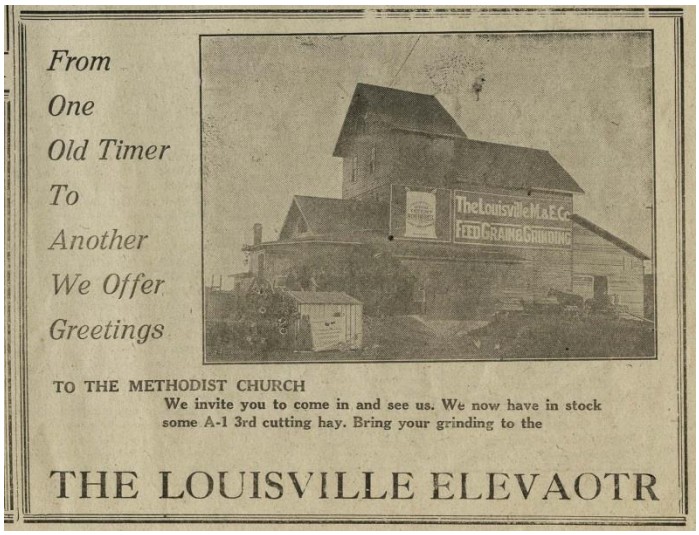
Nonpareil Lay Mash

Flour, Salt, Grain, Hay and Straw

DR. SALSBURY'S POULTRY SERVICE

Phone 44

From 1940 St. Louis Church Annual Bazaar booklet, Louisville Historical Museum




From *Louisville Times*, Sept. 3, 1942,
commemorating the 50th anniversary of Methodist Church,
Louisville Historical Museum

Howard Moore and Don Moore are remembered as having given jobs at the Elevator to Louisville's young men. For example, Lee Evans, who was born in 1917, worked at the Louisville Grain Elevator in the mid 1930s. In his autobiography, entitled *From Happy Valley to the Mountaintop*, he wrote: "As I grew older, I worked regularly after school and on Saturdays at the elevator, shoveling grain into the chute after it was delivered. I sacked grain and loaded it into cars and trucks for customers or for delivery on the elevator-owned truck into Denver. At my highest rate of pay, I got 50 cents a day! But I grew strong with the heavy work, and by the time I was seventeen I could grab the ear of a sack and lift a one hundred pound sack of grain with each hand and pitch it from the walkway up into a truck about four feet higher" (p. 71).

**Thomas Family Association and Ownership**

By the time of the 1946 Louisville directory, Charles Thomas had become the manager of the Grain Elevator. Charles Thomas' wife (Iona Bowes Thomas) and Donald Moore's wife (Sadie Bowes Moore) were sisters, perhaps leading to Charlie Thomas taking over the management of the Elevator not long after the tenure as manager by Donald Moore and his father. A newspaper account states that Thomas lost one hand while working with a corn conveyor at the Elevator. By 1949, the manager had become Vance Lynn, possibly as a result of Thomas' injury. According to the 1951, 1953, and 1955 directories for Louisville, the manager was Dan Gunkel.

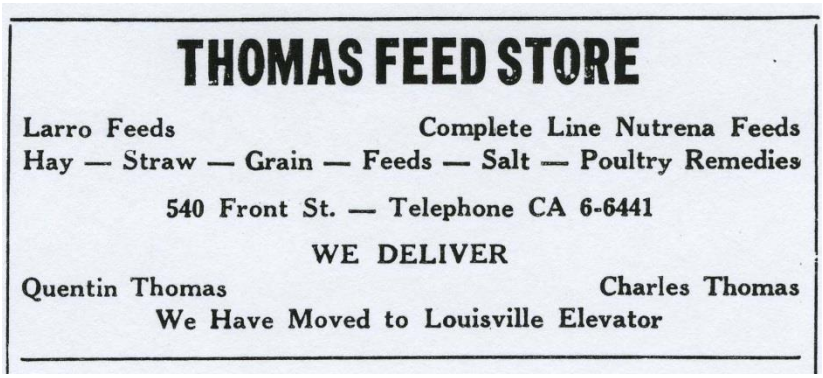
In 1957, Charles Thomas (1912-2002) and his brother, Quentin Thomas (1908-1986), who had a feed store nearby on Pine Street, purchased the Grain Elevator from the Colorado Milling & Elevator Company. The deed states that it was purchased for "$10 and other valuable consideration." This was the first time that the building became a locally owned business, after fifty years of outside ownership.

The Thomas family was a pioneer family of Louisville with varied business interests and properties. Charles Thomas and Quentin Thomas were the grandsons of Nicholas and Mary Thomas. Nicholas Thomas was from Wales and worked as a coal miner, while Mary Oldacre Thomas 's personal history includes the fact that she had worked as a chain maker as a young woman in England before marrying and coming to the United States. They immigrated from England in 1881 with their young son, Nicholas

Thomas, Jr., and came to Louisville in 1883. In 1892, Mary Thomas was one of the founders of the Methodist Church in Louisville, still located at 741 Jefferson, along with other early English settlers in Louisville. The family homes were at 733 Pine and 700 Lincoln (which, like the Grain Elevator, is listed on the National and Colorado Registers of Historic Places). Nicholas Thomas Jr. helped stated the Big Six Coal Company , which operated the Sunnyside Mine just southeast of Louisville. Nicholas Jr. and his sons formed the Ko-Z Coal Company and operated the Fireside Mine in Louisville, after which today's Fireside Elementary School in Louisville is named. It is believed that they had other coal mining interests as well. Thomas family members also operated the City Market on Main Street and moved the business to a new building on Front Street that they constructed. The Thomas family ran the City Market from the Front Street location from about 1966 until 1982. This building at 637 Front later became the location of the U.S. Post Office in Louisville and is now the location of a restaurant and ice cream shop. Another business owned and operated by the Thomas family was the Thomas Feed Store on Pine Street.

In the 1950s, and before 1957, a fire at the Grain Elevator damaged the interior. It was believed to have been caused by spontaneous combustion. Louisville volunteer firefighters Herb Steinbaugh and Tommy Cable are credited with saving the building in a risky and dramatic effort. They climbed up onto the Elevator roof in order to spray water into the tower section. A 1999 *Denver Post* article about the Louisville Grain Elevator stated that the year of the fire was 1955.

It is believed that by this time, the emphasis was on using the Grain Elevator for animal feed as opposed to purchasing wheat from wheat farmers to send to flour mills in Denver. As noted above, Quentin Thomas had operated a feed store on the south side of Pine Street facing north, on the site of today's 637 Front Street. The following 1957 advertisement dates from the Thomas family's early ownership and shows that the Thomas Feed Store had been moved to be located at the nearby Grain Elevator:




From 1957 St. Louis Church Annual Bazaar booklet, Louisville Historical Museum

As noted in the April 4, 1999 *Denver Post* article about the Louisville Grain Elevator, "the automotive industry essentially made grain elevators obsolete, since trucks could load grain in the field and transport it." The UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado* states that many grain elevators were abandoned between the 1930s and 1950s for basically this reason and because of the failure of railroad companies, the droughts of the 1930s, changes in transportation and farm mechanization, and other reasons.

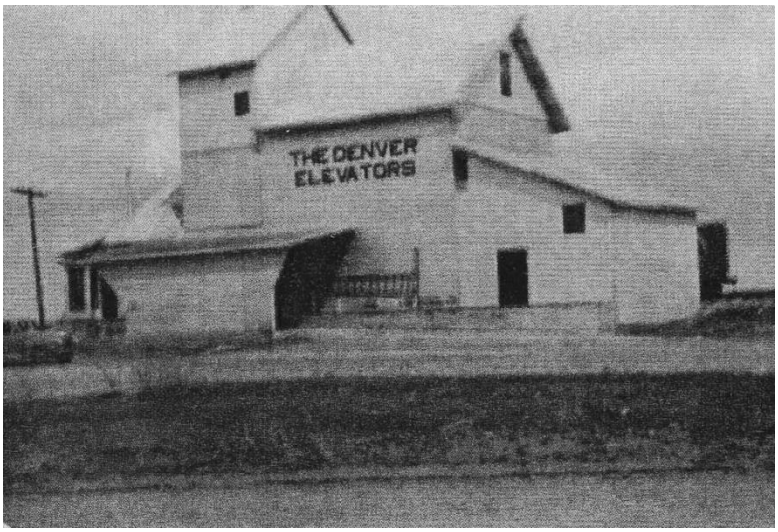
Although it is believed that the Grain Elevator was not used for the storage of grain for human consumption after the 1950s, the scales continued to be useful for weighing purposes for several more years. This usage of the building continued into at least the mid 1960s. For example, a local teen working for a Louisville farm in the 1960s regularly drove truckloads of silage to the Elevator so that the truck

could be weighed, with owner Quentin Thomas making the scales available. These scales from the Grain Elevator were later acquired by a Louisville farming family and are currently located on a Louisville farm. They are believed to have last been used on this farm in the 1990s.

According to the report by Anderson Hallas Architects, the Thomas family's feed store located in the Grain Elevator was open until as late as 1972.

**County Assessor Cards**

This image from the County Assessor shows the building in circa 1949-1958:




A statement written by the County Assessor's office in 1958 says "This building has been burned out on the inside but is still being used." (As noted above, this fire is believed to have occurred in around 1955.)

**Placement on National Register and Colorado Register of Historic Places**

In 1986, twelve historic buildings (seven residences and five businesses) in downtown Louisville were found to have met the required criteria and were placed on the National Register of Historic Places. The stated reason for the selection of the Grain Elevator was that "the elevator is historically and visually the most significant structure associated with the agricultural history of the community. Its frame construction and functional design illustrate an important resource type traditionally associated with agriculture. Listed under Louisville Multiple Resource Area and under Railroads in Colorado, 1858-1948 Multiple Property Submission."

**Statements of Significance from Architectural and Historical Surveys**

The survey of this building conducted in 2000 for the State of Colorado gave the following statement of significance:

> This building has been individually listed on the National Register of Historic Places. It is historically significant, relative to National Register Criterion A, for its association with the

> theme of agriculture during the first half of the twentieth century. The structure is architecturally significant, under National Register Criterion C, because it [is] one of the region's last remaining wooden grain elevators, and because of its rare stacked plank construction. The preservation of this building should be one of Louisville's highest preservation priorities.

The 1982 inventory record stated the building's special features to be "Multi-level steep gables, 50 feet high at highest gable; next to railroad track for transport" and gave the following statement of significance:

> This tall frame structure, although badly deteriorated, provides a valuable visual record of the agricultural heritage of Louisville which has been so largely overshadowed by the pervasiveness of coal mining. . . . [I]ts location near the tracks, (like the early lumber companies), pointed out the fact that Louisville had become an important distribution point for agricultural products by the early 1900's.

The 1982 inventory records also stated that "rehabilitation would help preserve perhaps the only structural link to the agricultural heritage of the town."

**Past Community Discussion About and Recognition of the Louisville Grain Elevator**

A 1996 *Louisville Times* article pointed to the strong support expressed by the Economic Development Committee of the Downtown Business Association for saving and re-using the Grain Elevator, and stated:

> Its roof is full of holes and its white pained is cracked and faded, but the 91-year-old elevator off Front Street is still coveted as a piece of Louisville's history.
>
> The elevator is considered one of the city's last recoverable landmarks, and a coalition of downtown business interests and historical preservationists is exploring ways to return the building to its former glory and open it to the public.

Citing the DBA's Vice President, Cheri Ruskus, the article noted that "preserving a landmark on what will be an increasingly important gateway to Louisville when the 96$^{th}$ Street interchange opens could mean good things for downtown business."

1998 saw the completion of "A Preservation Master Plan: Louisville Colorado." This project and document were funded by the Louisville Downtown Business Association; Historic Boulder, Inc.; the Colorado Historical Society/State Historical Fund; and Boulder County Cultural Council, Tier III SCFD. The completed plan stated that the Economic Development Committee of the Downtown Business Association recognized the potential in sites such as the Grain Elevator "for multiple uses with significant public benefit."

A 1990s *Denver Post* article stated,

> If an enthusiastic group of business owners, preservationists and architects has its way, a towering remnant of this town's rural past will someday welcome visitors to what has become a sprawling modern suburb. The group is studying the possibility of buying and

renovating the historic Thomas Grain elevator, built about 1905. Located just a block from Main Street and adjacent to a still-active railway line, the grain elevator rises above Front and Pine streets in downtown Louisville.

A *Denver Post* article from the 1990s noted that the stacked plank method of construction of the Louisville Grain Elevator is unique. The article cited James Stratis, a restoration specialist for the Colorado Historical Society, as stating that "the elevator's role in the grain transportation system and its unique 'stacked-plank' architecture make the structure a national treasure."

In 2007, the organization Historic Boulder, Inc., which is a 501c3 preservation organization focused on the Boulder area, selected the Louisville Grain Elevator for placement on its endangered list.

Boulder County installed a large photo collage at the Boulder County Courthouse within the last two years. This collage includes a historic photo of the Louisville Grain Elevator in the top center because of its strong connection to Boulder County history. Color was added to the photo to reflect the building's original color, which is believed to have been a deep red color.

In 2011, the City of Louisville awarded a contract to Anderson Hallas Architects, PC to complete a structural assessment of the Louisville Grain Elevator. The contract was for $38,000, which was funded by the City of Louisville through its Historic Preservation Fund. The report by Anderson Hallas Architects, PC, dated May 2, 2011, concluded that the building is structurally sound, barring a few areas of deterioration. The report contains recommendations for a work plan for the Elevator with several different phases and cost estimates.

**Sources**

The preceding research is based on a review of relevant and available online County property records, census records, and oral history interviews, and Louisville directories, newspaper articles, maps, files, obituary records, survey records, and historical photographs from the collection of the Louisville Historical Museum, as well as the following specific sources:

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# Louisville Grain Elevator

Historic Structure Assessment
May 2, 2011




Anderson Hallas Architects, PC
(formerly Andrews & Anderson Architects, PC)
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Note: Numbering follows CHS/SHF
Historic Structure Assessment Outline


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## 1.1 Research Background / Participants

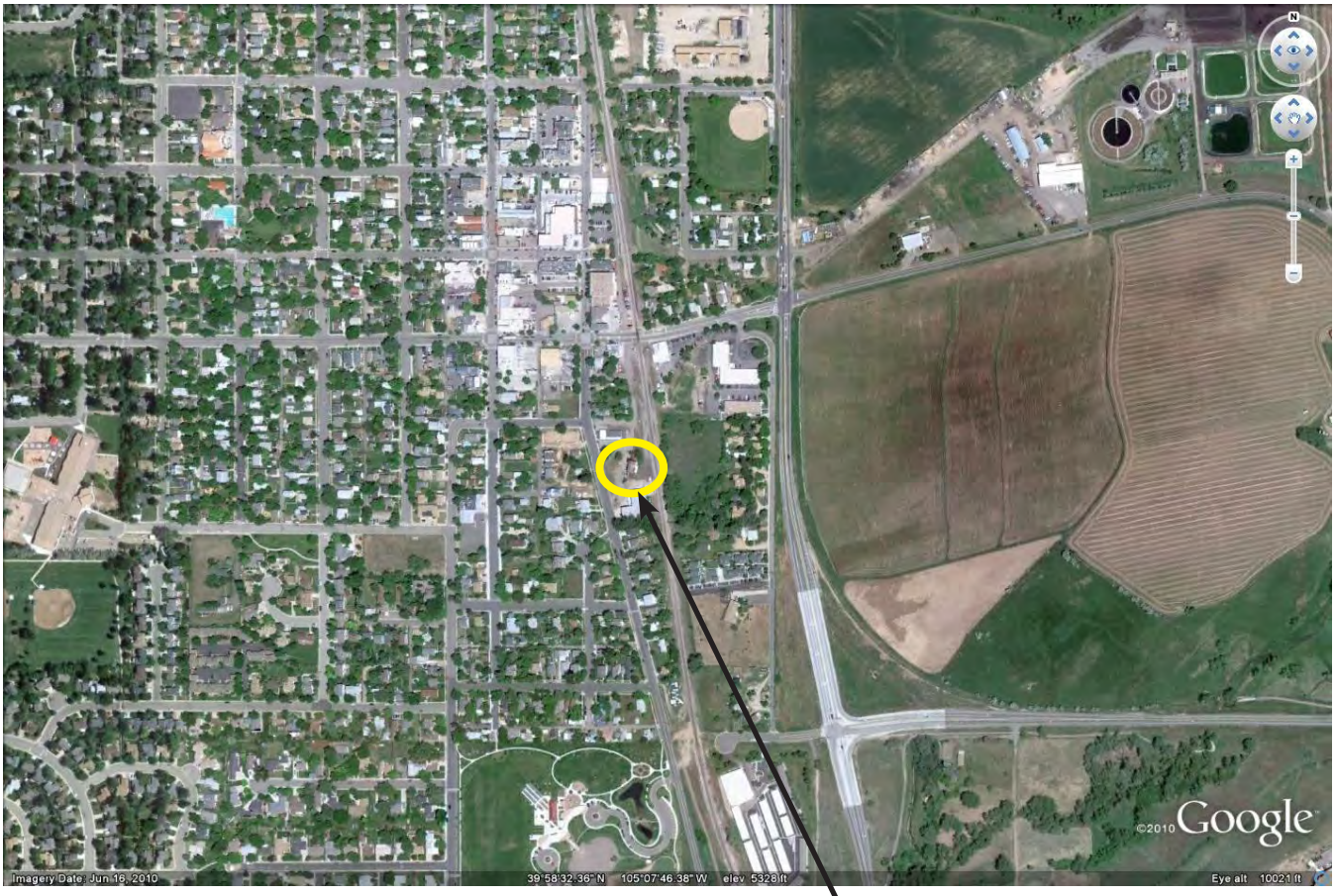
The purpose of this assessment is to evaluate the Louisville Grain Elevator and document the existing elements and their conditions to determine if the building is structurally sound and can be rehabilitated. This assessment is the first part of this project, the second part will explore potential future building use options at the schematic design level.

David Miller, Anne Cutrell and Kristen Craig visited the Grain Elevator January 13, 2011, to measure the building and create as built plans. The entire project team visited the site on January 20, 2011, to assess the building. Nan Anderson, Kristen Craig and Anne Cutrell of Anderson Hallas Architects documented the building elements and their condition. Tom Soell and Ian Glaser of JVA, Inc. visited the site to assess the structural systems. Ron Anthony and Kim Dugan evaluated the wood components of the building. Mike Ritter surveyed the building for hazardous materials.

## 1.2 Vicinity Map / Location Map / Site Plan

The Grain Elevator is located southeast of downtown Louisville, on a tract of land between County Road and the railroad tracks, south of Elm Street. The property is in the southeast corner of the Old Town Overlay District. The vicinity map, location map, and site plan are shown below.

VICINITY MAP:



LOCATION MAP:



SITE PLAN:




### 1.3 Legal Description

P.M. 6th Township 1S Range 69W NW 1/4 of NE 1/4 of SE 1/4 of section 8.
Town of Louisville Tract 712.

## 2.1 ARCHITECTURAL SIGNIFICANCE AND CONSTRUCTION HISTORY

Louisville was first settled in the 1860s and was mainly an agricultural area. The Colorado Central Railroad constructed a track through the area which became Louisville in 1872 and 1873 so six years later when the town was established, transportation was already in place. Louisville had three main economic activities – agriculture, mining and gardening. Throughout Colorado and the Front Range, agriculture was a common way to make a living and Louisville was no exception. Many farms in the area raised crops and livestock. The crops grown in Louisville were mainly corn and wheat, along with hay and straw for animal feed. In the 1870s coal was found in the Louisville area and the first coal mine opened in 1877. This mine created a population boom for the area and by 1900 there were eight mines in the area around Louisville.[1] Mines were located on the west and south edges of town and further away from town to the north and east of the railroad tracks. Coal mining in Louisville was mainly a seasonal activity – the mines operated in the fall and winter months when the demand for coal was greatest. Many of the miners gardened in the off months and sold their produce as far away as Denver and Boulder to supplement their income.

The Grain Elevator was constructed in 1908 by the Louisville Milling and Elevator Company. It had a 25,000 bushel capacity and served area farmers until its closure in the 1950s. In the 1910s and 1920s, Howard A. Moore was the facility manager and lived with his wife Zara on Spruce Street in Louisville, just west of McKinley Avenue. Donald C. Moore, who was perhaps Howard's son, managed the Louisville Milling and Elevator Company in the early 1930s. Donald Moore and his wife Sadie lived at 633 Garfield Avenue in Louisville.

In 1935 Quentin C. Thomas and Charles Thomas became the elevator operators and they purchased the Grain Elevator shortly thereafter. Charles, his wife Iona, and Quentin also owned and operated a feed store which was located approximately half a block to the north of the Grain Elevator. The Thomases were descendants of a long-time Louisville coal mining family. By the early 1950s, the Grain Elevator's name had been changed to "The Denver Elevator." The Grain Elevator stored multiple types of grain including corn, wheat and barley. A railroad spur ran adjacent to the east side of the building and grain was loaded on rail cars and transported to other areas. The Grain Elevator also sold grain to area farmers and to Louisville residents who raised chicken and goats. Local residents buying grain could come to the Grain Elevator and pick up the grain themselves or arrange for the Thomases to deliver the grain to them. Scales were located under an open shed on the west side of the building so wagons, and later trucks, could pull up and have the desired amount of grain loaded into them.

Grinding equipment was located in the basement under the north end of the building. Grain would be brought down to the grinding room through chutes and then transported back up to the top of the elevator tower through chutes and transferred into the grain bins. A small elevator ran from the basement to the fourth floor. Operators moved the elevator by sliding weights on and off the elevator at each floor. In the early 1960s a flash fire started on the second floor, but the fire department was able to put the fire out and the Grain Elevator continued to operate.

The agriculture community in Louisville quickly declined in the mid twentieth century and in the late 1960s the Grain Elevator closed and the majority of the equipment was removed. The Thomas family relocated the feed store to the Grain Elevator but in

1 Item 8 Page 2, *Louisville Multiple Resource Area National Register of Historic Place Inventory – Nomination Form*

1972 that was also closed. In 1981 the Thomas family closed their grocery store and moved the equipment into the Grain Elevator. The Thomas family still owns the Grain Elevator.

The Grain Elevator is listed as a contributing property on the National Register of Historic Places under the Louisville Multiple Resource Area and under Railroads in Colorado 1858 – 1948 Multiple Property Submission.

## 2.2 PROPOSED USE

The Grain Elevator is currently not in use and the purpose of this project is to explore potential reuse options for the building. Three adaptive reuse options will be developed in the schematic design phase of this project and a cost estimate created for each option. Potential uses to be explored include: office, retail, restaurant, brewpub, art gallery and multi-family housing. Another potential use of the building would be to maintain it as a restored artifact with no use.

## 3.0 CONDITION ASSESSMENT

The following rating system is used throughout this report to evaluate various elements of each building:

An element is evaluated as **Good** when:

- The structure, significant features or element is intact, structurally sound, and performing its intended purpose.
- There are few or no cosmetic imperfections.
- The structure, significant features or element needs no repair or rehabilitation and only minor or routine maintenance.

An element is evaluated as **Fair** when:

- There are early signs of wear, failure, or deterioration, though the element or structure and its features are structurally sound and performing the intended purpose.
- There is failure of a significant feature of the structure.
- There is failure of a sub-component of the element.
- Replacement of up to 25% of the element or replacement of a defective sub-component is required.

An element is evaluated as **Poor** when:

- The element or significant features are no longer performing their intended purpose.
- The element or significant features are missing.
- Deterioration or damage affects more than 25% of the element and cannot be adjusted or repaired.
- The element shows signs of imminent failure or breakdown.
- The element requires major repair or replacement.

An element is evaluated as **Unknown** when:

- Not enough information is available to make an evaluation.

No known archaeological resources were observed on the site, however if any ground excavations occur, an archaeologist should be contacted.

## 3.1 Site



View of the Grain Elevator from County Road

CATEGORY:

3.1 Site

DESCRIPTION:

The Grain Elevator is located in Louisville, on County Road, southeast of the downtown area. The building is located in Old Town Louisville – an area of town which has retained its historic character. A landmark ordinance was established in 2005 for Old Town and a Historic Preservation Fund was established in 2008 to help fund preservation projects in Old Town.

The site is the original location of the Grain Elevator, though the surrounding buildings have changed over the years. The Grain Elevator is located to the east of County Road and south of Elm Street on Tract 712. A railroad track is located east of the building and when the Grain Elevator was operational, a spur ran from the railroad to the east side of the building so the railroad cars could be loaded with grain. Today the spur no longer remains, but the railroad track is still in use. Historically the railroad track connected to the Acme Mine, which closed in 1928. See the Appendix for the 1908 Sanborn Map of the site and the 2003 Land Survey.

The site is generally flat, but slopes up sharply on the west side of the building to the first floor building entry. Where the ground slopes sharply, a wood walkway runs adjacent to the building. In historic pictures, the ground did not slope up to the first floor, instead stairs led from the wood walkway down to grade. The walkway started a couple feet north of the northwest building corner and ran along the west elevation just past the southernmost entry door on that elevation. Currently the walkway runs from the north edge of the building to the south edge of Door 5. Originally an open shed extended west from the west elevation with scales located under it so that wagons (and later trucks) could be weighed as grain was loaded into them. No evidence remains of the scales on the site, so it is likely that they were removed. In general the ground

slopes slightly away from the building and provides drainage, but on the south end the ground slopes toward the western half of the building. A concrete curb, that appears to be a more modern addition, runs along the north section of the east elevation.

The landscape around the Grain Elevator has not been maintained for some time. Three mature trees are growing on site – one on the north end of the east elevation and two on the north elevation. The tree on the east elevation is growing immediately adjacent to the building. The two trees to the north of the building are volunteer elms that are growing very close to the Grain Elevator. A young tree is growing at the northwest corner of the building. The only other vegetation growing on the site is volunteer grasses.

An overhead power line feeds into a weatherhead on the north elevation. The Grain Elevator is the last building fed from the overhead line which runs parallel to the railroad tracks north of the building. The wood power pole is located just to the north of the Grain Elevator.

A furniture warehouse is located to the southeast of the Grain Elevator. The warehouse uses the land to the east of the Grain Elevator as a drive for the loading docks. To the northwest of the Grain Elevator is a commercial building which is currently not occupied. An asphalt drive and parking area run along the south elevation of this building.

An asphalt access road runs from Elm Street to the west side of the Grain Elevator. Parking is currently available on the asphalt drive on the west side of the building or on County Road which offers parallel parking on both sides of the street. No parking area is specifically designated for the building.

No archaeological exploration was included and no archaeological artifacts were encountered during the survey but if excavation is planned, an archaeologist should be involved.

EVALUATION:

The site around the Grain Elevator is in fair condition and drains away from the building in most locations. Areas where water is not draining away from the building allow water to puddle against the building which damages the wood exterior walls. The section of the wood walkway that remains is in fair condition but is collapsing on the south end (see 3.3 Structural Recommendations).

Historically the grade around the Grain Elevator stopped below the wood but over the years has built up so it is burying the wood. The original grade can be seen in the historic photographs included in Section 6.0 of this assessment. The change in grade has caused the wood at and below the current grade level to deteriorate. (See Structural Sections 3.2 and 3.3.)

The tree growing on the east side of the Grain Elevator is growing against the building and if allowed to continue growing in this location, the root system may damage the foundation walls. The trees on the north side of the Grain Elevator are growing very close to the building. The grasses are in good condition.

When the Grain Elevator is restored, parking spaces will be needed to accommodate

visitors. A zoning study should be done at that time to determine the number of spaces necessary and the best location for them.

There is currently no site lighting.

RECOMMENDED TREATMENT:

The site should be regraded along the wood walkway so it matches the original grade as seen in the historic photos. The site should be regraded around the rest of the building to ensure it is sloping away from the Grain Elevator. When the ground is regraded or disturbed during site or foundation work, then archaeological monitoring should be provided. The portions of the wood walkway that remain and are in good condition should be maintained in their original locations, and the missing and deteriorated sections should be reconstructed.

The trees on the north and east sides of the Grain Elevator should be removed.

Lighting options should be studied to determine lighting that is appropriate for the site and compatible with the neighborhood.



Electrical pole to the north and asphalt drive to the west of the Grain Elevator



Section of the original wood walkway that remains on the west side of the building



Looking north at the Grain Elevator with the railroad tracks and warehouse on the right



Looking north at the railroad track and warehouse loading dock drive to the east of the Grain Elevator

## 3.2 Foundations



Grain bin walls in the basement

CATEGORY:

3.2 Foundation Systems

DESCRIPTION:

**Sections 1, 2, and 3:** The existing foundation is largely visible in the basement. The basement is approximately six feet tall from the bottom of the first floor joists to the dirt floor. The dirt floor approximately matches the top of continuous footing elevation. Continuous strip footings, where visible, were measured to be 6" thick by 2'-0" wide. These footings support half-height concrete stem walls. The stem walls support half-height wood stud walls around the perimeter and timber posts and beams along the interior bearing lines. Along gridline 4, full-height timber posts are supported on isolated spread footings.

In one location along gridline A and in two locations along gridline Z, the concrete stem wall is omitted where historic door openings once existed. The block-outs in the concrete stem wall are now covered with wood sheathing.

The current exterior grade elevation approximately matches first floor elevation. The historic grade elevation was approximately three feet lower, near the top of concrete stem wall elevation and with isolated areas of lower grade at the basement door openings. A boardwalk, visible in the February 8, 1916 photograph, afforded access to the first floor level door openings.

In Section 2, two interior timber posts on isolated spread footings support basement level machinery. In Section 3, four interior timber posts on isolated spread footing support the first floor in locations presumed to have previously housed heavy equipment. One of these four posts is no longer in-place.

In the central portion of Section 3, an 8'-8" x 7'-8" x 5'-0" deep pit exists. The pit

walls are unreinforced concrete approximately 7" thick. The pit floor is either dirt or a concrete slab concealed beneath the dirt.

**Section 4:** Four continuous strip footings running in the north to south direction support the stacked-plank bin walls. The footings measure 14" thick by 3'-0" wide. The top of footing elevation is approximately 5'-6" below the first floor elevation.

The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning east to west, bear on two untreated 3"x12" plates on top of the strip footings. The stacked-plank bin walls rest on the ends of the floor joists. The space between the joists are infilled with 3"x10" spacer blocks beneath the bin walls.

**Section 5:** The crawlspace under Section 5 is not accessible and is currently only visible through a small wall opening along gridline 5. A total of nine timber posts and the perimeter walls support the first floor above. Isolated footings were visible under the six northern posts at the dirt floor elevation, roughly three feet below the bottom of first floor joist elevation. Footings were not visible under the three posts along the south.

The perimeter foundation walls along gridlines A, Z, and 6 are constructed of wood studs and posts. The walls are sheathed on the exterior side with horizontal siding. The walls along gridlines A and Z are also sheathed on the interior side. Remnants of historic crawl space access openings are visible on each of the three foundation walls.

Along gridline 5, substantial wall settlement is visible along the entire length of this wall with isolated areas of failure where the studs have collapsed inward. The walls along gridlines A and Z do not show signs of movement, but various diagonal braces have been installed perpendicular to the wall plane to resist soil pressure.

The Architectural Inventory Form, (dated April 26, 2000) states that this building section has a wood timber on grade foundation. This is consistent with the substantial wall movement visible along gridline 6, signaling a deteriorated grade beam. The foundations along gridlines A and Z are likely constructed with the same materials. A small portion of concrete footing is visible along gridline A approximately 10 feet north of gridline 6. This concrete is possibly part of a later repair; a departure from the typical foundation construction on the end walls; or an isolated footing at the jamb of the crawlspace access opening.

EVALUATION:

**Sections 1, 2, and 3:** The existing footings where visible were in good condition and showed no signs of distress or movement. Although the 6" thick strip footings are relatively thin, they are still capable of carrying Code required gravity wall loads. The width of the footings is acceptable assuming an allowable bearing pressure of 2500 psf. However, the existing perimeter footings are inadequate to resist the rotation induced by the lateral earth pressures applied to the stem wall.

The concrete stem walls are in good condition and showed no signs of distress, cracking, or movement.

The interior wood foundation walls are in fair condition. The untreated sill plates are in contact with concrete which is not permitted by current Code. However, there were no

obvious signs of deterioration at the time of our assessment, except at one location near grid intersection 3/A noted in the Wood Scientist's report located in the Appendix.

The exterior stud walls were clearly not intended to retain soil originally and the wall is performing poorly as a result. The walls are deteriorated in some locations and deterioration would be expected to continue and become widespread if the wall is not repaired. The wood is absorbing moisture from the retained soil and wood with high moisture content is prone to decay. See the Wood Scientist's report for more discussion on wood decay. Current Code prohibits the use of untreated wood in contact with soil for this reason.

Along gridline Z, in Section 3, the full-height stud wall has failed due to a combination of overload (soil pressure) and wood deterioration. In this location, the first floor and the walls above are supported by a timber beam which spans to gridlines 3 and 4. Thus, the failed stud wall does not pose an immediate risk of structural collapse of the framing above.

**Section 4:** The existing footings, where visible near gridline 4, were in good condition and showed no signs of distress or movement. The footings were sized to support the weight of the stacked-plank bin walls and the weight of grain in a filled bin. Provided the bin walls remain largely intact and no more than two or three levels of floor framing are introduced in any adaptive re-use program, the existing footings should be able to remain in service unaltered.

The existing bin walls below grade range from poor to good condition. In Bins 5 and 6, severe deterioration was readily visible. In the remaining bins, the condition likely varies considerably based on localized areas of high moisture content coupled with environmental conditions favorable to promoting wood decay. Because no visible deterioration was obvious, it is assumed that the remaining bin walls below grade are in fair to good condition with only small areas of wood in poor condition requiring repair.

**Section 5:** The six visible isolated spread footings to the north appear to be in good condition. The remaining three isolated spread footings to the south were not visible and either never existed or have settled substantially. Their condition is poor.

The condition of the foundations along gridlines A and Z is poor since the untreated wood wall and grade beam is in contact with the soil. Wood deterioration was visible at the exterior grade elevation through a small break in the siding at grid intersection Z/6.

The foundations along gridline 6 are in poor condition as segments of the foundation wall above have collapsed and settled significantly. Since this wall supports portions of the first floor and the roof, it should be corrected immediately or temporarily shored until permanent repairs can be performed.

RECOMMENDED TREATMENT:

**Sections 1, 2, and 3:** If the exterior grade is returned to its historic elevation and the fill inside the basement is raised so that the difference in soil retaining heights on both sides of the wall is minimized, then the strip footings and concrete foundation walls, in general, may remain in service although isolated deficiencies will likely be uncovered during excavations that will require repair. It is also anticipated that alterations required

for adaptive re-use of the building will concentrate or change loads in some locations. In these locations, the footing will need to be strengthened or enlarged. Deteriorated portions of the wood stud foundation walls, once they are re-exposed along the exterior and no longer in contact with the surrounding soils, will require repair and replacement where deteriorated. Historic basement level door openings, will need to be infilled with concrete up to the top of the concrete stem wall.

If the grading alterations recommended above are not possible or desired, another basic foundation stabilization option exists. Details of the stabilization will be further developed during design phases after the final use of the building has been decided and in consideration of costs, durability, and other site constraints. The general approach would be as follows:

After excavating around the perimeter of the building to the bottom of the existing footing elevation, the first floor would be shored so that the existing untreated wood foundation walls could be removed. These walls would be replaced with concrete infill walls or preservative-treated wood stud walls and sheathing. The new walls would need to be anchored to the top of the existing stem wall and the first floor diaphragm. The existing concrete wall and footing would need to be augmented with a doweled footing extension and periodic counterforts to resist the lateral earth pressures. After the new wall assembly is constructed, appropriate waterproofing materials would need to be applied to the exterior side of the wall.

The four isolated posts and footings in Section 3 may be removed if office use first floor loading is anticipated. They may also remain if assembly occupancy or large concentrated loads on the first floor are planned. One of the four timber columns will need to be reset. The existing pit in Section 3 should be backfilled to minimize potential settlement of the Section 4 bin strip footings if the pit were to deform.

**Section 4:** No treatment to the bin footings is required. Note that if extensive alteration of the bin walls (i.e. punched openings) and/or significant recruitment of the bins wall for the lateral force resisting system is proposed as part of the adaptive re-use program, it will tend to concentrate load in discrete locations along the length of the existing strip footing. Large concentrated loads will require that the footing be strengthened in these locations.

In Bins 5 and 6, the severely deteriorated portions of the walls require replacement. Needle beam shoring may be required above the deteriorated areas. The deteriorated areas should be removed back to competent, dry material and replaced, ply-by-ply. Until repairs are made, the area between Bin 5 and Bin 6 should be periodically inspected. It may be prudent to shore the bin walls above this deterioration to prevent localized collapse until repairs are completed.

In the remaining bins, the extent of stacked-plank deterioration requiring replacement should be quantified by resistance boring from the interior of the bins. After the bins have been cleaned and the exterior walls currently below grade are exposed during excavation, the condition should also be visually assessed prior to recommendation of final repairs. It is assumed that small areas of the bin walls below grade will require replacement.

Along gridlines A and Z, the exterior grade should be removed so that the stacked-plank

wood bin walls are not in contact with the surrounding soils. If this is not possible, the grade should be excavated to the footing elevation so that deteriorated areas of the wall can be removed and replaced. Prior to backfilling, the exterior side of the walls should be surfaced with an impervious waterproof membrane. Reinforcement, if required, to resist the soil pressures could be installed on the exterior side of the wall and be constructed with preservative treated lumber.

**Section 5:** The soil around the six isolated spread footings to the north should be removed around the base of the timber columns to prevent potential deterioration to the column bases. The footing capacities can be determined once their size is determined, the nature of the first floor loading is determined, and the allowable soil bearing capacity is established.

The three isolated spread footings to the south, if existing, should be removed. New footings should be cast integrally with the new stem wall recommended along gridline 6. Pilasters can be introduced along the stem wall that support the first floor girders in-lieu of replacing the timber posts.

The first floor and stud walls along gridlines A, Z, and 6 should be shored and the existing untreated wood foundations removed. The foundations should be replaced with a concrete stem wall and continuous strip footing. A difference in exterior and interior grade elevations may be maintained by connecting the top of the new concrete stem wall to the first floor diaphragm.

CATEGORY:

3.2b Perimeter Foundation Drainage

DESCRIPTION:

There is no known perimeter drainage system and it would have been unlikely to have been installed at the time of construction.

The exterior grade elevation is approximately equal to the first floor elevation along the north, east, and south sides of the building. Along the east elevation, a concrete curb divides the soils from the exterior wall and diverts surface drainage away from the building edge to the south. The depth of the curb is unknown but is expected to only be a few inches below the surface. Along the north and south elevation, the grade generally slopes away from the base of the building although a depression is centrally located along the north wall. Along the west elevation, the outlying grade is lower and is bermed up to the first floor elevation. This condition clearly diverts surface runoff away from the building envelope.

EVALUATION:

Although the current grading appears to slope away from the building in most locations, the soil is still capable of wetting and transferring moisture into the wood foundation walls.

RECOMMENDED TREATMENT:

The foundations appear stable and no signs of water infiltration were visible in the basement which indicates that a perimeter drain may not be appropriate.[1,2]

The final grade around the building perimeter, no matter of the elevation, should be sloped away from the building at least 2% to encourage surface runoff to migrate away from the foundation walls as recommended in Section 3.1 Site.

Until foundation stabilization and grading is complete, the interface between the existing curb and building's sheathing should be maintained to prevent water from infiltrating the joint. Snow that accumulates along the base of the building should be removed rather than allowed to melt while in contact with the building's wood materials. The grade depression along the north wall, potentially trapping water, should be corrected.

**Footnotes:**

1. The groundwater elevation and the in-situ soil characteristics are unknown. A Geotechnical Engineer's Report will be required to design foundation repairs and that Report should also asses the suitability of a perimeter drain. Since the building's perimeter grade will be excavated during foundation stabilization operations, a perimeter drain could be installed at that time for little additional cost. Perimeter drainage would minimize the possibility of saturated soils increasing the lateral earth pressure on the foundation walls, the periodic increases in moisture in the basement, and moisture changes at the footing depth that may lead to settlement.

2. The Code requires that wood foundation walls enclosing usable spaces below grade be adequately drained.

**Attachments:**

A. Sheet S1.0 in the Appendix.



Section 1: Foundation wall at grid intersection Z/1



Section 2: Foundation wall along grid 3; basement stair, wall sheathing deterioration along grid Z



Section 2: Foundation wall along grid 2 and grid Z; machinery supports posts and footing



Section 3: Foundation wall along grid Z near grid 3; wall failure along grid Z



Section 3: First floor support posts and footings; foundation along grid A beyond



Section 3 & 4: First floor framing beam and joists along grid 4; flared bins wall beyond along building centerline



Section 4: Edge of Bin 1 footing at grid 4; concrete pit in foreground



Section 4: Underside of Bin 4 floor along grid Z



Section 4: Southwest corner of Bin 5 wall deterioration near exterior grade elevation



Section 4: Bin 5 wall  detail view of deterioration, plank plies, and nails



Section 5: Foundation wall along grid A and grid 6; crawlspace access opening remnant; diagonal bracing



Section 5: Failed foundation wall along grid 6



Section 5: Settled stud wall and roof framing along grid 6

## 3.3 Structural Systems



Roof structure and grain chutes in Section 4

CATEGORY:

3.3 General Structural System Description

DESCRIPTION:

Demolition was not performed during the building assessment visit and thus only areas readily visible were assessed. However, the majority of framing assemblies were visible as most of the building's interior is unfinished. The primary exceptions to this were the Section 1 basement and wall framing, and the Section 5 crawl space which were not readily accessible or visible.

The original construction drawings are not available nor does documentation describing any repairs, alterations or additions exist.

Note that this report departs from the Architectural Inventory Form (dated April 26, 2000) convention for describing the distinct building sections. In this report, the sections are described by number, with Section 1 starting at the north and ending with Section 5 at the south. Structural findings and recommendations are referenced to section numbers, room numbers, and gridlines per the drawings in the Appendix which were developed as part of this assessment.

The structure contains five distinct sections demarcated by their construction type, height and historic use. There are multiple floor levels in the approximately 48 foot tall Section 3, the tallest portion of the building. A full basement exists under Sections 1, 2, and 3.

Roof framing consist of sloped wood rafters bearing on interior dropped purlins and stud walls or bin walls on the exterior.

Sections 1, 2, 3, and 5 are conventional light-framed wood construction. The

floors are constructed of 2x and 3x joists with wood floor sheathing. The walls are constructed of 2x studs surfaced with horizontal wood siding. The first floor level of Section 3 is framed with timber posts and beams.

Section 4 is constructed of stacked-plank wood walls which form the six grain bins. There are similar stacked-plank walls on the third level of Section 3.

A mixture of foundations and foundation wall types exist and are described in Section 3.2 in this report.

All wood joists, studs, beams, and post sizes measured corresponded to typical dressed sizes. As such, lumber is referred to by its nominal size in this report. The wood species of the framing elements in Sections 1, 2, 3, and 4 has been identified as Douglas-fir. The wood species in Section 5 has been identified as a mixture of Douglas-Fir and Western yellow pine. Please refer to the Wood Scientist's Report in the Appendix for more details.

Detailed structural system descriptions are found elsewhere in this report.

EVALUATION:

The building structure below the first floor is in poor condition. The building from the first floor and above is generally in fair condition. Selective strengthening of the framing systems will be required to address fire damaged members and localized framing areas having calculated overstresses.

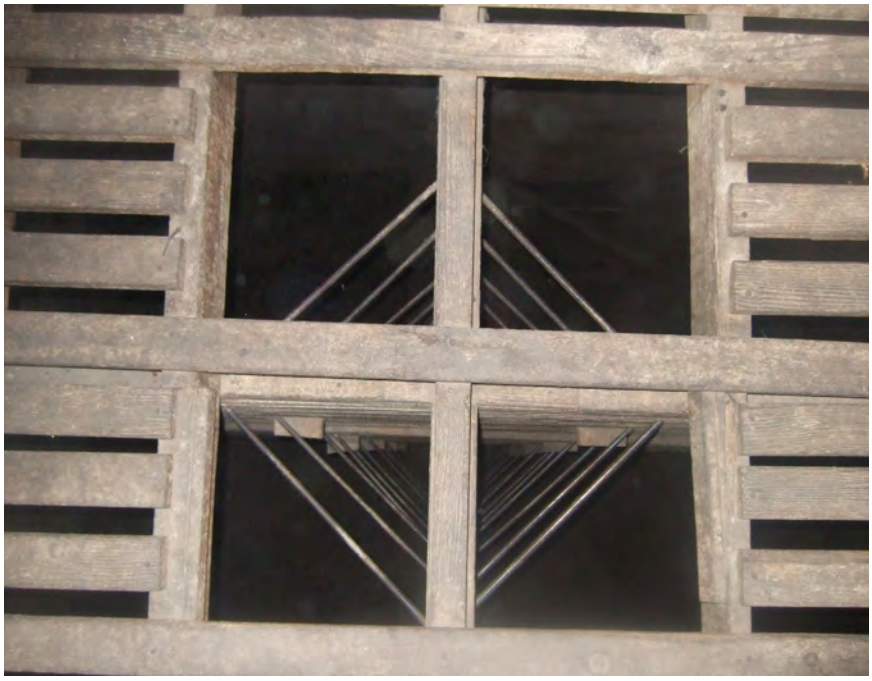
The structure is currently a "U" or utility occupancy. The proposed use will result in a classification that, per IEBC Table 912.4, represents an increase in hazard category. The occupancy category also increases from I to II per IBC Table 1604.5. This triggers a number of structural upgrade provisions in Section 907 of the IEBC. Per 907.2, the existing building shall be analyzed and comply with applicable wind or snow load provisions of the IBC. Per 907.3.1, the existing building shall conform to the seismic requirements of the IBC for the new seismic use group. This will require that the roof framing and lateral force resisting systems be strengthened to comply with current Code.

The final use of the building has not been determined. However, where the proposed use results in an increase in live load, the capacity of the floors and their supporting elements will have to be determined and strengthening will be required where they are found deficient.

RECOMMENDED TREATMENT:

See detailed structural system descriptions for recommended treatments.

## 3.3 Structural Systems



Looking down at the ladders leading from the fifth floor into the grain bins

CATEGORY:

3.3a Floor and Ceiling Systems

DESCRIPTION:

**Section 1:** The first floor is framed with 2”x8” joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud walls along gridlines 1 and 2. An interruption in the floor framing exists where a basement stair exists and is now abandoned. The floor opening has been sheathed over.

The first floor ceiling is framed with 2”x6” joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud wall along gridlines 1 and 2 and are surfaced on their underside with finishes. No other ceiling finishes exist in the building.

**Section 2:** The first floor is framed with 3”x12” joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple walls along gridlines 2 and 3. An interruption in the floor framing exists at the basement stairs.

The second floor is framed with two bays of 2”x8” joists spaced at 24 inches spanning in the east to west direction. The joists bear on wood stud walls along gridlines A and Z and a central bearing line that equally divides the two bays. The central bearing line was a wood stud wall, but it has been removed. The existing top plate remains in place and is supported in three places by wood props. The second floor framing is fire damaged.

**Section 3:** The first floor is framed with 3”x12” joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple wall

along gridline 3 and timber posts and beams along gridline 4. Four isolated posts with wood 'corbels' are spaced roughly equidistantly in a rectangular pattern beneath the center of the bay. It is assumed these additional floor supports accommodated machinery historically stored on the first floor of Section 3. One of the four posts in no longer in place.

The third, fourth, and sixth floors are also framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists span the full bay width to bearing lines along gridlines 3 and 4. The floor joists on all three floors are fire damaged. The maximum depth of char measured is 9/32 inches. Multiple interruptions in the floor framing exist around chutes, machinery, stairs, and ladderways. The sixth floor is an approximately 8 feet wide centrally located mezzanine with open areas to the east and west.

**Section 4:** The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning in the east to west direction, bear on 3"x12" plates over the existing continuous footings. The bin floor joists are presumed to be wood sheathed, but the flooring materials were not visible beneath the existing grain and detritus.

The fifth floor is approximately 10 feet wide, centered over the bins below, with open areas to the east and west. The floor framing consists of 2"x8" joists at random spacing spanning approximately 9 feet in the north to south direction to the bin stacked-plank walls. The flooring is flat 2"x4" gapped boards. Six small openings in the flooring provide access to each bin via ladderways.

**Section 5:** The first floor is framed with 2"x10" joists, spaced at 16 inches, running east to west, and spanning a maximum of 10 feet. The floor joists bear on the foundation walls along gridlines A and Z at the exterior and lap over three-ply 4"x12" dropped timber beams on the interior. The beams are each supported by three 8"x10" timber posts.

The three timber posts along and nearest to gridline 6 have failed. Two of the posts have fallen down and the center post has noticeably settled. Along the western bearing line, the south end of the dropped beam has fallen down to the crawlspace floor. The south ends of the two other bearing lines have moved downward approximately 6 inches to 1 foot. The floor joists have also displaced downward sympathetically with the displaced beams.

EVALUATION:

**All Sections:** The approximate load carrying capacities of the floor framing systems were calculated based on the member size, approximate span, wood species, and an assumed grade. Fire damaged member sizes were adjusted based on the maximum depth of char measured, subtracted from three faces of the member.

The Wood Scientist's findings indicate that the likely grade of the building's wood framing as a whole is #3. Where the lumber grade was assessed, the percentage of members not meeting grade ranged from 10 to 20 percent. Utilizing the estimated grade of #3 in design calculation reduces the calculated joist capacities by approximately 40% compared to a grade of #2. Since this difference is considerably penalizing, a grade of #2 was utilized for estimated framing capacities. The use of the better grade in design calculations is coupled with the assumption that the

small percentage of joists that do not meet the requirements of #2 grade can be individually replaced or sistered and consequently minimize the amount of intervention required to stabilize and reoccupy the structure.

There are a number of existing interruptions in the floor framing and alterations (i.e. notches) to the floor joists. These framing anomalies were not considered in the determination of the approximate floor capacities.

In general and under the above assumptions, the floor framing is robust and has the calculated capacity to support office loading and in some places higher occupancies such as assembly. The existing floor joist sizes and spans are generally appropriate for their historic intended function in a light industrial facility. See the evaluations below, where departures from the above generalization are noted.

**Section 1:** The first floor framing is in good condition and has the capacity to support residential or office uses. The ceiling framing is capable of supporting new finishes and fixtures.

**Section 2:** The first floor framing is in good condition and has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The second floor joists are in poor condition and are overstressed under live loads in excess of 20 pounds per square foot, but the floor capacity as a whole is limited by the intermediate bearing line which presently has no excess calculated load carrying capacity.

**Section 3:** The first floor framing has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The third, fourth, and sixth floors, are hindered by their loss of section due to fire damage. But, these fire damage floor systems are still capable of supporting office loads.

The capacity of the timber post and beam framing system is outside the scope of this report, but the member sizes appear adequate for office uses. No signs of deterioration or distress were observed. The charring observed does not substantially affect the uses of the floors structurally.

**Section 4:** The bin floors appear to be in good condition and have very high load carrying capacity congruent with their historic purpose of supporting up to 30 feet of grain. The existing floor sheathing over the grain bin floors is assumed to have areas of deterioration as moisture has likely been trapped by the historic silage or existing detritus. The condition can be considered between poor and fair.

The fifth floor is in good condition and is capable of supporting approximately 50 pounds per square foot which is adequate for an office use.

**Section 5:** The first floor framing is in poor condition as the southern half of the floor has failed or nearly failed where the south ends of the dropped beams have been undermined. Once the foundation walls are repaired and the posts and dropped beams are re-supported, the first floor framing will have the calculated capacity to support any of the proposed uses for the building including light storage.

RECOMMENDED TREATMENT:

**All Sections:** Once the intended uses of the various floor sections are determined, the floor framing should be selectively strengthened as required to meet Code requirements for that use. Some floor areas will require strengthening while other areas will not.

Wood joists and beams should be graded individually by a qualified wood grader. Members not satisfying requirements for #2 grade will likely require replacement or strengthening. This approach requires that the lumber with grade limiting defects be identified by a qualified grader but allows the structural intervention to be minimized to only those members which absolutely require it.

All framing anomalies such as deeply notched joists and inadequately framed floor openings should be repaired.

**Section 1:** The first floor framing around the abandoned stair opening should be evaluated as it is not currently visible. Minor repairs should be expected. No treatment of the first floor ceiling is required.

**Section 2:** Minor strengthening of the first floor framing around the basement stair opening are warranted. The second floor joists have little excess load carrying capacity and are charred. The second floor framing should be removed and replaced with a system that meets the adaptive reuse programming needs.

**Section 3:** The basement level post should be reset between the existing spread footing and wood 'corbel'. Some additional posts or stud infill should be expected beneath the first and third level timber beams along gridlines 3 and 4. The extent of upgrades to these bearing lines will depend on the occupancy programmed for the four levels above.

From a structural point of view, the third, fourth, and sixth floor framing may remain in place, since the floors have moderate load carrying capacity despite the fire damage. However, the burnt lumber's odor, color, and texture may necessitate that the framing either be removed and replaced or the charred outer portions of the members be scraped off. The floor sheathing on these levels should be removed and replaced.

**Section 4:** Once the detritus is removed, the bin floor joists and floor sheathing should be investigated to identify deterioration. Deteriorated portions of the floor sheathing, and floor joists if occurring, should be removed or epoxy consolidated. If the floor is to be occupied, the floor sheathing will likely require replacement.

No treatment is recommended to the fifth floor in order to stabilize the building. If live loads exceeding 50 pounds per square foot are programmed, then selective member strengthening should be expected.

**Section 5:** The ends of the three dropped beams along gridline 6 should re-supported on new timber posts or on pilasters along a new foundation wall. Anchorage should be provided from the dropped beams to all points of support.



Section 1: First floor framing bearing on wall along grid 2; wall beyond on grid Z



Section 2: First floor framing bearing on wall along grid 2



Section 2: West bay of second floor framing



Section 2: Removed bearing wall supporting second floor framing with wood prop



Section 3: First floor framing bearing on wall along grid 3



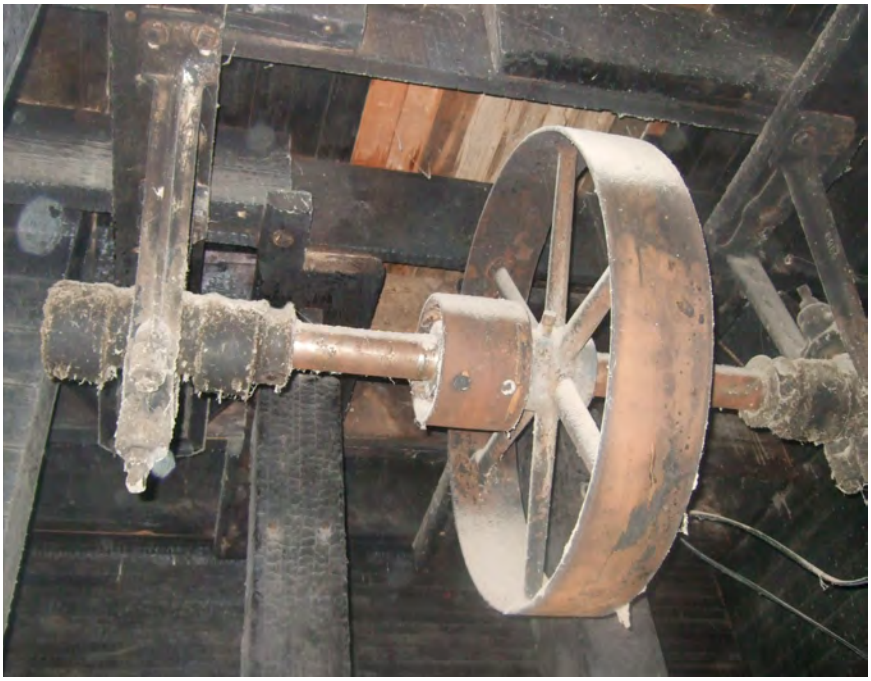
Section 3: First floor framing, wood post and 'corbel'



Section 3: Southeast corner of third floor framing bay



Section 3: Fourth floor framing; stacked-plank Chute ‘partitions’ below



Section 3: Fourth floor framing interrupted for machinery



Section 3: Sixth floor mezzanine framing with notch



Section 4: Underside of Bin 1 floor framing



Section 4: Fifth floor framing, looking south



Section 5: First floor framing, looking south

## 3.3 Structural Systems



Stacked boards supporting roof structure

CATEGORY:

3.3b Roof Framing System

DESCRIPTION:

**Section 1:** The shed roof is framed with 2”x6” sloped rafters, spaced at 16 inches, and sheathed with horizontal board sheathing.

**Sections 2 and 3:** The gable roofs are framed with 2”x6” rafters spaced at 24 inches. The rafters are supported by three-ply 2”x8” dropped purlins and the stud walls along gridlines A and Z. At the peak, the rafters abut one another; there is no ridge board. Horizontal skip sheathing is surfaced with plywood which was apparently added after the fire. The 2x framing and skip sheathing are fire damaged.

**Section 4:** The gable roof is framed with 2”x6” rafters spaced at 24 inches. The rafters are supported by a 2x ridge board, 6”x8” dropped purlins, and the stacked plank walls along gridlines A and Z. The purlins are supported by 6”x6” posts at their ends on gridlines 3 and 4, and in two intermediate locations that align with the stacked-plank walls that divide the bins. Four lines of 2x collar ties approximately 9 feet above the fifth floor elevation are spaced at 6 feet. Horizontal skip sheathing is surfaced with corrugated sheet metal roofing. There is no ceiling and the chutes that serviced the bins remain in the open space.

**Section 5:** The shed roof is framed with 2”x8” sloped rafters spaced at 24 inches spanning north to south. The northern bay is supported by a ledger along gridline 5 and a dropped four-ply 2”x8” girder. The southern bay is supported by the dropped girder and the stud wall along gridline 6. The dropped girder is located midway between the gridlines 5 and 6 and spans in the east to west direction. It is supported by 8”x8” posts at mid-span and at its ends on gridlines A and Z. The rafters are sheathed with corrugated sheet metal roofing over horizontal skip sheathing.

EVALUATION:

The roof framing is in poor condition. In general, the rafters and purlins do not have the calculated capacity to support Code required snow load. Since the roof elevation of each building section is different, snow drift loads affect all of the roofs except in Section 3.

The skip sheathing in Sections 2, 3, 4, and 5 does not provide the Code required diaphragm capacity to resist and distribute lateral loads.

RECOMMENDED TREATMENT:

**Section 1:** The rafters at the high end of the roof are subject to increased snow loads due to drifting and should be sistered. Since there is no accessible attic space, this work will require that either the ceiling finishes or the roof sheathing be removed to perform this strengthening work.

**Sections 2 and 3:** The roof framing and sheathing should be replaced since it is fire damaged and has inadequate capacity. The replacement framing can generally mimic the existing framing although larger framing members and/or tighter spacing will be necessary. Ridge beams will be required to eliminate rafter thrust since collar ties will interfere with the floor spaces. (The second floor diaphragm in Section 2 is several feet below the eave elevation. The sixth floor diaphragm in Section 3 does not extend to the eaves on gridlines A and Z.) One layer of plywood roof sheathing will satisfy diaphragm requirements.

**Section 4:** Selective strengthening of roof framing is required to bring the roof into conformance with Code. Member sistering and/or replacement as well as connection strengthening should be expected. Various roof sheathing, insulation, and roofing material assemblies can be developed which allow the roof structure to remain exposed if desired, provide space for insulation, and address structural diaphragm concerns.

**Section 5:** The ledger connection along gridline 5 should be repaired. This will likely require that the existing ledger be shored and jacked into position flush against the stacked-plank wall and thru-bolted at regular spacing. The rafters in the north bay are subject to snow drift loads and will require sistering. Alternatively, additional rafters could be added between existing rafters to decrease the rafter spacing. The rafters in the south bay require no treatment. The dropped girder supporting the rafters has inadequate capacity to resist Code loading and should be strengthened, replaced or two additional supporting columns should be introduced. A new layer of plywood sheathing should be installed or other materials that provide diaphragm capacity can be considered.



Section 1: Shed roof framing and flat ceiling framing, looking north at grid 2



Section 2: Gable roof rafters over dropped purlin, looking south at grid 4



Section 2: Gable roof rafters at eave bearing on top of stud wall along grid Z



Section 3: Gable roof rafters over dropped purlin



Section 4: Gable roof rafters over dropped purlin on east side



Section 4: Gable roof rafters at eave bearing on top of stacked-plank wall along grid Z



Section 5: Shed roof rafters at eave birdsmouthed over stud wall on grid 6



Section 5: Shed roof rafters bearing on ledger along grid 5 and on dropped multi-ply dropped girder

## 3.4 Exterior Wall Structure



Grain bin stacked plank walls

CATEGORY:

3.4 Exterior Wall Structure

DESCRIPTION:

**Sections 1, 2, 3, & 5:** The exterior walls are light-framed stud walls. 2x6 studs are spaced at 16 inches and surfaced on the exterior with horizontal siding. In Section 3, intermittent 2x diagonal bracing is nailed to the inside face of the wall studs. The first level walls in Section 3 are stud infill between the existing timber beams and are stacked-plank on the third level. Many of the wall studs in Section 3 have experienced scorching due to the fire. Except in Section 1, there is no insulation between the studs and there are no finishes applied to the inside face of the studs.

**Section 4:** The exterior walls are constructed with 2x stacked planks. At the top of the walls, the planks are 2x4s. Roughly 6 feet below the top of the walls, the planks transition to 2x6s and continue to the bin floors at this width. The central bin wall that runs in the north to south direction and divides the three eastern bins from the three western bins, transitions from one wall to two walls roughly at the first floor elevation. There is crawlspace access between and below these flared walls. The lengths of the planks varies, so that splices in the plies are lapped with the plies above and below. The plies were nailed together as the wall was constructed; the nails are exposed in the deteriorated areas between Bin 5 and Bin 6. The stacked-plank plies alternately lap at the bin wall corners. Along the exterior walls, the end grain of alternating dividing wall plies are visible. In all of the bins, except Bin 6, stacked-plank sister walls exist at their bases on the interior side.

EVALUATION:

The exterior walls below grade, evaluated previously in this report, are in poor condition, The exterior walls from the first floor and above are in fair condition. The 2x6 stud walls and stacked plank walls are generally capable of resisting Code required gravity loads

and out of plane wind loads. The stacked plank walls are particularly robust since they had to resist the lateral pressures imparted by the stored grain or silage.

However, some areas of localized deficiencies do exist. In the upper level of Section 3, the wall studs along gridlines A and Z span approximately 11 feet from the fourth floor to the roof eave. The top of the stud wall is not braced where it terminates and supports the rafters since the sixth floor does not extend to the east and west walls.

In Section 5, the wall studs along gridlines A and Z vary in height from approximately 12 feet to 20 feet. The taller studs to the north do not meet current Code for resistance to out-of-plane wind loads.

In Section 4, the stacked-plank bin walls have localized areas of deterioration described elsewhere in this report. This deterioration is almost entirely isolated to portions of the walls currently below grade. The sister walls in the bases of the bins are believed to have been installed sometime after the original construction to address either wood decay or increased lateral earth pressures.

The existing walls also must resist in-plane wind and seismic loads and transmit those loads to the building foundations. The stacked-plank walls have the capacity to resist these loads. However, the horizontal siding on the stud walls and the intermittent 2x diagonal bracing in Section 3, are generally inadequate to resist the in-plane Code prescribed wind and seismic forces. Wall chords and anchorage are also insufficient to resist overturning forces. Drag elements along the interfaces with the stacked-plank walls along gridlines 4 and 5 are undersized to allow load sharing between Section 3, 4, and 5.

RECOMMENDED TREATMENT:

In Section 3, the top of the stud walls along gridlines A, Z, and 3 should be braced. This can be accomplished by adding strongbacks to the inside face of studs at the top of the wall or extending the sixth floor framing and sheathing to meet the walls at the east and west sides of the building. Studs that have experienced pillowing or alligatoring due to the fire should be removed and replaced.

In Section 5, the tall studs along gridlines A and Z should be sistered with new studs. Because the studs are not interrupted by an intermediate plate, these sisters can be easily installed.

In Section 4, the deteriorated areas of stacked-plank construction should be removed and replaced as noted elsewhere in this report.

In order to bring the existing lateral force resisting system into compliance with current Code, alterations will need to be made to the existing stud walls. These alterations would include installing a layer of plywood sheathing on a portion of all of the perimeter walls and the walls along gridlines 2 and 3. This sheathing would typically be installed on the inside face of the studs and be concealed by new finishes. Blocking between studs will need to be installed at plywood panel edges in heavily loaded walls. Stud packs and holdowns anchors will be required at the ends of all designated shear walls. Footing augmentation should be expected at the ends of all designated shear walls to resist overturning forces. The selective addition of collector and drag elements should also be anticipated.

Once the final use of the building has been determined, the required alterations to the lateral force resisting system can be developed. Not all of the walls in the building require the alterations noted in the paragraph above, just those portions of walls designated by the designers to be recruited to work in the lateral force resisting system. Segments of designated shear wall should be expected along gridlines A, Z, 2, 3, and 6. A shear wall should be installed on the first level along gridline 3 since currently there is no line of resistance at this location and this is clearly a weak link in the existing system. Since the stacked-plank walls in Section 4 have considerable in-plane lateral capacity, they can be employed to resist portions of the loads which might otherwise be resisted by new sheathed walls in Sections 3 and 5. This will require strengthening of the connections to the floor and roof diaphragms along gridlines 4 and 5. The amount of load redirected to the stacked-plank walls will need to be carefully balanced with desire to minimize the overturning forces induced in the stacked-plank walls that would trigger adding holdown anchorage to the bin walls and footing underpinning beneath the bins.

These modifications all potentially impact the appearance of the building and would be carefully designed to minimize that impact. There are numerous other solutions which can be explored to meet Code and minimize the impact to the historic fabric of the building. Diagonal or cross bracing with wood or steel rods may prove to be a more desirable solution than sheathing walls in terms of both cost and aesthetic impact.



Section 3: First floor exterior wall along grid Z; stud infill at timber post and beam framing



Section 3: Fourth floor exterior wall along grid 3 and grid A; 2x diagonal bracing lapped over wall studs



Section 3: Sixth floor exterior wall along grid 3 and grid A; unbraced wall hinge at break in studs



Section 3: Exterior wall with horizontal siding and 2x diagonal bracing lapped over wall studs



Section 4: Stacked-plank bin wall along west elevation, lapped plies at cross dividing wall corners



Section 5: Exterior wall studs along grid Z at grid 5; roof ledger along grid 5



Section 5: Roof ledger along grid 5 and underperforming anchors into stacked-plank wall

## 3.4 Exterior Walls



West elevation

CATEGORY: 3.4 Exterior Walls

DESCRIPTION:

The Grain Elevator is rectangular in plan, measuring approximately 88' x 28', with the front façade on the west side. The building outline is rectangular with the exception of a small jut out on the north end of the west elevation which is original to the building. The Grain Elevator is composed of five sections, each with a different height and roof. Section 1 is the section furthest north and the numbers progress to the south. (The sections are labeled on the west elevation, Sheet 4.0 in the appendix.) The northern and southern most sections have shed roofs, and the middle three sections each have a gable roof. The three north sections have wood tongue and groove siding, the southern most section has shiplap wood siding. The section in the middle, containing the grain storage bins, has stacked wood planks. The process of stacking boards horizontally with the broad sides together is called cribbing and was a common construction technique for grain elevators.

The three northernmost sections of the building are clad with wood tongue and groove siding with 5 1/8" exposure. The exception to this is Section 3 which has faux-shingle siding on the top third of the north, east and west elevations, though this appears to have been installed over the historic siding which is visible on the interior of the building. On all three sections the underside of the rafters are exposed where they extend from the building and the rafter tails are covered by fascia boards. Corner boards are nailed onto the northeast corner of the building. Historic photos do not show corner boards on the northwest edge of the building and there is no physical evidence that any ever existed. The siding, fascia and corner boards are painted white, though the paint is worn away and peeling. In the historic photo, the siding appears to have been painted a dark color and a sign showing a feed bag was painted on the west elevation of Section 3. A metal spout with a chain running along either side extends out

from the wall one third of the way up the east elevation of Section 3. The lower section of the spout appears to be newer than the section that extends from the building. This spout was likely used to pour grain into the railroad cars on the spur that ran adjacent to the building.

Section 4 contains the grain bins. There is no exterior cladding on this section, so the cribbed boards are visible. Since the boards are stacked with the broad sides together, the exterior edge of each board is 1 5/8". Two-by-six boards were used for the lower section of the bins and about two-thirds of the way up it switches to two-by-four boards. The boards are nailed together and interlock at the corners of the bins, so the bin divisions read through to the exterior. The boards have been painted white, though the paint is peeling and worn off. The lower ten feet of the east elevation has graffiti spray painted over the white paint. The historic photo shows a sign that says "The Louisville M.&E. Co FEED GRAIN & GRINDING" on the upper half of the west elevation. A chute extends out of the middle grain bin on the west elevation. At the joint between the southern two bins on the west elevation, a number of boards are deteriorated at grade level. Since Section 4 is taller than Section 5, part of the south bin wall is visible on the exterior. The stacked boards end at the top of the bins and above that the exterior wall is clad with corrugated sheet metal panels.

Section 5 is clad with shiplap siding, which has either shrunk so most boards are no longer overlapping or was not installed in the traditional manner with overlapping edges, but was instead installed with the bottom edge of one board abutting the top edge of the next board. The siding averages 5 ½" wide. On the west elevation, corrugated sheet metal has been nailed over the siding at grade level. Corrugated sheet metal panels have been nailed over the siding on the east half of the south elevation from grade level up to the rafter tails. The corrugated panels wrap around to the southeast corner of the building and cover three quarters of east elevation of Section 5. For the most part, the siding is not painted, though there are still faint hints of red paint on the wood in some areas. The corrugated metal panels are not painted, though there is graffiti on some of the panels on the east elevation.

The historic photo shows an open shed that extends out to the west of the building from the middle of Section 2 to the middle grain bin. The west wall of the shed was clad with tongue and groove siding that matched the siding still in situ on Sections 1, 2 and 3. No elements of the shed remain.

EVALUATION:

The siding on Sections 1, 2 and 3 is in fair to poor condition. There are a few areas where deterioration is visible on the exterior and a large percentage of the siding has fire damage on the interior side. The siding has been damaged on the north end of the east elevation and plywood has been nailed up to protect that area. The fascia boards are in fair to poor condition, with some boards splitting and peeling away from the rafters.

The stacked exterior boards on Section 4 are generally in good condition, with the exception of the area on the west elevation where boards are missing and deteriorating. The south end of Section 4 that is currently clad with corrugated metal panels historically had wood siding.

The wood siding on Section 5 is in poor condition. The wood is deteriorated and

splitting apart in many locations and not longer laps to create a weather barrier. On the west elevation, the siding to the north of the door is seriously deteriorated so a piece of plywood has been nailed up to cover the holes in it. On the south elevation the bottom four feet of boards, not covered by metal panels, are significantly deteriorated and some boards are missing. The southwest corner of the building has been run into by trucks that tore through the corrugated metal panels and damaged the wood in two places. The corrugated metal panels are peeling off of the east elevation in several places.

With the exception of Section 5, the Grain Elevator is currently painted white, though the paint is peeling. The paint on Section 5 is significantly deteriorated but the paint that remains is red. In the historic photos, the siding, with the exception of the building sign it appears to have been painted red or reddish brown.

RECOMMENDED TREATMENT:

On Sections 1, 2 and 3 damaged and deteriorated siding should be replaced with wood siding to match the existing. The faux-shingle siding should be removed and replaced with tongue and groove siding to match the historic. The fascia boards that are deteriorated or warped should be replaced in-kind.

Section 4 should be repaired per the structural recommendations for the grain bins. The corrugated metal panels should be removed from the south end and tongue and groove siding should be installed to match the siding found on Sections 1, 2 and 3.

The siding on Section 5 should be replaced with shiplap siding. The siding should have 5 ½" exposure to match the current.

The building should be painted a red or reddish brown to return it to its historic appearance. The exact color cannot be determined from the historic photographs. A paint analysis should be done to determine the paint color on Section 5. When the faux-shingle siding is removed from Section 3, if any original siding remains underneath, it may have remnants of the original paint color which should be included in the paint analysis. The historic sign should be repainted on the west façade.



South elevation




East elevation - southern sections 5, 4, 3




East elevation - northern sections 4, 3, 2, 1



North elevation



Sections 1, 2 and part of 3 - west elevation



Metal spout on east elevation of Section 3



Section 4 - Grain bins west elevation



Section 4 - deteriorated cribbing at grade level



Section 5 - siding deteriorated at grade level of south elevation

## 3.5 Roofing and Waterproofing



Asphalt shingles on Sections 2 and 3 and corrugated metal roofing on Section 4

CATEGORY:

3.5 Roofing and Waterproofing

DESCRIPTION:

There are five different roofs, one over each section of the Grain Elevator. Section 1 has a shed roof with red asphalt shingles. The roof sheathing appears to be 1x boards nailed to the rafters with abutted ends. A brick chimney with a cementitious coating is located slightly to the west of the center of the building in the north edge of the roof. Just to the east of the chimney, a weatherhead extends through the roof down to the electrical box. The jut out on the west side of the building has a small hipped roof with red asphalt shingles. Sections 2 and 3 are gable roofs with red asphalt shingles. The sheathing for both roofs appears to be plywood panels that have been nailed over the original 1"x9" sheathing spaced 16" on center. Section 4 has a gable roof covered by corrugated metal panels nailed directly to the 1"x9" roof sheathing spaced 16" on center. Section 4 is a shed roof with corrugated metal panels nailed directly to the 1"x9" roof sheathing spaced approximately 20" on center. At the east and west edges of the roof, a 1"x9" board is nailed between the roof sheathing to the last two rafters and extends out to the edge of the roof. This additional board provides support for the edges of the metal roofing panels.

Gutters have been installed along the west edge of Section 2 and 3. The gutter on Section 2 feeds into a downspout that runs over the roof on the jut out adjacent to Section 1 and drains at the north edge of the building. The gutter on Section 3 feeds into a downspout that extends down approximately fifteen feet and then stops, allowing water to continue draining down the face of the building. Originally the roof over Section 3 drained onto the roof of the shed below, which sloped to the west and drained directly onto the site. These gutters are not historic. There are no gutters anywhere else on the building and there is no indication that any ever existed.

EVALUATION:

The roofs are in poor condition and there is evidence of water infiltration in many areas of the building. The asphalt shingles on Sections 1, 2 and 3 are visibly deteriorated and no longer provide complete water protection. The roof over Section 1 is actively leaking, and water was observed dripping through the ceilings in the rooms below it. The metal roof over Section 4 was recently repaired so corrugated metal panels cover the entire roof now and no sheathing is exposed. However, there are a number of holes in the metal panels so water is still able to enter this section of the building. The metal panels over Section 5 also have holes in them.

The sheathing over Section 1 appears to be in good condition. The plywood sheathing over Sections 2 and 3 is in good condition, but the original 1"x8" sheathing below it is charred and in poor condition. The sheathing in Sections 4 and 5 is in good to fair condition.

The gutters and downspouts on the west side of Sections 2 and 3 are in good condition. However, the gutter and downspout on Section 3 may be damaging the building since instead of water draining from the roof onto the ground below, the water is caught and drained down the exterior cladding which is potentially accelerating the deterioration rate of the wood.

RECOMMENDED TREATMENT:

All five sections of the Grain Elevator need a new roof. In the historic photos the roof appears to have a corrugated metal roof over all five sections. All five roofs should be reroofed with a corrugated metal roof with a wide profile that matches the historic as closely as possible. A snow guard will need to be installed on Sections 2, 3 and 4 due to the slope of the roofs. The majority of the sheathing in Sections 1, 4 and 5 can be left in place, and any damaged sheathing should be replaced in kind. The sheathing in Section 3 and 4 should be removed and replaced in kind. New 5/8" plywood or OSB will be required to be installed over all roof areas – to provide the proper substrate for a warrantied roofing installation.

The gutters and downspouts should be removed from Sections 2 and 3.



Gutter, downspout and deteriorated asphalt roofing on Section 2



Corrugated metal roofing on Section 5

## 3.6 Windows and Doors



Window 1 and Doors 4 and 5 on the west elevation

CATEGORY:

3.6 Windows and Doors

DESCRIPTION:

Most of the window and door openings in the Grain Elevator are original and have not been altered over the years. All but one of the doors are historic with original hardware. New hardware has been installed on some of the exterior doors to secure the building. The windows that remain are the historic windows, however many of the windows have been removed or fallen apart over the years. Most windows on the upper floors have been removed so only the framed opening remains and studs have been installed in the openings in line with other studs.

EVALUATION:

In general the doors are in fair condition with some deterioration and the windows are in poor condition or missing. See 3.6a Doors and 3.6b Windows for specific evaluation.

RECOMMENDED TREATMENT:

See 3.6a Door and 3.6b Windows for recommended treatments.

## 3.6a Doors



Door 1 - interior side

CATEGORY: 3.6a Doors

DESCRIPTION:

There are nine doors in the Grain Elevator, five are exterior and three are interior. There are three sliding doors, the rest are hinged, swinging doors.

Door 1 is located in the basement on the north end of the west wall. The door is hinged on the south side and swings inward. It is constructed of 1x tongue and groove boards oriented vertically. It has two historic surface mounted hinges and is held shut by a wood bar that drops across it, held in place by a nail. The door historically would have opened into the space below the wood walkway, but is currently not accessible from the exterior due to changes in the grade.

Door 2 is located in the basement in the middle of the east wall. Wood 2”x4” boards frame the opening and a sheet of plywood currently serves as the door. There are no hinges or other hardware. Since this opening is currently below grade and historically the railroad spur ran adjacent to the east wall, this may have served as an opening for equipment and grain transportation, and not functioned as a true door.

Door 3 is an interior basement door located in the Machine Room. The door is constructed of 1x tongue and groove boards oriented vertically. An eye hook is attached to the door and serves as the latch. There is no door trim. The door opening is framed by the wall and ceiling structural members.

Door 4 is the main entry door, located on the north end of the west façade. It is a hinged door that opens into the building. It is the original wood four panel door, but the exterior has been covered by plywood with a small rectangle cut out at the door knob. The original hinges, door knob and escutcheon plate are still intact, although

the door is currently secured by a series of four hasps and padlocks. The door trim is composed of 2"x4" boards on the exterior and interior. The door and the exterior trim are painted white and the interior trim is painted brown. The exterior paint is peeling significantly.

Door 5 is a sliding door that opens to the north and slides along the interior side of the west exterior wall. The door opening is 5'-0" by 6'-9" with a door composed of 2"x6" boards oriented vertically on the exterior and boards of varying sizes oriented diagonally on the interior. The original door hardware and track are intact on the interior of the building. Since the door is located on the interior of the wall, the opening is framed by boards that run from the face of the building to the face of the door. The door is painted white, as is the exterior trim.

Door 6 is a sliding door located on the south end of the west elevation that opens to the north along the interior side of the exterior wall. The door opening is 4'-0" by 6'-9" with a door that has a 2"x6" boards oriented vertically. The original door hardware including the door track, hangers and hasp are still intact. The door is secured by a hasp and padlock located on both the north and south sides of the opening.

Door 7 is a sliding door located in the middle of the east elevation that opens to the north along the interior side of the wall. The door opening is 5'-0" by 6'-9" with a door composed of 2"x4" boards oriented diagonally on the exterior and 2"x6" boards oriented vertically on the interior. The original door hardware remains on the interior of the building. Since the door is located on the interior of the wall, the opening is framed by boards that run from the exterior face of the building to the face of the door. The exterior face of the door is painted white, as is the exterior trim, while the interior face is unpainted.

Door 8 is an interior door that leads from the Entry to the remainder of the building. The door is hinged on the east side and opens into the Entry. The door is the original wood, four panel door with the original hardware. The door trim on the north side of the opening is 2"x4" boards, and there is no trim on the south side. The door is painted white and the trim is painted brown.

Door 9 is located on the fourth floor on the east exterior wall. The door is hinged on the north side and opens into the interior space. It is composed of 2"x6" boards oriented vertically. The three historic hinges are still intact. The exterior face of the door is not visible because it is covered over by faux-shingle siding and the door cannot be opened due to the build up of various materials on the floor.

EVALUATION:

Door 1 is in fair condition with some of the boards needing to be replaced due to deterioration. The latching method of sliding a board over the door until it catches on the nail is not secure. When the soil is regraded this door will be operable.

Door 2 is in poor condition. There is no door or hardware, just a piece of plywood covering the door opening.

Door 3 is in fair condition with some boards needing to be replaced due to damage at the bottom of the door. The eye hook is rusted.

Door 4 is in fair to poor condition. It is assumed that the plywood was nailed over the exterior side of the door due to damage. The extent of the damage is unknown. The hinges, door knob and escutcheon are in fair condition.

Door 5 is fair condition with some of the boards needing to be epoxy repaired or replaced due to damage at the base of the door. The door hardware and track are intact and appear to be in fair condition.

Door 6 is in fair condition. The hardware is in fair condition, the historic hasp is no longer in use and the door hardware and track is intact but not longer properly attached to the wall so the door regularly falls off the track.

Door 7 is in fair condition with some of the boards needing to be epoxy repaired or replaced due to damage at the base of the door. The door hardware is intact and appears to be in fair condition and the door track is missing.

Door 8 is in fair condition, since the wood is chipped and worn in some places. The hardware is in good condition.

Door 9 is in fair condition, with deterioration on the base of the boards and possibly on the exterior side of the door. The hinges are in fair condition, and no locking mechanism is evident.

RECOMMENDED TREATMENT:

Door 1 should have the deteriorated boards replaced in kind and a door latch installed. The hinges should be removed, wire brushed, oiled and reattached.

Door 2 should have its ultimate use determined. Since it is currently below grade, if the site will not be regraded it should be infilled with concrete to match the adjacent foundation. If the site is to be regraded to allow access through this opening, a door should be constructed to match Doors 1 and 3.

Door 3 should have the deteriorated boards replaced in kind. The door hardware should be removed, wire brushed, oiled and reattached.

Door 4 should have the plywood removed from the exterior face and at that time it should be determined if the door can be repaired or if it should be replaced in kind. The original hardware should be removed, wire brushed, oiled and reattached either to the current door or the reconstruction.

Door 5 should have the deteriorated boards replaced and a new track and hardware that match the original should be installed.

Door 6 should have the deteriorated boards replaced in kind. A new track and hardware that match the original should be installed. The modern hasp should be removed and the historic hasp repaired or replaced in kind.

Door 7 should have the deteriorated boards replaced. A new track and hardware that match the original should be installed.

Door 8 should be refinished and the hinges should be removed, wire brushed, oiled and reattached.

Door 9 should have the deteriorated boards replaced and the hinges should be removed, wire brushed, oiled and reattached. A latch should be installed so that once the faux-shingle siding is removed the door can be secured so wind does not blow it open.



Door 3 propped open



Door 4 exterior side



Door 5 exterior side



Door 5 interior side



Door 6 exterior side



Door 7 original sliding door hardware



Door 8 original four panel door



Door 9 interior side

## 3.6b Windows



Windows 1 and 8

CATEGORY:

3.6b Windows

DESCRIPTION:

Window openings are located on all sides of the Grain Elevator, though most of the windows have been boarded up with plywood. The majority of the windows are rectangular, though there are a few square windows. Several of the window openings are just frames, the sash and glazing are missing. Windows 1 through 8 are on the first floor, Window 9 is on the second floor, Windows 10 through 12 are on the fourth floor, Window 13 is on the fifth floor and Window 14 is on the sixth floor.

Window 1 is located on the west elevation and is a double hung wood window. Plywood has been nailed over the window on the exterior. The frame and sill are visible on the interior and are painted brown. The sash are painted white and still intact, though the glazing is missing. The original window latch is still intact.

Window 2 is located on the narrow side of the jut out on Section 1 next to the main entry door. It is a two lite, narrow window that does not have a frame. The sash is directly attached to the walls and molding was originally attached to the sash on the interior, but it is missing in most areas. The sill has come loose and is now tilted to the exterior.

Window 3 is located on the west elevation of Section 5. The window is a fixed, four lite window that is missing one of the muntins and all of the glazing. A screen was nailed to the exterior side of the window and is now peeling off. The window frame on the exterior of the window is still intact, and a plywood board is nailed over the window on the interior.

Window 4 is located on the east elevation of Section 5 in the same location as Window

3 on the west elevation. No elements of the window remain and plywood has been nailed over the window on the exterior. Due to the symmetry with Window 3, it is likely that it was originally a fixed, four lite window.

Window 5 is located on the east elevation of Section 3. The window is covered by plywood on the exterior and the lower two thirds or the window are boarded up on the interior. No frame or sash are visible in the exposed section of the window.

Window 6 is located on the east elevation of Section 1 and is boarded over on the exterior. It is a double hung wood window, though only the upper sash is still intact. The parts of the window that remain are painted yellow, and the trim has been removed.

Windows 7 and 8 are located on the north elevation of Section 1 and are boarded over on the exterior. They are double hung wood windows that originally had four lites in each sash. In Window 7, currently only the vertical muntin remains in the lower sash. All but two of the panes of glazing are missing. The trim and sash are intact and painted brown, while the rest of the window is painted yellow. Window 8 is in similar condition, but all of the glazing is missing and both muntins in the lower sash have broken out, though the vertical muntin still sits in the opening. A beam intersects the upper west corner of the window trim. The original lock mechanism is still intact.

Window 9 is located on the north wall of Section 2 and is boarded over on the exterior. It is only a window opening, no elements of the window remain.

Window 10 is located on the west wall over Section 3, just under the eave. The window is not visible on the exterior, it is covered by the faux-shingle cladding. Very little remains of the window on the interior but it is a rectangular wood window with a screen nailed over it on the interior.

Windows 11 and 12 are located on the north wall of Section 3. The windows are covered on the exterior by the faux-shingle siding. The window frames have been completely removed but the header and sill still remain. A stud has been installed in both window openings that aligns with the studs above and below the window. Since this area of the building did not have interior finishes, it is likely that the window never had any trim.

Window 13 is located on the south elevation of Section 4. The window has been removed, so only the frame remains. This is the only window in the building that is not boarded up on either the interior or the exterior.

Window 14 is located on the north wall of Section 3 just under the peak of the roof. The opening is covered on the exterior by faux-wood siding. The window frame has been completely removed, but the header and sill remain. A board has been nailed inside the frame inline with the studs above and below it.

EVALUATION:

Windows 1, 5, 6, 7, 8, 9, 11, 12 and 13 all have the same proportions and remaining window elements suggest that these were identical eight lite, double hung windows. Historic photos reinforce this assumption since they illustrate several of these window openings with double hung, eight lite windows. Windows 1, 7 and 8 are the most intact.

Overall, the windows are in fair to poor condition, with some windows needing to be completely rebuilt and some needing work to restore them to their original condition. Necessary repair work includes repairing the frame, muntins, replacing the glazing and reconstructing the entire window. Since most of the exterior trim is covered over, the condition is assumed to range from fair to poor. Trim likely requires repair or stabilization in some places and in others it is likely missing.

RECOMMENDED TREATMENT:

Windows that are missing or damaged beyond repair should be reconstructed to match their historic appearance. Window elements that remain and are salvageable should be epoxy stabilized and missing window elements should be reconstructed. All of the windows need to be reglazed.

Trim should be epoxy stabilized where it remains and new trim should be installed where trim is missing, warped or severely deteriorated. Any trim boards that have come loose should be renailed.

A window-by-window survey and repair/reconstruction schedule with attendant details will be required to describe the work.



Interior side of window 1



Exterior side of window 1



Window 2 interior side



Window 3 exterior side



Window 4 exterior side



Window 7 frame detail



Interior side of window 7



Exterior side of window 7



Window 8 interior side



Window 9 interior side



Window 10 interior side



Window 12 interior side

## 3.7 Interior Finishes



Basement - looking south toward the grain bins

CATEGORY:

3.7 Interior Finishes

DESCRIPTION:

The Grain Elevator has six levels plus a basement. Some of the levals are all one room, while others are subdivided into multiple rooms. While from the exterior there are clearly five sections of the building, these sections are not always as evident on the interior. Since it is an agricultural building, most of the finishes are the structural elements without any interior finishes applied over them.

The basement is divided into three rooms plus a crawl space between the grain bins. The Machine Room, which was where grain was ground when the Grain Elevator was in operation, is located on the north end. There are two other rooms on the north end of the basement and all three have similar finishes. The floor is dirt, the exterior walls are concrete half walls with wood stud walls above them and the interior walls are concrete half height walls with posts on them. The ceiling is only about 6'-0" high and is the exposed first floor structure. There is a pit in Tower Level 0 that has concrete walls and a floor. The stairs from the basement to the first floor are wood treads with wood stringers and open risers. The grain bins extend into the basement but are not accessible at this level, though a crawl space runs between the east and west bins where a belt historically transported grain from the bins to other areas in the Grain Elevator.

The first floor has two separately accessed areas – the north three sections which contain four rooms and the south section which consists of one room. The grain bins are located between these two sections but can only be accessed from the fifth floor. The north section consists of the Entry, Office, Back Room and Tower Level One. The Entry has a tongue and groove wood ceiling and walls, though the walls have a heavily textured plaster applied over them. The floor steps up on the east side

of the room; the flooring to the west of the step is linoleum and the flooring to the east is carpet. The wall between the Entry and Office has a pegboard finish on the Entry side. A wood and brick chimney starts about five feet up on the north wall and a wood burning stove is located on the east side of the Entry. In the Office there are a variety of wall finishes including, fiberboard, painted tongue and groove boards and 1"x12" boards. Fiberboard shelves have been installed on all four walls and mounted with metal brackets. A variety of furniture and other materials are currently stored in this room. A Corridor leads from the Entry to Tower Level 1 and has wood plank flooring and fiberboard panels on the walls. The ceiling is the exposed second floor structure though painted fiberboard covers the structure in the northwest corner of the Corridor. A stair with wood treads and stringers leads up to the Second Floor, though the stair stops about two feet short of the floor. Tower Level 1 has wood floor boards and most of the walls and ceiling are the exposed structure. Part of the north wall has a gypsum board finish; the rest is the wall structure. The south wall is the stacked plank wall structure of the grain bins. A large amount of the wood visible in this space was affected by the fire and has char damage. (See Wood Scientist Report in the Appendix for more information on the damage.) A number of chutes are located on the ceiling. The walls and ceiling in the Back Room are a combination of exposed structure and fiberboard, some of which is painted white while other areas are natural wood color finish. A variety of items are stored in the Back Room and Tower Room 1.

The first floor in Section 5 is entered through a door on the west elevation and is a large open room used for storage. The walls and ceiling are the exposed structure. The north wall is the stacked plank grain bins walls, while the other walls are wood stud construction and exterior siding. A paper membrane was put up between the studs and the siding but it has significant water damage and is deteriorated. The ceiling is the exposed roof framing and corrugated metal roofing. The floor is wood boards, though it is mostly obscured by the items stored in the room and a layer of dirt.

The second floor is accessed from the stair off the first floor corridor and is in Section 2. The floor boards are currently covered by mounds of loose insulation and animal waste so they are not visible. The walls and ceiling are the wall and roof structure and sheathing. Large areas of this room have char damage from the fire. A small wood grain bin is located to the west of the stair. There is a small opening on the north side of the bin. A small set of stairs with wood treads and stringers leads up to the third floor.

The third floor is only located in Section 3 and over half of this level is occupied by chutes. There are two large wooden chutes, Chutes 3 and 4, which occupy the western third of the room, with access hatches that swing into the chutes from the room. These chutes extend from floor to ceiling. The middle third of this level is a mostly open room. The floor boards are covered by grain and other materials that have accumulated, the walls are the stacked plank bins walls and the ceiling is the exposed fourth floor structure. A medium sized chute is located in the northwest corner of this room, adjacent to Chute 3. On the south end of the room there are four small chutes (approximately 14"x8") that run from the ceiling through the floor. The elevator originally ran through the north side of this room and though the elevator has been removed, the wood boards that surrounded the opening on three sides and the wood elevator track are still intact. The openings in the floor and ceiling have been covered with corrugated metal. Some mechanical equipment remains and is mounted to the ceiling. A medium size chute (38"x30") is located in the southeast

corner of this space, adjacent to Chute 2, on the east side of the building. This chute is approximately eight feet tall and has a small access hole at the base which can be covered by a hinged piece of wood cut to match. Two bins occupy the east third of the building. Chute 1, the northern chute, has an access hatch that swings into the bin. Chute 2, the southern chute, only has a half height wall on the west side, the upper boards were cut out at some point. A stair with wooden stringers and treads leads up to the fourth floor.

The fourth floor is located in Section 3 and is a mostly open room. The floor boards are covered with grain and animal waste, the walls are the exposed structure and sheathing of the exterior walls and the ceiling is the roof structure and sheathing in most places, though the sixth floor structure forms the ceiling in the central portion of the room. The four small chutes visible on the third floor continue through the fourth floor up to the sixth floor. The wood elevator track continues up from the third floor. The elevator pulley and other mechanical equipment associated with the elevator are mounted to the underside of the sixth floor. A stair with wood stringers and treads runs along the east side of the north wall up to the sixth floor. A metal chute is located along the south wall on the east side of the room and runs down through the floor. Extra sections of wood chutes are stacked in the northwest corner of the space. A "ladder" formed by boards nailed to the wall joists runs from the fourth floor up to the southwest edge of the sixth floor. A large portion of the walls and ceiling in this space has char damage.

The fifth floor is located in Section 4 over the grain bins. A catwalk that is approximately eight feet wide runs down the center of the space, above the bins. The catwalk floor boards are 2"x3" boards spaced about 2" apart and there are two rectangular openings that allow access to the bins via built-in metal bars that serve as a ladder down to the floor of the grain bins. Two wood boards mounted to posts at the edge on either side of the catwalk serve as railings. A central wood chute runs above the catwalk with chutes that branch off and empty into the grain bins. The grain is allowed into each chute or diverted away by wood boards that can be pulled out and pushed into the chutes by wooden levers.

The sixth floor is a mezzanine level located above the center third of the fourth floor. There are no walls and the ceiling is the exposed roof structure and sheathing. The floor is wood floor boards. A number of chutes are located on this level, some of which run south to empty into the grain bins, while others run straight down, into the fourth floor and beyond.

EVALUATION:

The structural elements, exterior walls and roofs have been previously evaluated in sections 3.3 Structural System, 3.4 Exterior Walls and 3.5 Roofing and Waterproofing and will not be addressed in this section.

The finishes in the Entry and Office are in fair to poor condition since portions of the ceilings, walls and floors have significant water damage. The stairs are in good condition, but the stair from the first to the second floor does not meet code since it stops well below the second floor. The floorboards throughout are deteriorated or have char damage. Char damage has impacted a large percentage of the walls and ceilings in Tower Level 1, the Second Floor, the Fourth Floor and the Sixth Floor. While the structural impact of char damage has been previously addressed, the aesthetic

impacts have not. Char damaged wood has a burnt odor that is hard to remove from the wood and that will permeate an enclosed building.

RECOMMENDED TREATMENT:

The exterior walls and roof should be repaired according to the recommendations in sections 3.4 Exterior Walls and 3.5 Roofing and Waterproofing.

The interior of the structure should be cleaned per recommendations in the Hazardous Material Report located in the Appendix. All hazardous materials should be removed and properly disposed of and all animal waste and bird guano should be removed and cleaned. The lead based paint should be abated. Once all of the hazardous materials have been removed, the wood that remains should be cleaned by abrasive blasting.

All of the flooring throughout the building should be replaced with new wood to match the existing. The stairs should be reinstalled after the new flooring is in place except for the stair from the first to the second floor. A new stair should be constructed in this location that runs all the way up to the second floor. All of the charred wood that will be in the interior of the building should be removed and replaced so the scent of charred wood does not permeate the building.



Basement - Concrete pit in Tower Level 0



Basement - Typical finishes



First Floor - Entry typical finishes



First Floor - Entry
with pegboard wall
and carpet and wood
burning stone



First Floor - Entry
chimney on north wall



First Floor - Office north and east walls



First Floor - Office ceiling damage



First Floor - Corridor
looking south



First Floor - Corridor
looking north



First Floor - Tower Level 1 chute on ceiling and char damage on walls and ceiling



First Floor - Tower Level 1 looking at southeast corner



First Floor - Back Room
looking northeast



First Floor - Back Room
various wall and ceiling
finishes



Second Floor - Char damaged on walls and grain bin on south side of the room



Second Floor - Looking west along north wall



Third Floor - Access hatch into chute



Third Floor - Track at original elevator shaft



Third Floor - Chute 2 has been cut down while Chute 1 (on the left) continues up to the ceiling



Fourth Floor - Chutes running though the room underneath the Sixth Floor



Fourth Floor - Equipment and Sixth Floor Structure with char damage and bird guano



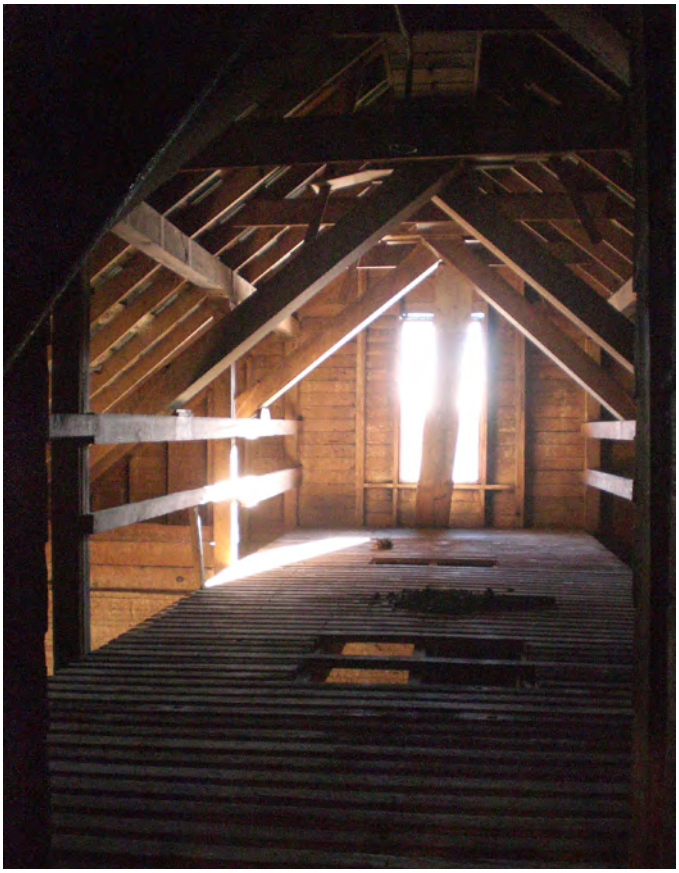
Fourth Floor - Looking up at chutes on the Sixth Floor



Fourth Floor - Chutes, original elevator track and corrugated metal over the stair



Sixth Floor - Chute to grain bins



Fifth Floor - Looking south



Fifth Floor - Looking north



Fifth Floor - Operating mechanism to control grain entering the grain bin chutes



Fifth Floor - Bin catwalk and railing

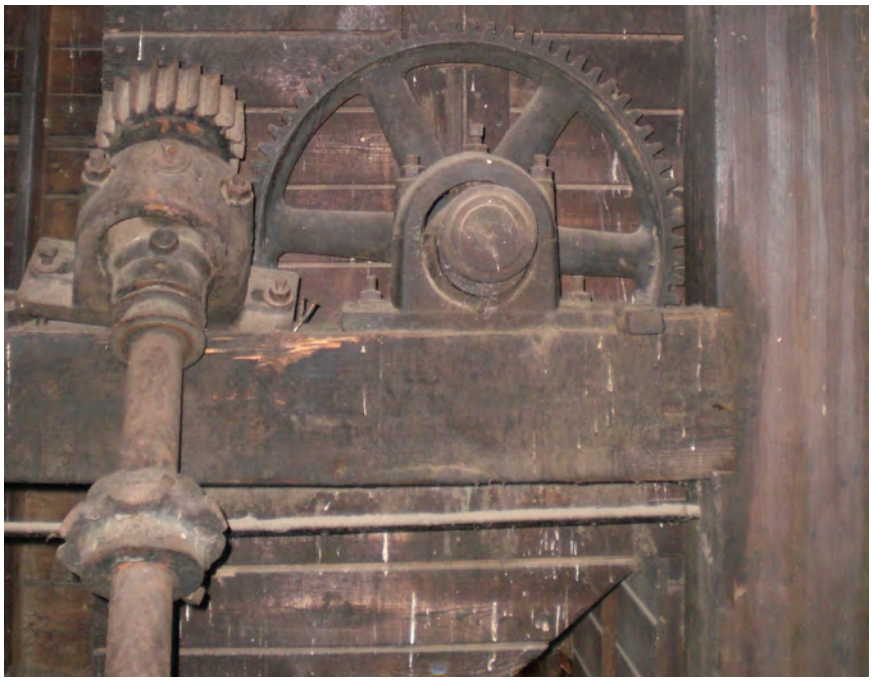


Fifth Floor - Looking down into Bin 5



Fifth Floor - In Bin 5 looking east at stepped wall at bottom of bin

## 3.8 Mechanical Systems



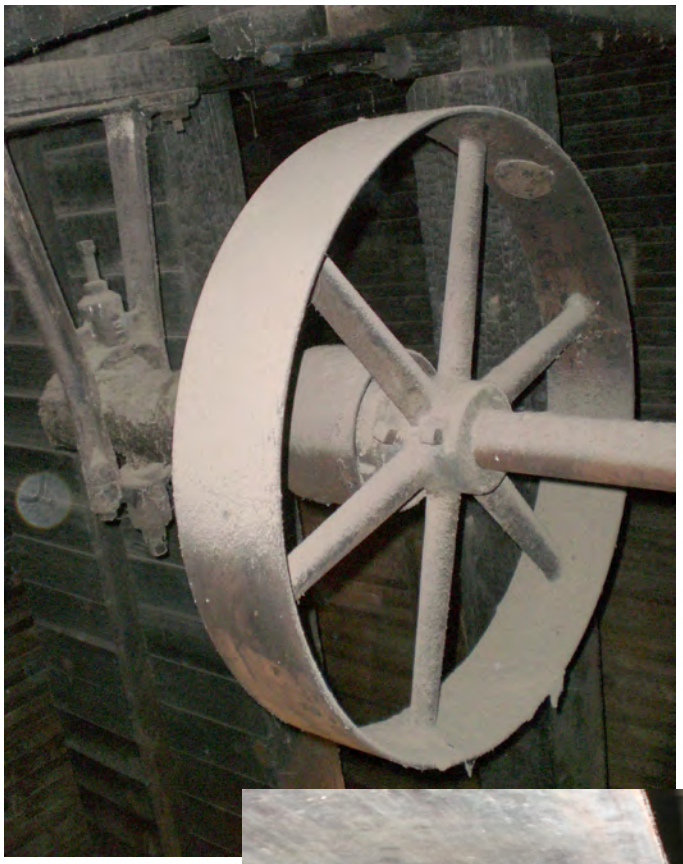
Elements of the conveying system on the sixth floor

CATEGORY:

3.8 Mechanical Systems

DESCRIPTION:

There are no active mechanical systems in the Grain Elevator. The conveying equipment that remains in the grain elevator, specifically the pulleys that remain in the basement, third, fourth and sixth floors, should be retained where feasible for interpretive purposes.



Elements of the conveying system on the third floor



Large pulley and belt in the Machine Room in the basement

## 3.9 Electrical Systems



Light fixture over the platform over the grain bins

CATEGORY:

3.9 Electrical Systems

DESCRIPTION:

Electricity was installed at some point, but has been shut off for a number of years. The weatherhead, which brought the power from the overhead lines into the building, extends through the roof in the middle of the north end of the Grain Elevator. The electrical panel remains on the inside face of the north wall.

Electrical wiring and switches are visible throughout the building. Fluorescent fixtures were installed in the north half of the first floor. The light fixtures on floors two through six are all fed from the same electrical line that runs from the first floor up through the fourth floor. The wire is hooked over the stair railing at the stair leading from the third to the fourth floor. Outlet boxes and light switches remain in some locations but most are missing the face plates. There is evidence of the previous knob and tube electrical system in some areas where the porcelain tube elements remain.

There is no evidence that a fire detection system or security alarm system were ever installed.

EVALUATION:

An electrical system will be necessary for any reuse option. The electrical elements that remain are outdated so the electrical system will need to be entirely replaced. The amount of light and location of fixtures and outlets should be determined by the reuse plans.

A fire detection system should be installed. A security system may be necessary depending on the final use of the building. The locks on the doors appear to be keeping trespassers out of the building since, aside from graffiti in the Entry room, there is not

evidence of vandalism inside the building. There is also graffiti on the east side of the building since that side is not visible from the street.

RECOMMENDED TREATMENT:

When floor plans for the new use are designed, a lighting plan should be developed that addresses all of the Grain Elevator's new electrical needs including a new electrical panel, wiring, electrical outlets, light switches and fixtures.

When the building is restored, a fire detection system should be installed. If desired by the owner, a security system should be installed.



Weatherhead and electrical meter on the north side of the building



Fluorescent light fixtures in Tower Level 1



Electrical wiring and remainder of previous ceramic electrical system



Wiring leading to the light fixture on the second floor and continuing on to the third floor



Light fixture and wiring in the basement

## 4.0 Analysis and Compliance
### 4.1 Hazardous Material Testing and Information

Hazardous material testing was conducted by Landmark Environmental Inc. as part of this report. The results of their testing are in the Appendix. When hazardous materials have been identified or are uncovered on a project, General Contractors are required to mitigate or abate these materials using authorized and trained personnel.

For further information about the state regulations in regards to hazardous materials, go to www.cdphe.state.co.us/op/regs/airregs.asp

**Lead Containing Paint**
Paint samples were tested for lead and it was determined that the building has both lead based paint and lead containing paint, both of which are regulated by the EPA, HUD and OSHA. The paint on the interior window sills was found to be lead based paint with lead concentrations of 7.7%. The exterior paint was found to be lead containing paint with lead levels of 0.008%. See the Landmark Environmental Inc. report for specific recommendations.

Historically, lead was used in paint to improve its durability and colorfast qualities. Lead was incorporated into a broad range of building coatings and paints from the 1800s to the 1970s.

**Asbestos Containing Material**
The hazardous material tests determined fourteen samples taken from the Grain Elevator tested negative for asbestos. Two materials sampled were under Colorado regulated limits reported as .25%." Any materials that contain greater than 1% asbestos are regulated by EPA and OSHA.

The EPA National Emissions Standard for Hazardous Air Pollutants (NESHAP) regulation requires that Asbestos Containing Materials be identified prior to demolition and renovation activities. From the 1920s to the 1980s, there were many materials that incorporated asbestos, for its fire and chemical resistive, thermal and high tensile strength properties. Among the most common applications for asbestos were: fireproofing, roofing/flashing materials, exterior coating systems (a paint-like coating that usually has a textured surface), asbestos/cement shingles and exterior wall panels (Transite), roofing shingles and shingle siding, glazing putty at windows, pipe and pipe fitting insulation, vinyl sheet and tile flooring, plaster, construction adhesives, and building insulation.

"Friable" and "non-friable" are the two terms applied to asbestos with "friable" evoking the most concern and the greatest level of care in removal and disposal. "Friable" means that when the material is disturbed in any way, (sawn, moved, removed, cut, etc.) it will introduce asbestos fibers into the air that could be inhaled by unprotected workers and building users. Pipe and building insulation typically fall into this category and therefore require the highest degree of worker protection and controlled handling during the abatement process. It is important to identify all asbestos-containing materials as even non-friable materials may become friable under certain conditions (i.e. if asbestos-containing floor adhesive is sanded).

**Summary**
Any proposed restoration or rehabilitation project could reveal additional hazardous materials. Lead containing paint and asbestos can present health risks to building users and construction workers; can trigger both state and federal hazardous material

regulations for control and abatement and can add significant cost to a rehabilitation project.

Once under construction, the General Contractor should be alert to encountering and disturbing any suspicious materials and should stop work immediately if any are encountered.

A word of caution: hazardous material abatement crews are not always sensitive to the issue of preserving historic materials (e.g. scraping lead-based paint may damage the underlying surfaces). Ideally, abatement of historic, character-defining elements can be performed by the General Contractor responsible for the rehabilitation work.

### 4.2 Material Analysis

Wood analysis was conducted by Anthony and Associates which determined that Sections 1, 2, 3 and 4 were constructed with Douglas-fir while Section 5 was constructed with a mix of species, including yellow pine and Douglas-fir. Anthony and Associates also tested moisture content measurements and lumber and timber grading. See the Wood Investigation Report in the Appendix for specific results.

### 4.3 Zoning Code Compliance

The site is currently zoned Commercial-Business. All of the uses currently being considered are permitted in this zone, except for multi-family residential which is only allowed with a review.

### 4.4 Building Code Compliance

A code study is being done as part of the Schematic Design portion of this project.

### 4.5 Accessibility Compliance

Currently the building is not accessible. When the building's end use is determined, an accessibility study will need to be performed to determine what is needed to meet ADA requirements. The Schematic Design portion of this project will do preliminary accessibility studies. Where there are issues, the Owner should work out reasonable accommodation with local group(s) who represent disabled citizen interests.

## 5.0 Preservation Plan

**Rating System:**

A **Critical Deficiency** of a feature or element exists where:

- There is advanced deterioration that has resulted in failure of the building feature or element or will result in its failure if nor corrected within two years, and or
- There is accelerated deterioration of adjacent or related building materials as a result of the feature or element's deficiency, and or
- There is a threat to the health and safety of the user, and or
- There is a failure to meet the legislative requirement.

A **Serious Deficiency** of a feature or element exists where:

- There is deterioration that if not corrected within 2 to 5 years, will result in the failure of the building feature or element, and or
- A threat to the health and or safely of the user may occur within 2 to 5 years if the deterioration is not corrected, and or
- There is deterioration of adjacent or related building materials and or systems as a result of the deficiency of the feature or element.

A **Minor Deficiency** of a feature or element exists where:

- Standard preventative maintenance practices and building conservation methods have not been followed, and or
- There is a reduced life expectancy of affected or related building materials and or systems, and or
- There is a condition with long-term impact beyond 5 years.

## 5.1 Prioritized Work

The phasing plan for the Louisville Grain Elevator was created by evaluating the priorities of the recommended work. The following criteria served as guidelines for determining priority. Typically, critical issues should be addressed in earlier phases to protect the building and address life safety issues while minor issues can be addressed in later phases.

**Critical Deficiency (1 Priority)**

| | |
|---|---|
| 1 = Critical: | Work that should be performed immediately to mitigate existing life safety issues (including foundation stabilization) and work associated with critical work (e.g. roof replacement.) |

**Serious Deficiency (2 Priority)**

| | |
|---|---|
| 2 = Serious: | Work that should be performed within the next 2-5 years in order to address existing deferred maintenance. |

**Minor Deficiency (3 Minor Priority)**

| | |
|---|---|
| 3 = Minor: | Work that is of a cosmetic nature. |

## 5.2 Phasing Plan

Since a large percentage of the recommended work is ranked critical, not all critical work is addressed in Phase I. Phase I work addresses the most critical issues - stabilizing the foundation and the roof. These two steps provide a solid base for the building and prevent water from entering the building and damaging the structure and interior finishes. Phase II addresses the remaining critical work, stabilizing the remaining structural systems, along with the serious work which includes repairing or replacing the exterior siding, so at the end of Phase II the building will be a restored shell. Phase III is the recommended work that is ranked minor and includes interior repairs and restoration of the doors and windows.

The intent of the phased development is to, by the end of Phase III, have a building that is “core/shell” complete and ready for tenant improvements (which would include installing utility lines to the site and system distribution within the building).

**Phase I** = Phase I addresses the most critical issues that need to be repaired to stabilize the building, including the roof structure, roofing, foundation and hazardous material mitigation.

**Phase II** = Phase II includes the remaining critical issues and the serious issues including the remaining structural work and exterior façade repairs.

**Phase III** = Phase III is the remaining recommended work and includes windows, doors and interior finish work.

**Phase IV** = Phase IV is the adaptive reuse of the Grain Elevator.

See the Phasing Spreadsheet for specific phase breakouts.

| Louisville Grain Elevator Historic Structure Assessment - Phasing Plan | |
|---|---|
| **Description** | **Phase** |
| **3.1 Site** | |
| Regrade to ensure drainage away from building | I |
| Remove berm along west elevation (cut & fill on site) | I |
| Install perimeter drain | I |
| Remove 3 trees (2 on the north & 1 on the east) | I |
| **3.2 Foundations** | |
| Procure Geotechnical Engineer's Report for site | I |
| Excavate around entire perimeter of site to access work | I |
| Infill perimeter basement wall to Sections 1, 2, & 3 | I |
| Concrete | I |
| Add counterforts & augment perimeter basement footing at Sections 1, 2, & 3 | I |
| Add 4 spread footings to Section 3 (below timber posts along grid 3 and grid 4) | I |
| Add 2 square footings to Section 3 (at ends of shear wall along grid 3 to resist overturning forces) | I |
| Infill basement pit with flowfil | I |
| Repair deteriorated bin walls below grade, add impervious waterproofing membrane; reinforce wall with PT lumber if required | I |
| Add perimeter basement wall to Section 5 | I |
| Add strip footing to Section 5 | I |
| Allowance for footing augmentation where allowable bearing capacity exceeded or net tension due to shearwall overturning forces | I |
| **3.3 Building Structural System** | |
| **Section 1** | |
| 1st Floor: Remove abandoned stair; re-frame floor around stair opening | II |
| Roof: Remove roof sheathing; sister rafters, add plywood sheathing | I |
| **Section 2** | |
| 2nd Floor: Remove fire damaged floor joists which have a very low calculated load-carrying capacity. Replace with new more robust joists spanning east-west bearing on exterior walls and on one timber beam spanning north-south across center of bay. | II |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins | I |
| Replace 100% of 2nd floor wall framing due to char damage | II |
| **Section 3** | |
| Add 1 timber post from 3rd floor to basement wall on grid 3 and grid 4 to support 3rd floor timber beams near midspan | II |
| 6th Floor Mezzanine: Add 2 strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge | II |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins | I |
| **Section 4** | |
| Wood scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | I |
| Roof: Remove roof sheathing; leave existing rafters; add rafters @ 24" between existing rafters; enhance connections; strengthen 2 dropped purlins; add plywood sheathing | I |
| **Section 5** | |
| 1st Floor: Shore floor to reset dropped girders on new posts on new footings or on new stem wall | II |
| Roof: Remove roof sheathing; sister rafters in north bay, add plywood sheathing, add hurricane ties on ends of rafters | I |
| Roof: Anchor existing ledger on grid 4 to bin wall | I |
| Roof: Shore rafters, remove and replace existing overstressed girder with steel beam or equivalent | I |
| **Sections 1, 2, 3, & 5; Lateral Force Resisting System** | |
| Miscellaneous drag strut and collector elements. Will drag some force into existing bin walls in order to minimize number of new wood shear walls | II |

| | |
|---|---|
| **All Sections, Floor Framing** | |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. (100% of 3rd floor framing, 30% of 4th floor framing, 100% of 6th floor framing) | II |
| Allowance for miscellaneous structural repairs and unknown conditions | I |
| **3.4 Exterior Wall Construction & Envelope** | |
| ***Structural Recommendations*** | |
| **Section 3** | |
| Replace existing studs damaged by fire | II |
| Add strongbacks to lines 3, A, Z at sixth floor | II |
| **Section 4** | |
| Cut small openings in bin walls for needle beam shoring. Shore bin walls, remove deteriorated stacked-plank lumber with demo saw. Tooth in Douglas-Fir 2x6 plies and attach plies with adhesive and toenails from each side. Correct smaller defects with epoxy consolidant | II |
| **Section 5** | |
| Sister tall studs along grids A & Z | II |
| **Sections 1, 2, 3, & 5; Basement Stud Walls** | |
| Replace deteriorated or damaged interior sills and plates on gridlines 2 and 3 | II |
| **Sections 1, 2, 3, & 5; Lateral Force Resisting System** | |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation. | II |
| | |
| ***Architectural Recommendations*** | |
| Remove and replace wood shiplap siding | II |
| Remove and replace wood tongue and groove siding | II |
| Remove lead containing paint from exterior of building | II |
| Repaint exterior of building | II |
| Repaint historic sign on exterior of building | III |
| | |
| **3.5 Envelope - Roofing & Waterproofing** | |
| Remove current roofing - corrugated sheet metal & asphalt shingles | I |
| Install Berridge corrugated metal roof | I |
| Install snow guards on the east and west edges of Sections 2, 3 & 4 | I |
| | |
| **3.6 Windows & Doors** | |
| Restore all windows | III |
| Reconstruct eight lite double hung wood windows and frames to match original (2'x5') | |
| Reconstruct eight lite double hung wood windows to match original - epoxy stabalize existing frames (2'x5') | |
| Reconstruct four lite fixed wood window (approx. 2'x2') | |
| Reconstruct four lite fixed wood window (approx. 2'x3') | |
| Reconstruct two lite double hung window (8"x5') | |
| Restore all doors | III |
| Replace 50% of the wood on the sliding doors (6'x7') | |
| Sand and refinish 4 panel wood doors | |
| Replace 50% of the wood boards composing exterior doors (3'x7') | |
| Remove, wire brush and oil all hardware that remains | III |
| Install hardware to match historic | III |
| New hinges and track for sliding door to match original (2 hinges, 1 overhead track 7' long) | III |
| | |

| 3.7 Interior Finishes | |
|---|---|
| Replace char damaged wood not covered in previous sections | III |
| Replace 100% of floor boards in Sections 1,2,3 & 5 (varies from 1"x6" or 1"x8" or 1 1/2" x 10) | III |
| Remove non-historic stair from 1st to 2nd floor & install new stair | II |
| Reinstall stairs on 2nd - 6th floors after new flooring is installed | III |
| Media blast all wood surfaces in the building (optional, not in total) | III |
| | |
| **3.8 Mechanical Systems** | |
| NA | |
| | |
| **3.9 Electrical Systems** | |
| NA | |
| | |

## 5.3 Cost Estimate

**Cost Estimating**

This assessment document is a first step in determining the means and methods for the successful rehabilitation and restoration of the Louisville Grain Elevator. This report is not a substitute for a complete design and engineering process wherein rehabilitation needs are more rigorously examined, design and engineering is engaged, construction issues are coordinated and a set of construction documents (plans and specifications) is developed. This report is not intended to be the document from which repairs are actually affected or final costs are established. The Owner is urged to take this further (design and engineering) step, prior to applying for actual "bricks and mortar" funding.

Since the Architect has no control over the cost of labor, materials, equipment, the contractor's method of determining prices, or market conditions, opinions of probable costs, as provided herein, are made on the basis of our experience and qualifications and represent our best judgment as design professionals familiar with the rehabilitation/ construction industry. The Architect cannot and does not guarantee that proposals, bids or the construction costs will not vary from opinions of probable costs prepared for the Owner.

This pricing represents aggregate work performed in 2011. A 4% minimum annual inflation factor for each year should be added to work performed in subsequent years. Please note that breaking the cost estimate into smaller component parts will result in a loss of any economy of scale and will increase both design and construction cost percentages. The Opinion of Probable Cost was compiled from general field approximations of both quantities and quality and was estimated by a General Contractor with years of experience in the rehabilitation of historic buildings of similar size and complexity.

**General Contractor Fees for General Conditions, Overhead, and Profit**

The allowance for general conditions provide for the General Contractor's overhead, profit, and contingencies. General Contractor overhead includes indirect costs such as permits, Workers' Compensation, insurances and supervision. Owner Contingency (for construction) provides for unforeseen construction difficulties, which include material shortages, weather delays and unforeseen conditions.

**Abbreviations**

| | |
|---|---|
| LS | lump sum |
| SF | square feet |
| LF | linear feet |
| EA | each |
| CF | cubic feet |
| CLF | cubic linear feet |

| Louisville Grain Elevator Historic Structure Assessment | | | | |
|---|---|---|---|---|
| **Description** | **Quantity** | **Unit** | **Unit Price** | **Total** |
| **3.1 Site** | | | | |
| Regrade to ensure drainage away from building | 211 | CY | $ 6.00 | $ 1,266.00 |
| Remove berm along west elevation (cut & fill on site) | 50 | CY | $ 6.00 | $ 300.00 |
| Install perimeter drain | 250 | LF | $ 21.00 | $ 5,250.00 |
| Remove 3 trees (2 on the north & 1 on the east) | 3 | EACH | $ 250.00 | $ 750.00 |
| **3.2 Foundations** | | | | |
| Procure Geotechnical Engineer's Report for site | 1 | LS | $ 2,500.00 | $ 2,500.00 |
| Excavate around entire perimeter of site to access work | 628 | CY | $ 8.00 | $ 5,024.00 |
| Infill perimeter basement wall to Sections 1, 2, & 3 | 33 | CY | $ 750.00 | $ 24,750.00 |
| Concrete | 14 | CY | $ 750.00 | $ 10,500.00 |
| Add counterforts & augment perimeter basement footing at Sections 1, 2, & 3 | 5 | CY | $ 2,670.00 | $ 13,350.00 |
| Add 4 spread footings to Section 3 (below timber posts along grid 3 and grid 4) | 1 | CY | $ 850.00 | $ 850.00 |
| Add 2 square footings to Section 3 (at ends of shear wall along grid 3 to resist overturning forces) | 1 | CY | $ 850.00 | $ 850.00 |
| Infill basement pit with flowfill | 17 | CY | $ 150.00 | $ 2,550.00 |
| Repair deteriorated bin walls below grade, add impervious waterproofing membrane; reinforce wall with PT lumber if required | 17 | CY | $ 750.00 | $ 12,750.00 |
| Add perimeter basement wall to Section 5 | 9 | CY | $ 850.00 | $ 7,650.00 |
| Add strip footing to Section 5 | above | CY | above | above |
| Allowance for footing augmentation where allowable bearing capacity exceeded or net tension due to shearwall overturning forces | 1 | LS | $ 15,000.00 | $ 15,000.00 |
| **3.3 Building Structural System** | | | | |
| **Section 1** | | | | |
| 1st Floor: Remove abandoned stair; re-frame floor around stair opening | 15 | SF | $ 25.00 | $ 375.00 |
| Roof: Remove roof sheathing; sister rafters, add plywood sheathing | 370 | SF | $ 15.00 | $ 5,550.00 |
| **Section 2** | | | | |
| 2nd Floor: Remove fire damaged floor joists which have a very low calculated load-carrying capacity. Replace with new more robust joists spanning east-west bearing on exterior walls and on one timber beam spanning north-south across center of bay. | 400 | SF | $ 20.00 | $ 8,000.00 |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins | 660 | SF | $ 20.00 | $ 13,200.00 |
| Replace 100% of 2nd floor wall framing due to char damage | 1375 | SF | $ 6.00 | $ 8,250.00 |
| **Section 3** | | | | |
| Add 1 timber post from 3rd floor to basement wall on grid 3 and grid 4 to support 3rd floor timber beams near midspan | 19 | LF | $ 30.00 | $ 570.00 |
| 6th Floor Mezzanine: Add 2 strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge | 20 | LF | $ 30.00 | $ 600.00 |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins | 750 | SF | $ 20.00 | $ 15,000.00 |
| **Section 4** | | | | |
| Wood scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | 1 | LS | $ 1,500.00 | $ 1,500.00 |
| Roof: Remove roof sheathing; leave existing rafters; add rafters @ 24" between existing rafters; enhance connections; strengthen 2 dropped purlins; add plywood sheathing | 1330 | SF | $ 20.00 | $ 26,600.00 |
| **Section 5** | | | | |
| 1st Floor: Shore floor to reset dropped girders on new posts on new footings or on new stem wall | 3 | Places | $ 1,000.00 | $ 3,000.00 |
| Roof: Remove roof sheathing; sister rafters in north bay, add plywood sheathing, add hurricane ties on ends of rafters | 935 | SF | $ 20.00 | $ 18,700.00 |
| Roof: Anchor existing ledger on grid 4 to bin wall | 30 | LF | $ 10.00 | $ 300.00 |
| Roof: Shore rafters, remove and replace existing overstressed girder with steel beam or equivalent | 28 | LF | $ 101.25 | $ 2,835.00 |
| **Sections 1, 2, 3, & 5; Lateral Force Resisting System** | | | | |
| Miscellaneous drag strut and collector elements. Will drag some force into existing bin walls in order to minimize number of new wood shear walls | 1 | LS | $ 1,000.00 | $ 1,000.00 |

*Floor framing rated for business type occupancy only except where otherwise noted.

| | | | | |
|---|---|---|---|---|
| **All Sections, Floor Framing** | | | | |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. (100% of 3rd floor framing, 30% of 4th floor framing, 100% of 6th floor framing) | 525 | SF | $ 25.00 | $ 13,125.00 |
| Allowance for miscellaneous structural repairs and unknown conditions | 1 | LS | $ 15,000.00 | $ 15,000.00 |
| **3.4 Exterior Wall Construction & Envelope** | | | | |
| ***Structural Recommendations*** | | | | |
| **Section 3** | | | | |
| Replace existing studs damaged by fire | 80 | EACH | $ 18.00 | $ 1,440.00 |
| Add strongbacks to lines 3, A, Z at sixth floor | 50 | LF | $ 80.00 | $ 4,000.00 |
| **Section 4** | | | | |
| Cut small openings in bin walls for needle beam shoring. Shore bin walls, remove deteriorated stacked-plank lumber with demo saw. Tooth in Douglas-Fir 2x6 plies and attach plies with adhesive and toenails from each side. Correct smaller defects with epoxy consolidant | 3 | EACH | $ 5,163.33 | $ 15,490.00 |
| **Section 5** | | | | |
| Sister tall studs along grids A & Z | 16 | EACH | $ 18.00 | $ 288.00 |
| **Sections 1, 2, 3, & 5; Basement Stud Walls** | | | | |
| Replace deteriorated or damaged interior sills and plates on gridlines 2 and 3 | 12 | LF | $ 35.00 | $ 420.00 |
| **Sections 1, 2, 3, & 5; Lateral Force Resisting System** | | | | |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation. | 1166 | SF | $ 3.00 | $ 3,498.00 |
| | | | | |
| ***Architectural Recommendations*** | | | | |
| Remove and replace wood shiplap siding | 920 | SF | $ 8.00 | $ 7,360.00 |
| Remove and replace wood tongue and groove siding | 2100 | SF | $ 8.00 | $ 16,800.00 |
| Remove lead containing paint from exterior of building | 6482 | SF | $ 2.00 | $ 12,964.00 |
| Repaint exterior of building | 6482 | SF | $ 1.50 | $ 9,723.00 |
| Repaint historic sign on exterior of building | 550 | SF | $ 8.00 | $ 4,400.00 |
| | | | | |
| **3.5 Envelope - Roofing & Waterproofing** | | | | |
| Remove current roofing - corrugated sheet metal & asphalt shingles | 3880 | SF | $ 1.00 | $ 3,880.00 |
| Install Berridge corrugated metal roof | 3880 | SF | $ 4.00 | $ 15,520.00 |
| Install snow guards on the east and west edges of Sections 2, 3 & 4 | 120 | LF | $ 15.00 | $ 1,800.00 |
| | | | | |
| **3.6 Windows & Doors** | | | | |
| Restore all windows | | | | |
| Reconstruct eight lite double hung wood windows and frames to match original (2'x5') | 6 | windows | $ 900.00 | $ 5,400.00 |
| Reconstruct eight lite double hung wood windows to match original - epoxy stabalize existing frames (2'x5') | 3 | windows | $ 900.00 | $ 2,700.00 |
| Reconstruct four lite fixed wood window (approx. 2'x2') | 1 | window | $ 360.00 | $ 360.00 |
| Reconstruct four lite fixed wood window (approx. 2'x3') | 2 | windows | $ 540.00 | $ 1,080.00 |
| Reconstruct two lite double hung window (8"x5') | 1 | window | $ 350.00 | $ 350.00 |
| Restore all doors | | | | |
| Replace 50% of the wood on the sliding doors (6'x7') | 3 | doors | $ 945.00 | $ 2,835.00 |
| Sand and refinish 4 panel wood doors | 2 | doors | $ 250.00 | $ 500.00 |
| Replace 50% of the wood boards composing exterior doors (3'x7') | 4 | doors | $ 472.50 | $ 1,890.00 |
| Remove, wire brush and oil all hardware that remains | 3 | sets | $ 85.00 | $ 255.00 |
| Install hardware to match historic | 3 | sets | $ 235.00 | $ 705.00 |
| New hinges and track for sliding door to match original (2 hinges, 1 overhead track 7' long) | 3 | sets | $ 700.00 | $ 2,100.00 |
| | | | | |

*Floor framing rated for business type occupancy only except where otherwise noted.

| | | | | |
|---|---|---|---|---|
| **3.7 Interior Finishes** | | | | |
| Replace char damaged wood not covered in previous sections | 1 | lump sum | $ 25,000.00 | $ 25,000.00 |
| Replace 100% of floor boards in Sections 1,2,3 & 5 (varies from 1"x6" or 1"x8" or 1 1/2" x 10) | 3286 | SF | $ 4.00 | $ 13,144.00 |
| Remove non-historic stair from 1st to 2nd floor & install new stair | 1 | lump sum | $ 1,500.00 | $ 1,500.00 |
| Reinstall stairs on 2nd - 6th floors after new flooring is installed | 4 | sets | $ 500.00 | $ 2,000.00 |
| Media blast all wood surfaces in the building (optional, not in total) | 24372 | SF | $ 2.50 | $ 60,930.00 |
| | | | | |
| **3.8 Mechanical Systems** | | | | |
| **NA** | | | | |
| | | | | |
| **3.9 Electrical Systems** | | | | |
| **NA** | | | | |
| | | | | |
| **General Conditions** | | | | |
| Assumed 90 Day Duration | 3 | MO | $ 15,000.00 | $ 45,000.00 |
| | | | | |
| **Subtotal Hard Construction Costs** | | | | **$ 439,347.00** |
| | | | Bond (1.5%) | $ 6,590.21 |
| | | | Builder's Risk Insurance | $ 1,318.04 |
| | | | Permits & Plan Review | $ 6,590.21 |
| **Subtotal Construction Costs** | | | | **$ 453,845.45** |
| | | | Contractor Overhead & Profit (15%) | $ 68,076.82 |
| **Subtotal** | | | | $ 521,922.27 |
| | | | Contingency (during design) - 5% | $ 26,096.11 |
| **Subtotal** | | | | $ 548,018.38 |
| | | | A&E fees (10%) | $ 54,801.84 |
| **Subtotal** | | | | $ 602,820.22 |
| | | | Owner Contingency (for construction) - 10% | $ 60,282.02 |
| **Total Construction Costs** | | | | **$ 663,102.24** |
| Hazardous material mitigation - plan development and mitigation work per report in HSA Appendix | | | | $ 21,281.25 |
| **Total Costs** | | | | **$ 684,383.49** |

**Phase I**

| Louisville Grain Elevator Historic Structure Assessment - Phase I | | | | |
|---|---|---|---|---|
| **Description** | **Quantity** | **Unit** | **Unit Price** | **Total** |
| **3.1 Site** | | | | |
| Regrade to ensure drainage away from building | 211 | CY | $ 6.00 | $ 1,266.00 |
| Remove berm along west elevation (cut & fill on site) | 50 | CY | $ 6.00 | $ 300.00 |
| Install perimeter drain | 250 | LF | $ 21.00 | $ 5,250.00 |
| Remove 3 trees (2 on the north & 1 on the east) | 3 | EACH | $ 250.00 | $ 750.00 |
| **3.2 Foundations** | | | | |
| Procure Geotechnical Engineer's Report for site | 1 | LS | $ 2,500.00 | $ 2,500.00 |
| Excavate around entire perimeter of site to access work | 628 | CY | $ 8.00 | $ 5,024.00 |
| Infill perimeter basement wall to Sections 1, 2, & 3 | 33 | CY | $ 750.00 | $ 24,750.00 |
| Concrete | 14 | CY | $ 750.00 | $ 10,500.00 |
| Add counterforts & augment perimeter basement footing at Sections 1, 2, & 3 | 5 | CY | $ 2,670.00 | $ 13,350.00 |
| Add 4 spread footings to Section 3 (below timber posts along grid 3 and grid 4) | 1 | CY | $ 850.00 | $ 850.00 |
| Add 2 square footings to Section 3 (at ends of shear wall along grid 3 to resist overturning forces) | 1 | CY | $ 850.00 | $ 850.00 |
| Infill basement pit with flowfill | 17 | CY | $ 150.00 | $ 2,550.00 |
| Repair deteriorated bin walls below grade, add impervious waterproofing membrane; reinforce wall with PT lumber if required | 17 | CY | $ 750.00 | $ 12,750.00 |
| Add perimeter basement wall to Section 5 | 9 | CY | $ 850.00 | $ 7,650.00 |
| Add strip footing to Section 5 | above | CY | above | above |
| Allowance for footing augmentation where allowable bearing capacity exceeded or net tension due to shearwall overturning forces | 1 | LS | $ 15,000.00 | $ 15,000.00 |
| **3.3 Building Structural System** | | | | |
| **Section 1** | | | | |
| Roof: Remove roof sheathing; sister rafters, add plywood sheathing | 370 | SF | $ 15.00 | $ 5,550.00 |
| **Section 2** | | | | |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins | 660 | SF | $ 20.00 | $ 13,200.00 |
| **Section 3** | | | | |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins | 750 | SF | $ 20.00 | $ 15,000.00 |
| **Section 4** | | | | |
| Wood scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | 1 | LS | $ 1,500.00 | $ 1,500.00 |
| Roof: Remove roof sheathing; leave existing rafters; add rafters @ 24" between existing rafters; enhance connections; strengthen 2 dropped purlins; add plywood sheathing | 1330 | SF | $ 20.00 | $ 26,600.00 |
| **Section 5** | | | | |
| Roof: Remove roof sheathing; sister rafters in north bay, add plywood sheathing, add hurricane ties on ends of rafters | 935 | SF | $ 20.00 | $ 18,700.00 |
| Roof: Anchor existing ledger on grid 4 to bin wall | 30 | LF | $ 10.00 | $ 300.00 |
| Roof: Shore rafters, remove and replace existing overstressed girder with steel beam or equivalent | 28 | LF | $ 101.25 | $ 2,835.00 |
| **All Sections, Floor Framing** | | | | |
| Allowance for miscellaneous structural repairs and unknown conditions | 1 | LS | $ 15,000.00 | $ 15,000.00 |
| **3.4 Exterior Wall Construction & Envelope** | | | | |
| ***Structural Recommendations*** | | | | |
| **NA** | | | | |
| | | | | |
| ***Architectural Recommendations*** | | | | |
| **NA** | | | | |
| | | | | |

*Floor framing rated for business type occupancy only except where otherwise noted.

**Phase I**

| | | | | |
|---|---|---|---|---|
| **3.5 Envelope - Roofing & Waterproofing** | | | | |
| Remove current roofing - corrugated sheet metal & asphalt shingles | 3880 | SF | $ 1.00 | $ 3,880.00 |
| Install Berridge corrugated metal roof | 3880 | SF | $ 4.00 | $ 15,520.00 |
| Install snow guards on the east and west edges of Sections 2, 3 & 4 | 120 | LF | $ 15.00 | $ 1,800.00 |
| | | | | |
| **3.6 Windows & Doors** | | | | |
| **NA** | | | | |
| | | | | |
| **3.7 Interior Finishes** | | | | |
| | | | | |
| | | | | |
| **3.8 Mechanical Systems** | | | | |
| **NA** | | | | |
| | | | | |
| **3.9 Electrical Systems** | | | | |
| **NA** | | | | |
| | | | | |
| **General Conditions** | | | | |
| Assumed 90 Day Duration | 2 | MO | $ 15,000.00 | $ 30,000.00 |
| | | | | |
| **Subtotal Hard Construction Costs** | | | | **$ 253,225.00** |
| | | | Bond (1.5%) | $ 3,798.38 |
| | | | Builder's Risk Insurance | $ 759.68 |
| | | | Permits & Plan Review | $ 3,798.38 |
| **Subtotal Construction Costs** | | | | **$ 261,581.43** |
| | | | Contractor Overhead & Profit (15%) | $ 39,237.21 |
| **Subtotal** | | | | $ 300,818.64 |
| | | | Contingency (during design) - 5% | $ 15,040.93 |
| **Subtotal** | | | | $ 315,859.57 |
| | | | A&E fees (10%) | $ 31,585.96 |
| **Subtotal** | | | | $ 347,445.53 |
| | | | Owner Contingency (for construction) - 10% | $ 34,744.55 |
| **Total Construction Costs** | | | | **$ 382,190.08** |
| Hazardous material mitigation - plan development and mitigation work per report in HSA Appendix | | | | $ 21,281.25 |
| **Phase I Total Costs** | | | | **$ 403,471.33** |

*Floor framing rated for business type occupancy only except where otherwise noted.

| Louisville Grain Elevator Historic Structure Assessment - Phase II | | | | |
|---|---|---|---|---|
| **Description** | **Quantity** | **Unit** | **Unit Price** | **Total** |
| **3.1 Site** | | | | |
| NA | | | | |
| | | | | |
| **3.2 Foundations** | | | | |
| NA | | | | |
| | | | | |
| **3.3 Building Structural System** | | | | |
| **Section 1** | | | | |
| 1st Floor: Remove abandoned stair; re-frame floor around stair opening | 15 | SF | $ 25.00 | $ 375.00 |
| **Section 2** | | | | |
| 2nd Floor: Remove fire damaged floor joists which have a very low calculated load-carrying capacity. Replace with new more robust joists spanning east-west bearing on exterior walls and on one timber beam spanning north-south across center of bay. | 400 | SF | $ 20.00 | $ 8,000.00 |
| Replace 100% of 2nd floor wall framing due to char damage | 1375 | SF | $ 6.00 | $ 8,250.00 |
| **Section 3** | | | | |
| Add 1 timber post from 3rd floor to basement wall on grid 3 and grid 4 to support 3rd floor timber beams near midspan | 19 | LF | $ 30.00 | $ 570.00 |
| 6th Floor Mezzanine: Add 2 strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge | 20 | LF | $ 30.00 | $ 600.00 |
| **Section 4** | | | | |
| **Section 5** | | | | |
| 1st Floor: Shore floor to reset dropped girders on new posts on new footings or on new stem wall | 3 | Places | $ 1,000.00 | $ 3,000.00 |
| **Sections 1, 2, 3, & 5; Lateral Force Resisting System** | | | | |
| Miscellaneous drag strut and collector elements. Will drag some force into existing bin walls in order to minimize number of new wood shear walls | 1 | LS | $ 1,000.00 | $ 1,000.00 |
| **All Sections, Floor Framing** | | | | |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. (100% of 3rd floor framing, 30% of 4th floor framing, 100% of 6th floor framing) | 525 | SF | $ 25.00 | $ 13,125.00 |
| **3.4 Exterior Wall Construction & Envelope** | | | | |
| ***Structural Recommendations*** | | | | |
| **Section 3** | | | | |
| Replace existing studs damaged by fire | 80 | EACH | $ 18.00 | $ 1,440.00 |
| Add strongbacks to lines 3, A, Z at sixth floor | 50 | LF | $ 80.00 | $ 4,000.00 |
| **Section 4** | | | | |
| Cut small openings in bin walls for needle beam shoring. Shore bin walls, remove deteriorated stacked-plank lumber with demo saw. Tooth in Douglas-Fir 2x6 plies and attach plies with adhesive and toenails from each side. Correct smaller defects with epoxy consolidant | 3 | EACH | $ 5,163.33 | $ 15,490.00 |
| **Section 5** | | | | |
| Sister tall studs along grids A & Z | 16 | EACH | $ 18.00 | $ 288.00 |
| **Sections 1, 2, 3, & 5; Basement Stud Walls** | | | | |
| Replace deteriorated or damaged interior sills and plates on gridlines 2 and 3 | 12 | LF | $ 35.00 | $ 420.00 |
| **Sections 1, 2, 3, & 5; Lateral Force Resisting System** | | | | |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation. | 1166 | SF | $ 3.00 | $ 3,498.00 |
| | | | | |
| ***Architectural Recommendations*** | | | | |
| Remove and replace wood shiplap siding | 920 | SF | $ 8.00 | $ 7,360.00 |
| Remove and replace wood tongue and groove siding | 2100 | SF | $ 8.00 | $ 16,800.00 |
| Remove lead containing paint from exterior of building | 6482 | SF | $ 2.00 | $ 12,964.00 |
| Repaint exterior of building | 6482 | SF | $ 1.50 | $ 9,723.00 |

**Phase II**

| | | | | |
|---|---|---|---|---|
| **3.5 Envelope - Roofing & Waterproofing** | | | | |
| NA | | | | |
| | | | | |
| **3.6 Windows & Doors** | | | | |
| NA | | | | |
| | | | | |
| **3.7 Interior Finishes** | | | | |
| Remove non-historic stair from 1st to 2nd floor & install new stair | 1 | lump sum | $ 1,500.00 | $ 1,500.00 |
| | | | | |
| **3.8 Mechanical Systems** | | | | |
| NA | | | | |
| | | | | |
| **3.9 Electrical Systems** | | | | |
| NA | | | | |
| | | | | |
| **General Conditions** | | | | |
| Assumed 90 Day Duration | 1.5 | MO | $ 15,000.00 | $ 22,500.00 |
| | | | | |
| **Subtotal Hard Construction Costs** | | | | **$ 130,903.00** |
| | | | Bond (1.5%) | $ 1,963.55 |
| | | | Builder's Risk Insurance | $ 392.71 |
| | | | Permits & Plan Review | $ 1,963.55 |
| **Subtotal Construction Costs** | | | | **$ 135,222.80** |
| | | | Re-mobilization cost (10%) | $ 13,522.28 |
| **Subtotal** | | | | $ 148,745.08 |
| | | | Contractor Overhead & Profit (15%) | $ 22,311.76 |
| **Subtotal** | | | | $ 171,056.84 |
| | | | Contingency (during design) - 5% | $ 8,552.84 |
| **Subtotal** | | | | $ 179,609.68 |
| | | | A&E fees (10%) | $ 17,960.97 |
| **Subtotal** | | | | $ 197,570.65 |
| | | | Owner Contingency (for construction) - 10% | $ 19,757.07 |
| **Phase II Total Construction Costs** | | | | **$ 217,327.72** |

*Floor framing rated for business type occupancy only except where otherwise noted.

| Louisville Grain Elevator Historic Structure Assessment - Phase III | | | | |
|---|---|---|---|---|
| **Description** | **Quantity** | **Unit** | **Unit Price** | **Total** |
| **3.1 Site** | | | | |
| NA | | | | |
| | | | | |
| **3.2 Foundations** | | | | |
| NA | | | | |
| | | | | |
| **3.3 Building Structural System** | | | | |
| | | | | |
| **3.4 Exterior Wall Construction & Envelope** | | | | |
| ***Architectural Recommendations*** | | | | |
| Repaint historic sign on exterior of building | 550 | SF | $ 8.00 | $ 4,400.00 |
| | | | | |
| **3.5 Envelope - Roofing & Waterproofing** | | | | |
| NA | | | | |
| | | | | |
| **3.6 Windows & Doors** | | | | |
| Restore all windows | | | | |
| Reconstruct eight lite double hung wood windows and frames to match original (2'x5') | 6 | windows | $ 900.00 | $ 5,400.00 |
| Reconstruct eight lite double hung wood windows to match original - epoxy stabalize existing frames (2'x5') | 3 | windows | $ 900.00 | $ 2,700.00 |
| Reconstruct four lite fixed wood window (approx. 2'x2') | 1 | window | $ 360.00 | $ 360.00 |
| Reconstruct four lite fixed wood window (approx. 2'x3') | 2 | windows | $ 540.00 | $ 1,080.00 |
| Reconstruct two lite double hung window (8"x5') | 1 | window | $ 350.00 | $ 350.00 |
| Restore all doors | | | | |
| Replace 50% of the wood on the sliding doors (6'x7') | 3 | doors | $ 945.00 | $ 2,835.00 |
| Sand and refinish 4 panel wood doors | 2 | doors | $ 250.00 | $ 500.00 |
| Replace 50% of the wood boards composing exterior doors (3'x7') | 4 | doors | $ 472.50 | $ 1,890.00 |
| Remove, wire brush and oil all hardware that remains | 3 | sets | $ 85.00 | $ 255.00 |
| Install hardware to match historic | 3 | sets | $ 235.00 | $ 705.00 |
| New hinges and track for sliding door to match original (2 hinges, 1 overhead track 7' long) | 3 | sets | $ 700.00 | $ 2,100.00 |
| | | | | |
| **3.7 Interior Finishes** | | | | |
| Replace char damaged wood not covered in previous sections | 1 | lump sum | $ 25,000.00 | $ 25,000.00 |
| Replace 100% of floor boards in Sections 1,2,3 & 5 (varies from 1"x6" or 1"x8" or 1 1/2" x 10) | 3286 | SF | $ 4.00 | $ 13,144.00 |
| Reinstall stairs on 2nd - 6th floors after new flooring is installed | 4 | sets | $ 500.00 | $ 2,000.00 |
| Media blast all wood surfaces in the building (optional, not in total) | 24372 | SF | $ 2.50 | $ 60,930.00 |
| | | | | |
| **3.8 Mechanical Systems** | | | | |
| NA | | | | |
| | | | | |
| **3.9 Electrical Systems** | | | | |
| NA | | | | |
| | | | | |
| **General Conditions** | | | | |
| Assumed 90 Day Duration | 1 | MO | $ 15,000.00 | $ 15,000.00 |
| | | | | |
| **Subtotal Hard Construction Costs** | | | | **$ 77,719.00** |
| | | | Bond (1.5%) | $ 1,165.79 |
| | | | Builder's Risk Insurance | $ 233.16 |
| | | | Permits & Plan Review | $ 1,165.79 |
| **Subtotal Construction Costs** | | | | **$ 80,283.73** |
| | | | Re-mobilization cost (10%) | $ 8,028.37 |
| **Subtotal** | | | | $ 88,312.10 |
| | | | Contractor Overhead & Profit (15%) | $ 13,246.81 |
| **Subtotal** | | | | $ 101,558.91 |
| | | | Contingency (during design) - 5% | $ 5,077.95 |
| **Subtotal** | | | | $ 106,636.86 |
| | | | A&E fees (10%) | $ 10,663.69 |
| **Subtotal** | | | | $ 117,300.55 |
| | | | Owner Contingency (for construction) - 10% | $ 11,730.05 |
| **Phase III Total Construction Costs** | | | | **$ 129,030.60** |

*Floor framing rated for business type occupancy only except where otherwise noted.

## 6.0 Historic Photos




"Louisville: Louisville M.&E. Company" date unknown.
*Carnegie Branch Library for Local HIstory, Boulder Historical Society Collection*




"Louisville: Louisville M.&E. Company" date unknown.
*Carnegie Branch Library for Local HIstory, Boulder Historical Society Collection*




Photo of the Grain Elevator, 2/8/1914.
*Courtesy of the RFP from the City of Louisville*

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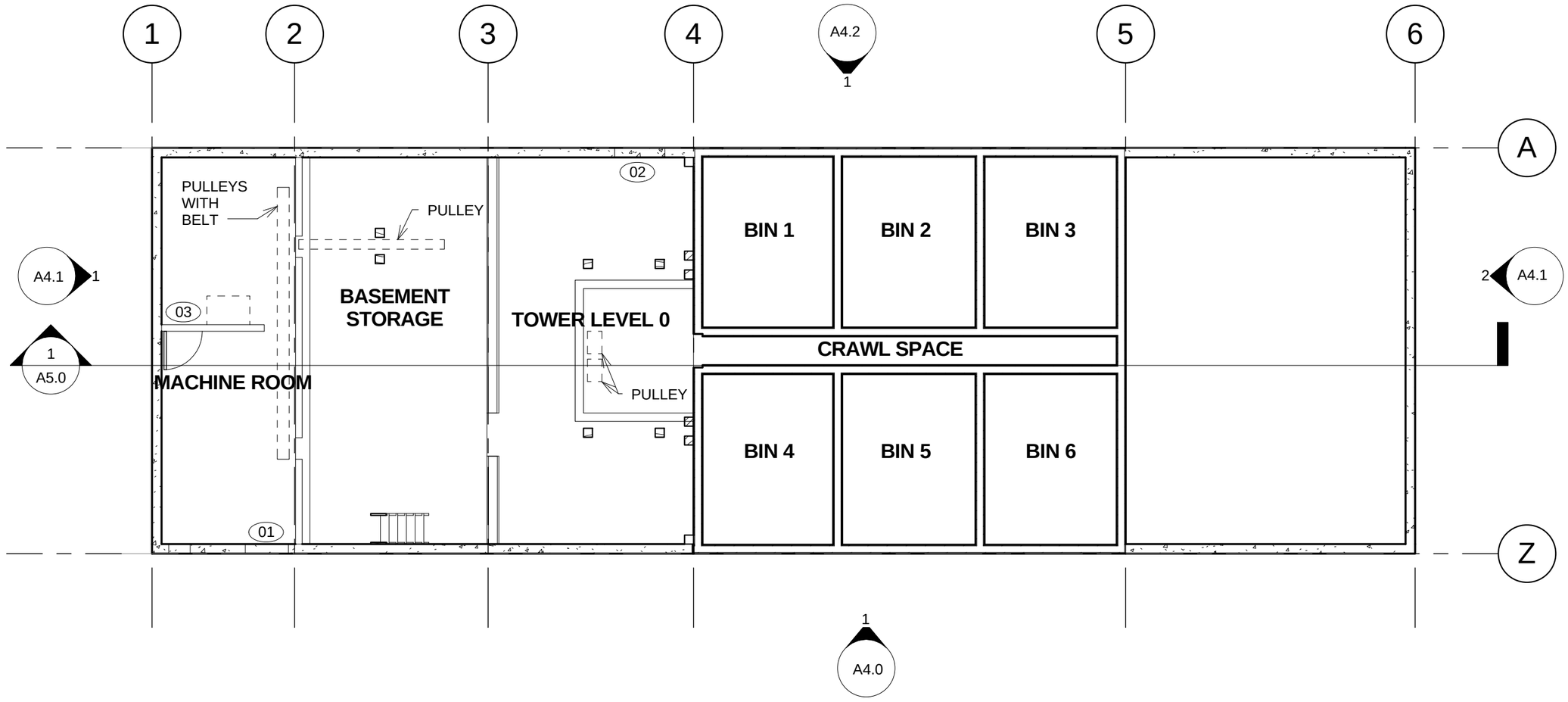
## 8.0 Appendix

- Floor Plans, Elevations and Section
- 1908 Sanborn Map
- Land Survey
- Wood Scientist Report
- Hazardous Materials Report
- National Register Nomination Form
- Colorado Cultural Resource Survey




1 **BASEMENT**
1/8" = 1'-0"

N

Anderson Hallas Architects, PC
715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
-
Louisville, Colorado

| No. | Description | Date |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
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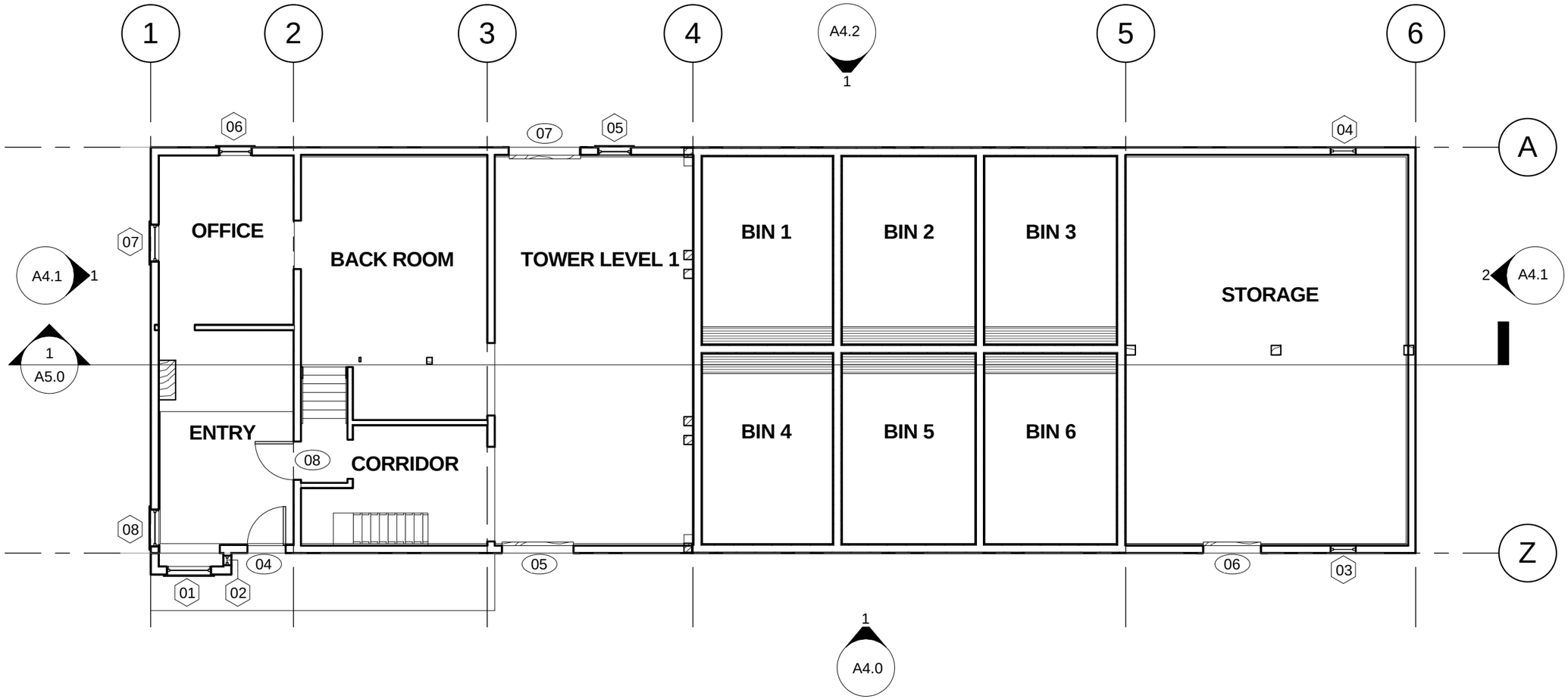
| Project Number | 2011100 |
| Issue | HSA |
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Basement Floor Plan

A1.0




1 **FIRST FLOOR**
1/8" = 1'-0"

N

Anderson Hallas Architects, PC
715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
-
Louisville, Colorado

| No. | Description | Date |
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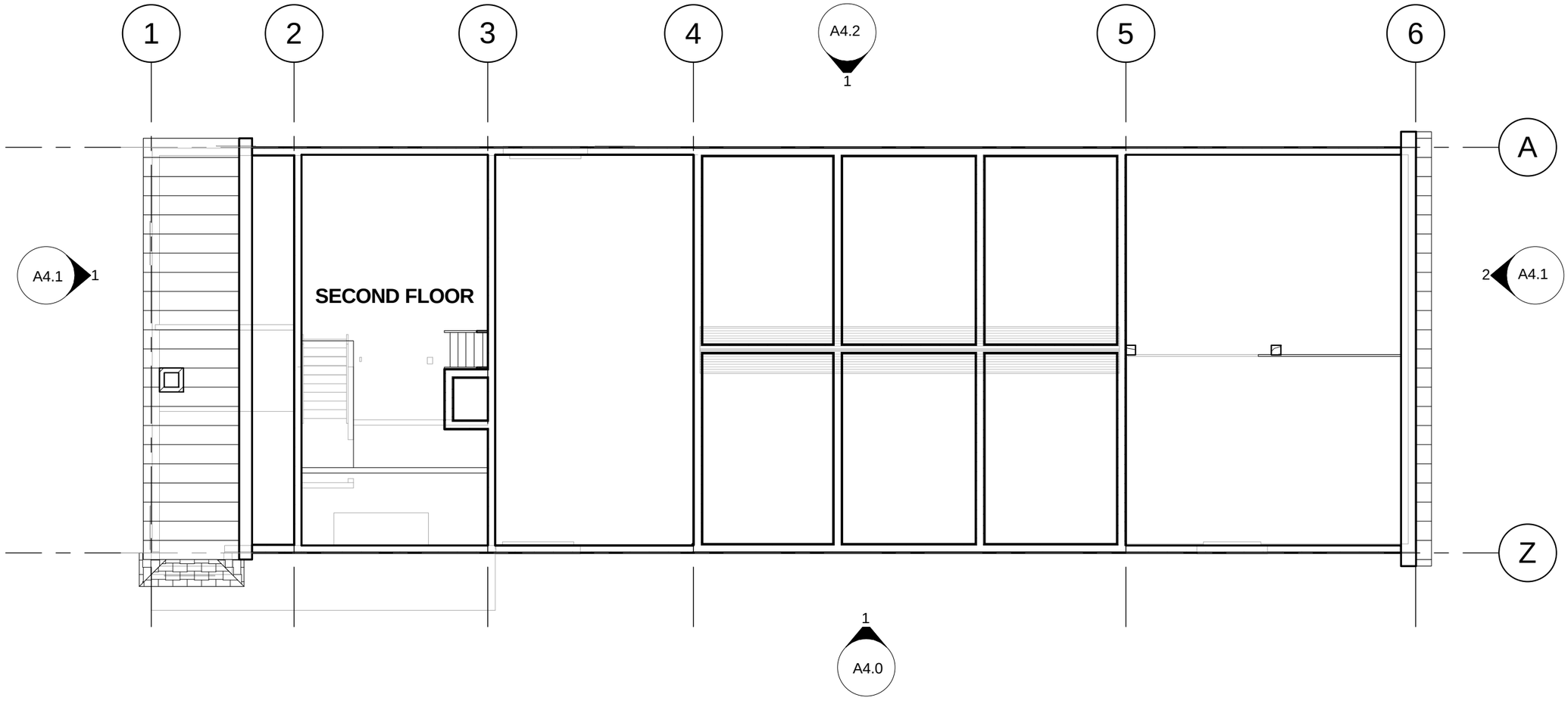
| Project Number | 2011100 |
| Issue | HSA |
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

First Floor Plan

A1.1




1 **SECOND FLOOR**
1/8" = 1'-0"

N

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715 FOURTEENTH STREET
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(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
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Louisville, Colorado

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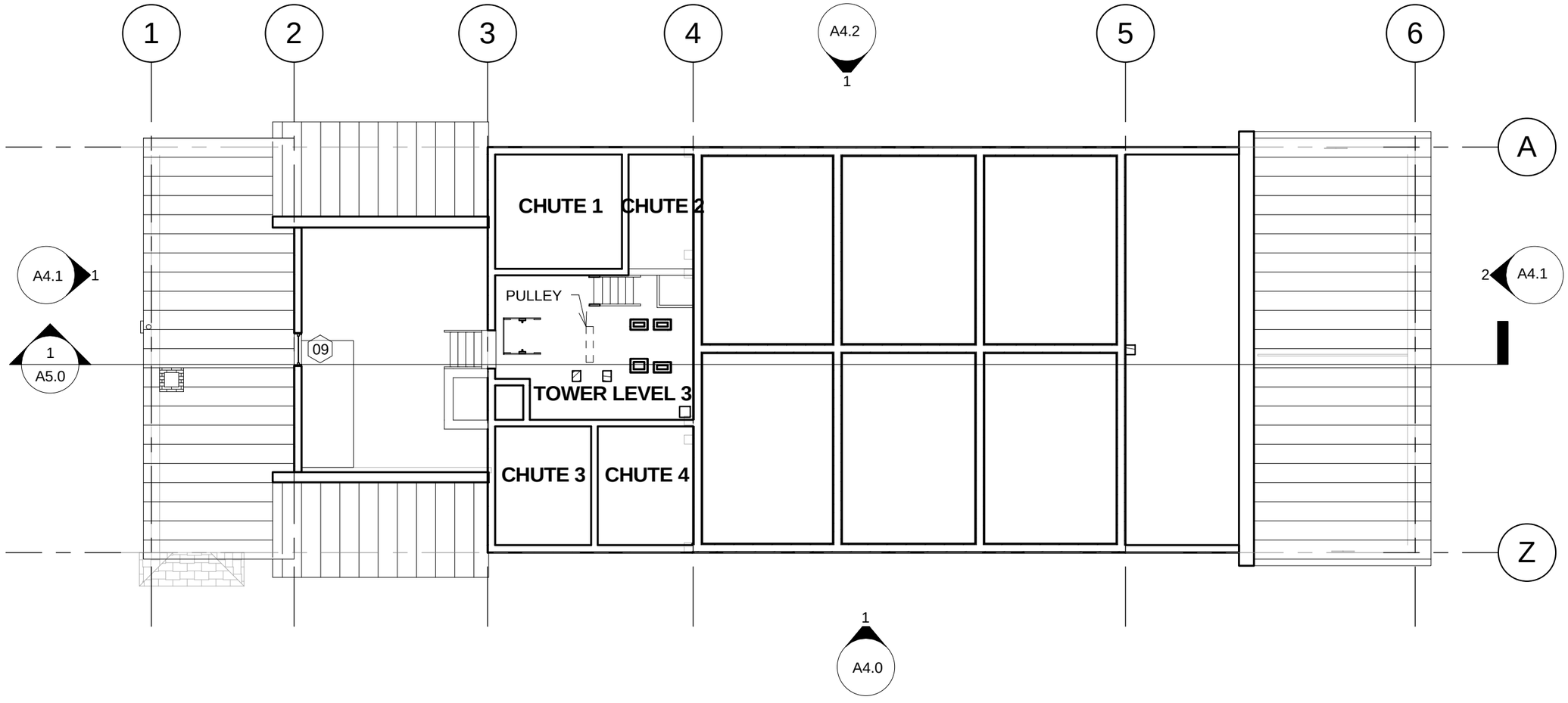
| Project Number | 2011100 |
| Issue | HSA |
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Second Floor Plan

A1.2




1 **THIRD FLOOR**
1/8" = 1'-0"

N

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715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
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Louisville, Colorado

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| Project Number | 2011100 |
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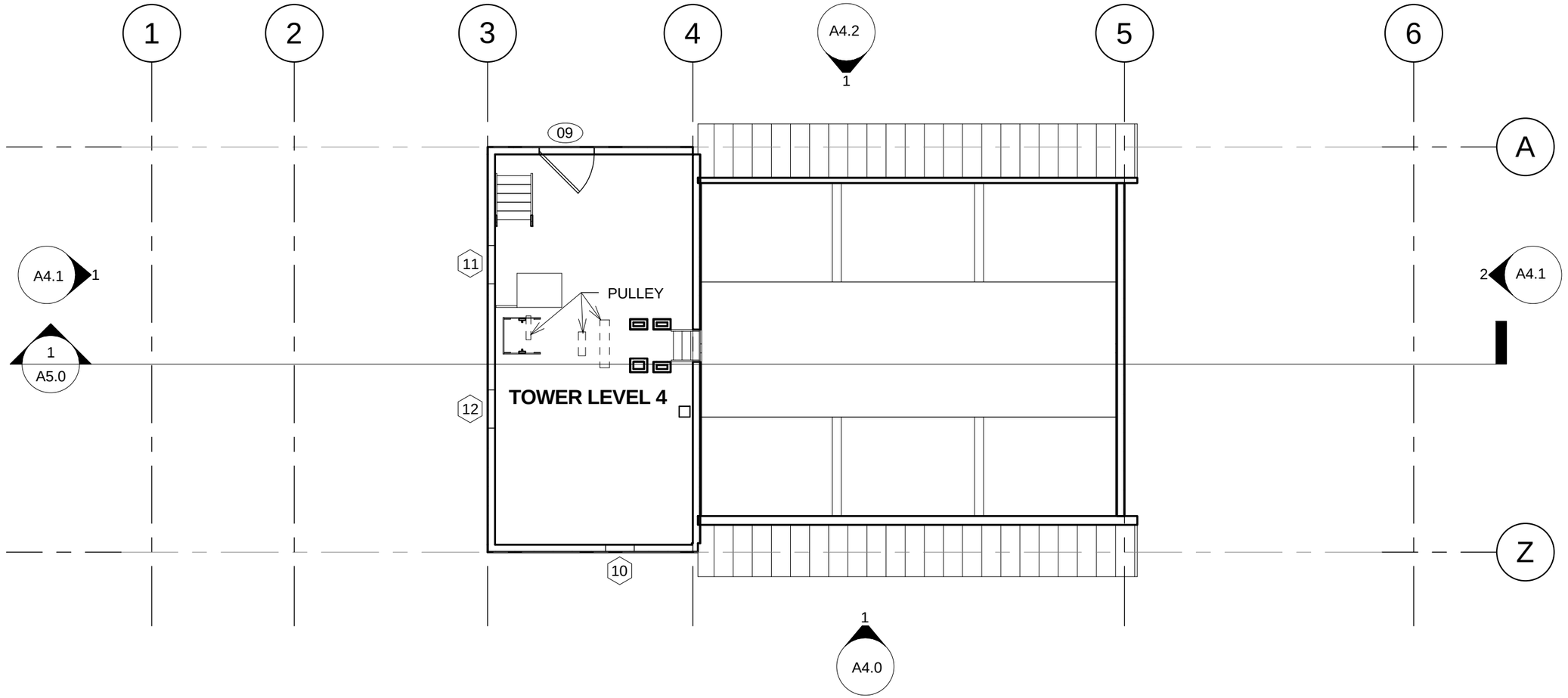
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Third Floor Plan

A1.3




1 **FOURTH FLOOR**
1/8" = 1'-0"

N

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715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
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Louisville, Colorado

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| Project Number | 2011100 |
| Issue | HSA |
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
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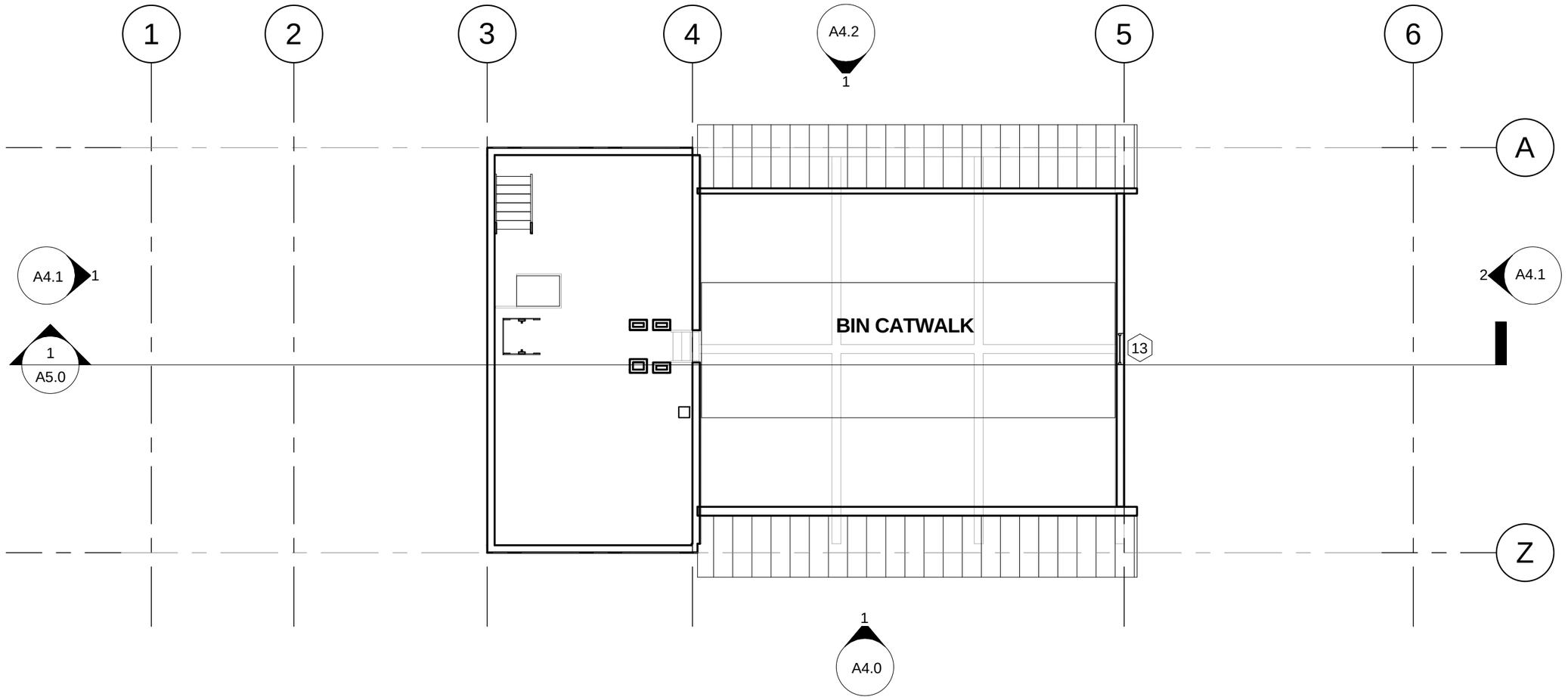
| Scale | 1/8" = 1'-0" |

Fourth Floor Plan

A1.4




1 **FIFTH FLOOR**
1/8" = 1'-0"

N

Anderson Hallas Architects, PC
715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
-
Louisville, Colorado

| No. | Description | Date |
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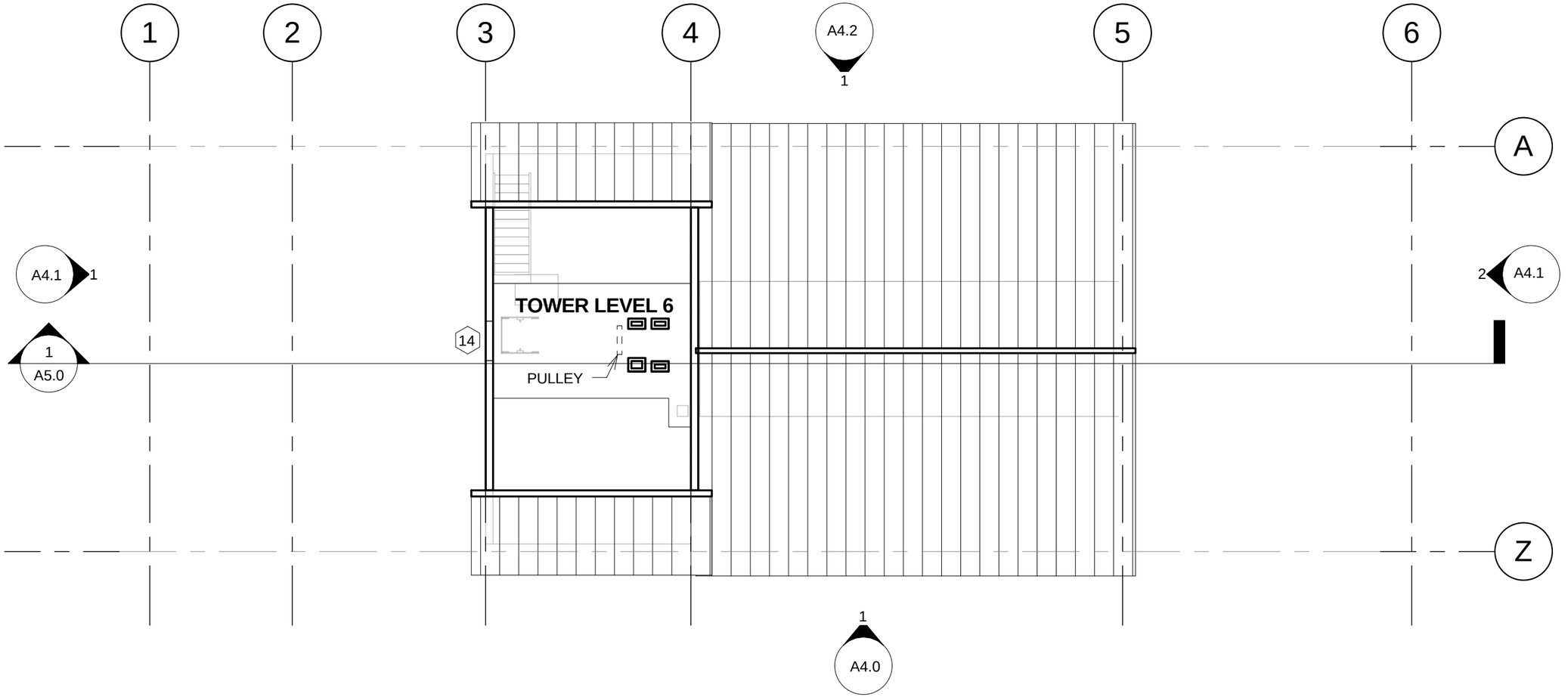
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Fifth Floor Plan

A1.5




1 **SIXTH FLOOR**
1/8" = 1'-0"

N

Anderson Hallas Architects, PC
715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

# Louisville Grain Elevator - Louisville, Colorado

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| Issue | HSA |
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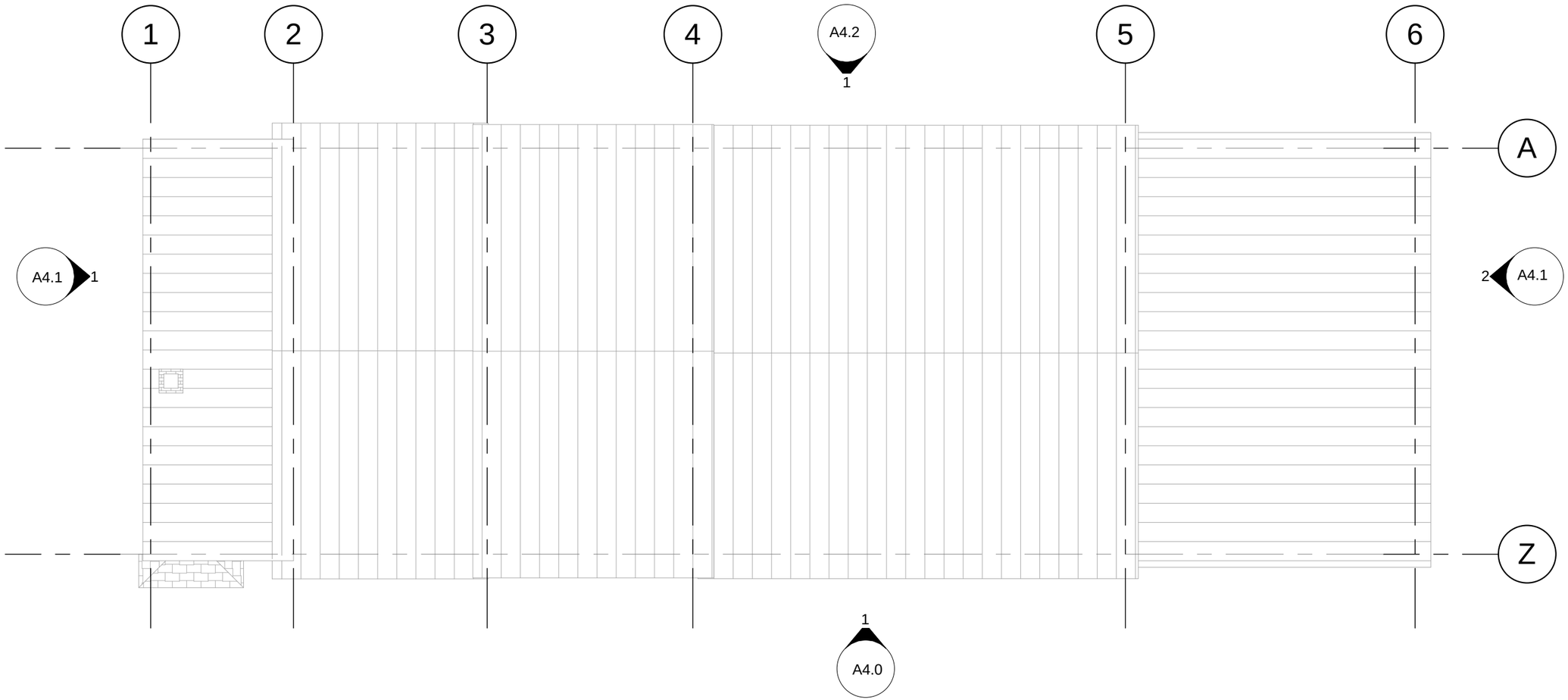
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Sixth Floor Plan

A1.6




1 **ROOF**
1/8" = 1'-0"

N

Anderson Hallas Architects, PC

715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521

# Louisville Grain Elevator - Louisville, Colorado

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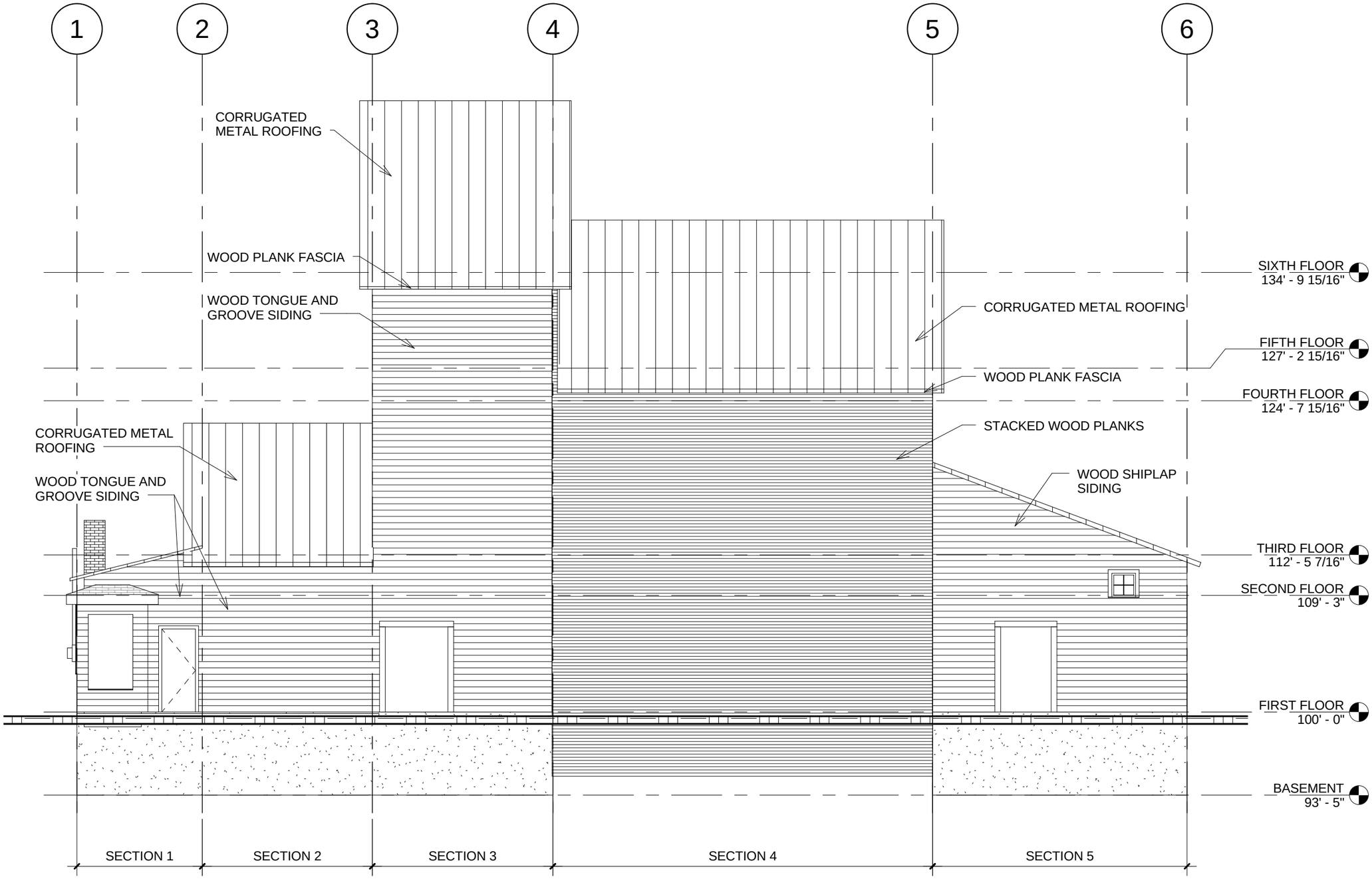
| Issue | HSA |
| Date | 05/02/2011 |
| Drawn by | DM/KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Roof Plan

A1.7

ELEVATIONS SHOW PROPOSED MATERIALS AFTER PHASE II WORK IS COMPLETED, NOT ALL MATERIALS ARE EXISTING. FOR EXISTING MATERIALS REFER TO PHOTOGRAPHS IN SECTIONS 3.4 & 3.5.




## 1 WEST ELEVATION

1/8" = 1'-0"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(303) 278-4378
FAX (303) 278-0521


Louisville Grain Elevator - Louisville, Colorado

| No. | Description | Date |
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| Project Number | 2011100 |
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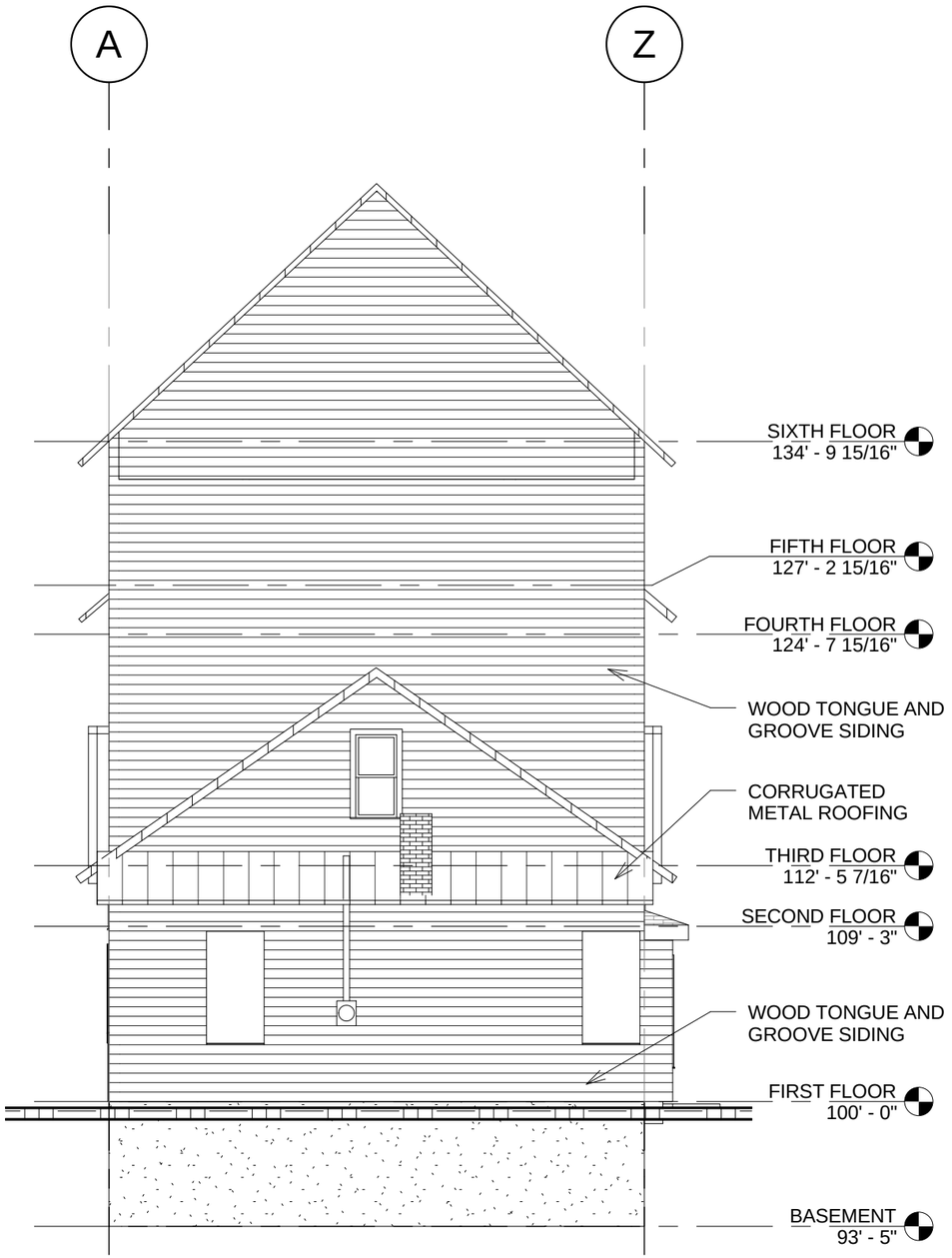
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

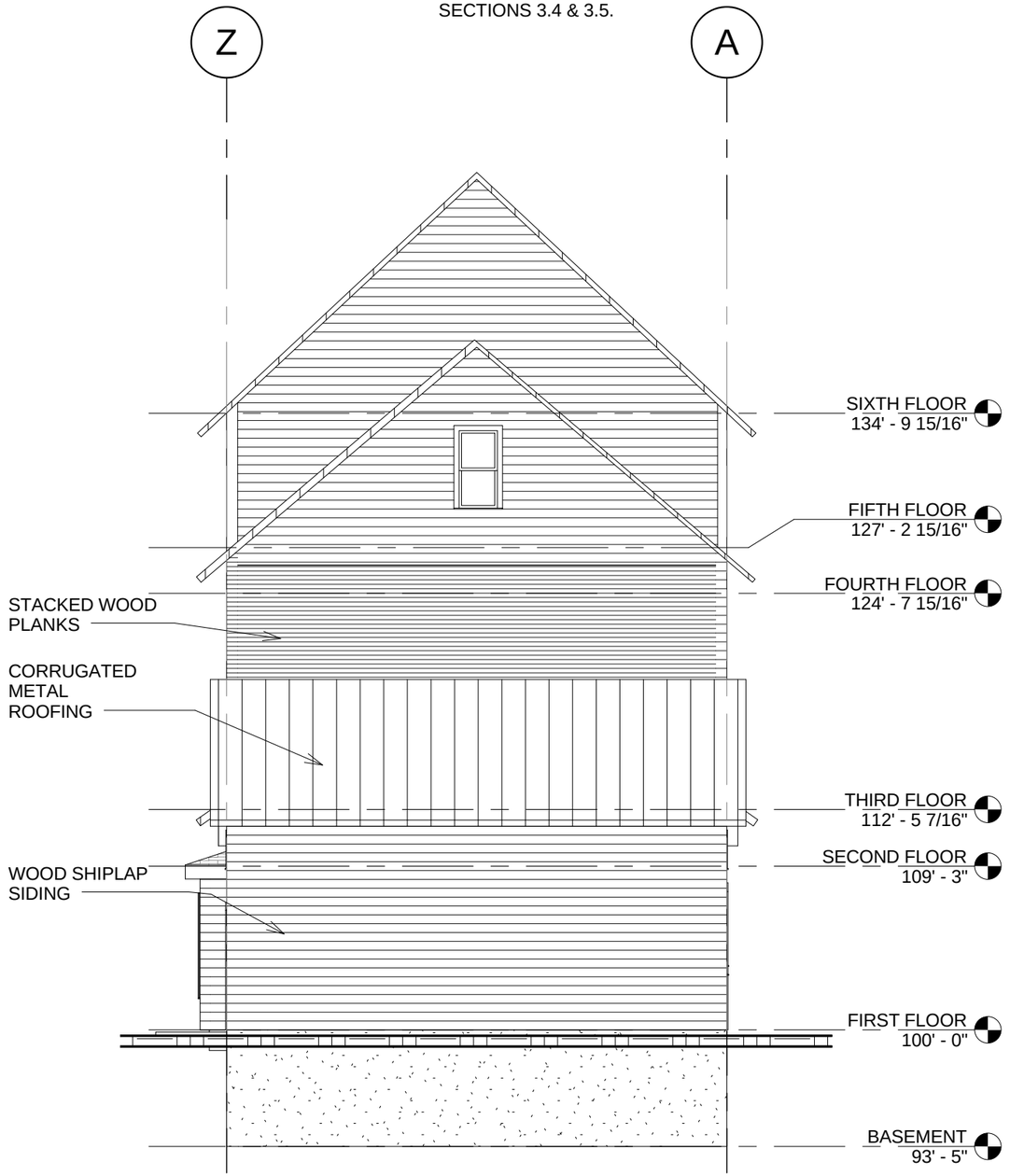
Exterior Elevation - West

A4.0

ELEVATIONS SHOW PROPOSED MATERIALS AFTER PHASE II WORK IS COMPLETED, NOT ALL MATERIALS ARE EXISTING. FOR EXISTING MATERIALS REFER TO PHOTOGRAPHS IN SECTIONS 3.4 & 3.5.




1 **NORTH ELEVATION**
1/8" = 1'-0"




2 **SOUTH ELEVATION**
1/8" = 1'-0"

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(303) 278-4378
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Louisville Grain Elevator
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Louisville, Colorado

| No. | Description | Date |
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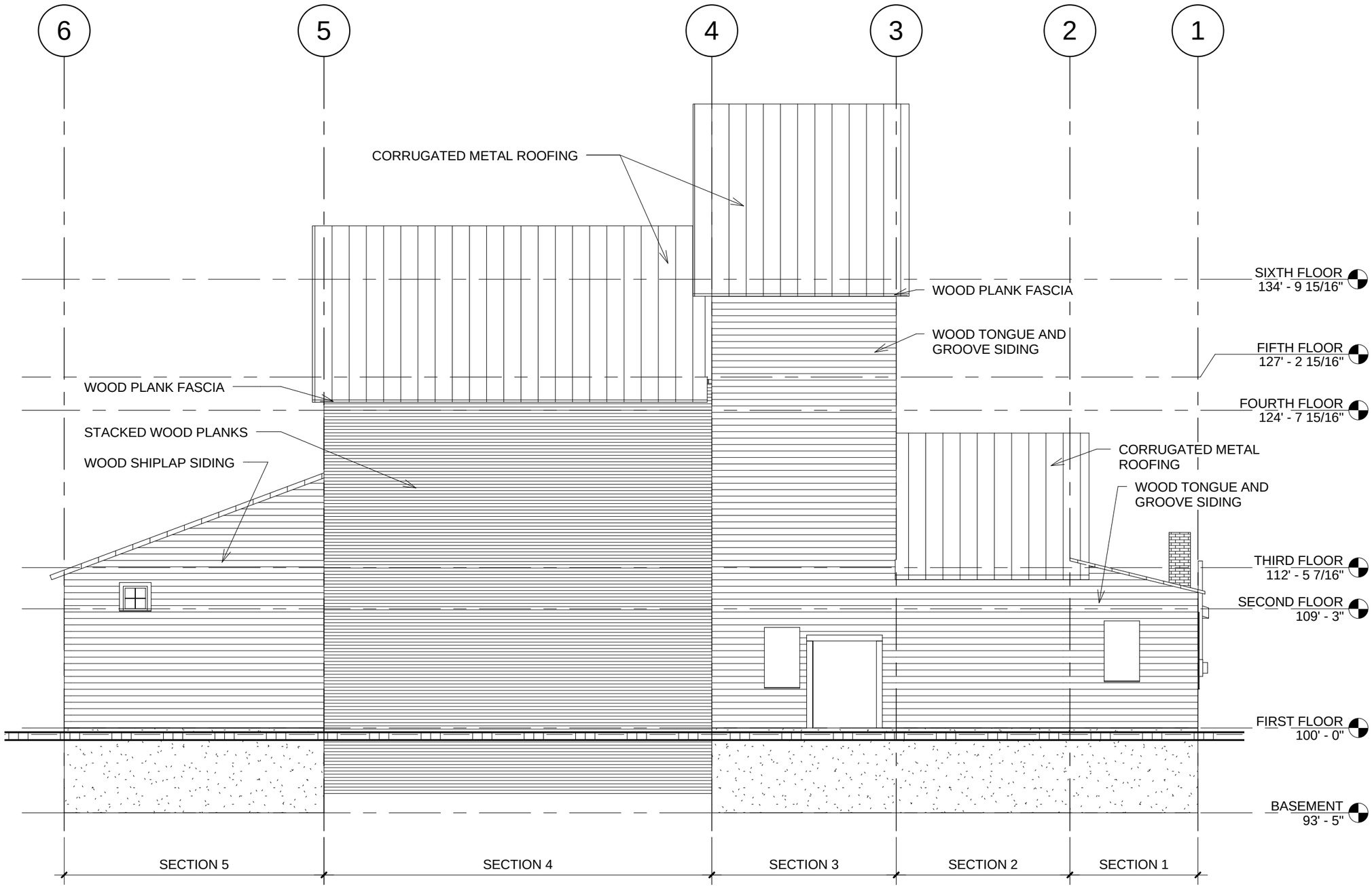
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Exterior Elevation - North and South

A4.1

ELEVATIONS SHOW PROPOSED MATERIALS AFTER PHASE II WORK IS COMPLETED, NOT ALL MATERIALS ARE EXISTING. FOR EXISTING MATERIALS REFER TO PHOTOGRAPHS IN SECTIONS 3.4 & 3.5.




## 1 EAST ELEVATION

1/8" = 1'-0"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(303) 278-4378
FAX (303) 278-0521


Louisville Grain Elevator - Louisville, Colorado

| No. | Description | Date |
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| Project Number | 2011100 |
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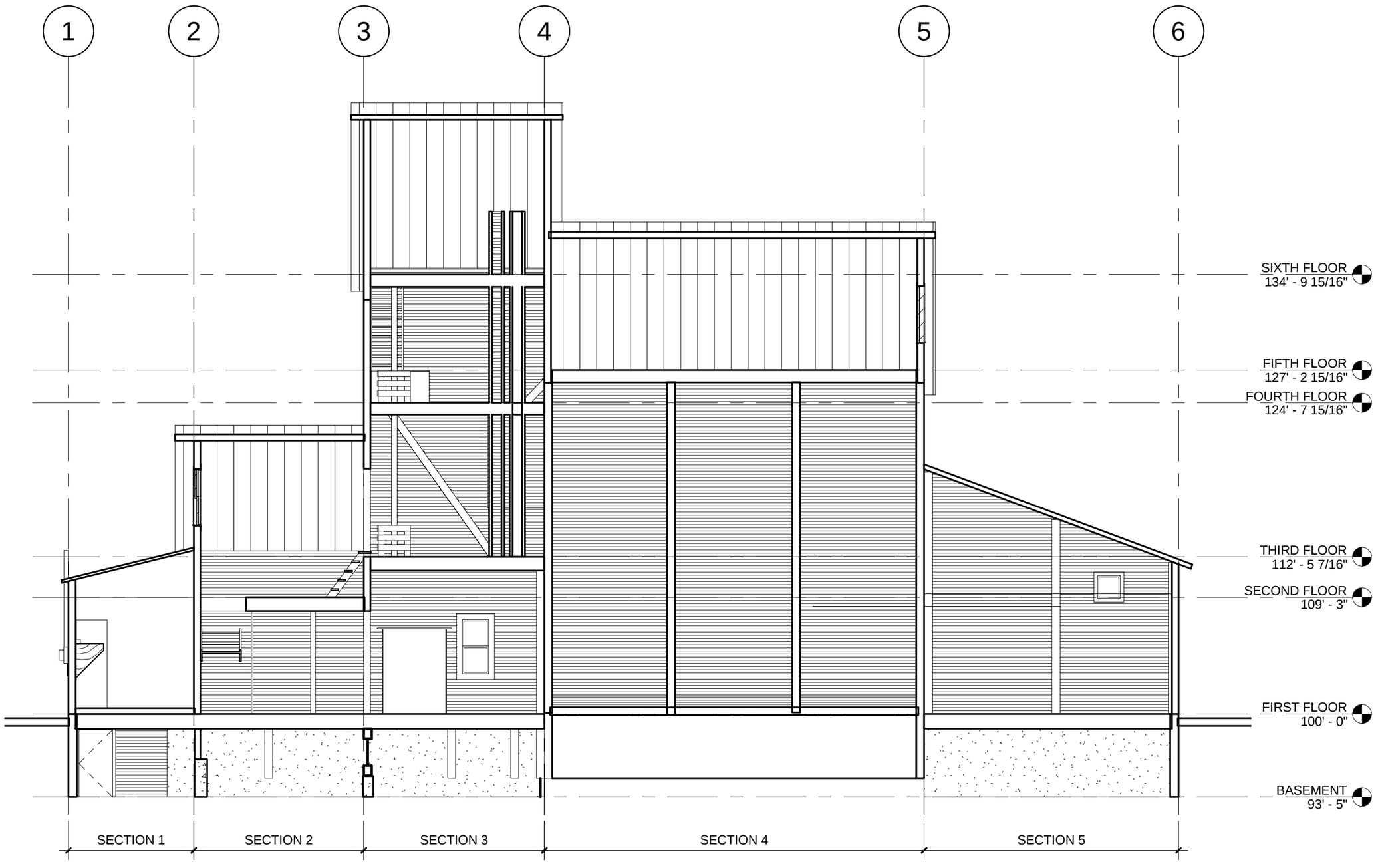
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Exterior Elevation - East

A4.2




1 **LONGITUDINAL SECTION**
1/8" = 1'-0"

Anderson Hallas Architects, PC

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(303) 278-4378
FAX (303) 278-0521

Louisville Grain Elevator
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Louisville, Colorado

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| Project Number | 2011100 |
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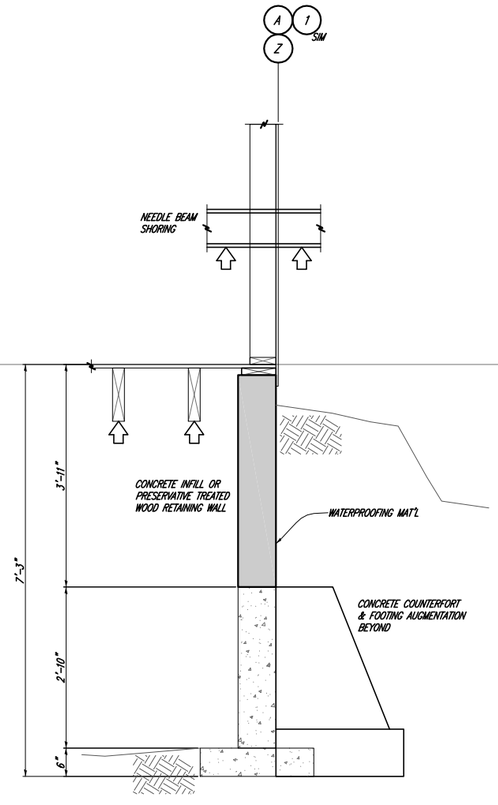
| Date | 05/02/2011 |
| Drawn by | KAC/AFC |
| Checked by | NAA |
| Scale | 1/8" = 1'-0" |

Building Section

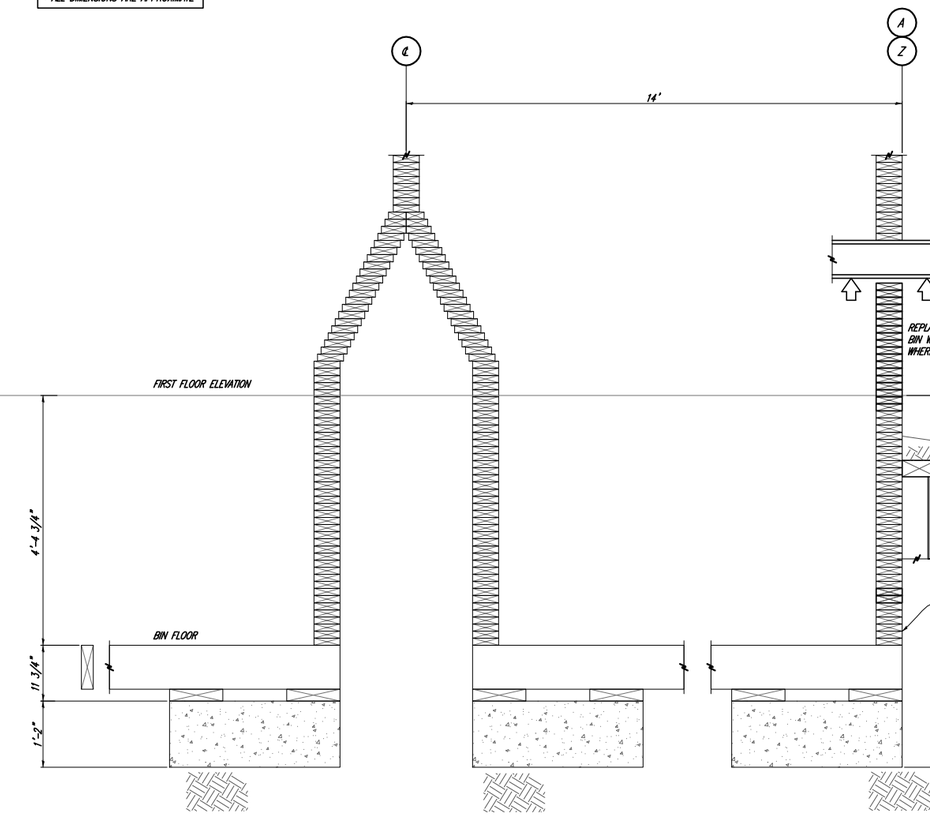
A5.0

NOTES:
* ALL DIMENSIONS ARE APPROXIMATE




SECTIONS 1, 2, & 3

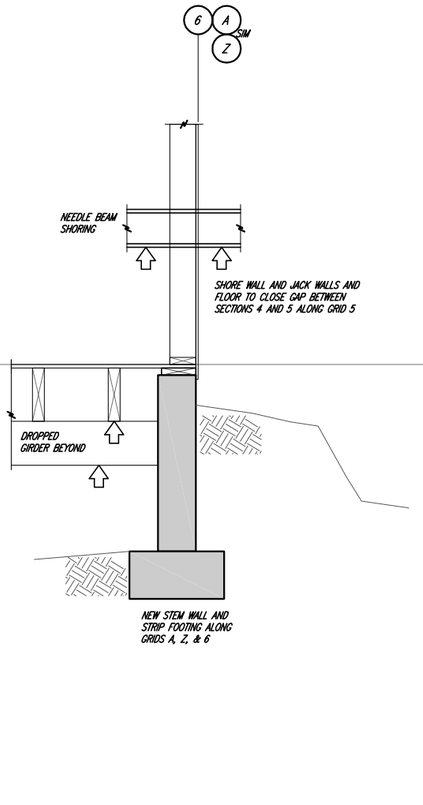
SECTION 1A/S1.0 3/8"=1'-0




SECTION 4

SECTION 2/S1.0 3/8"=1'-0




SECTION 5

SECTION 3/S1.0 3/8"=1'-0


CONSULTING ENGINEERS

JVA, Incorporated 1319 Spruce Street
Boulder, CO 80302 Phone: 303.444.1951
Fax: 303.444.1957 E-mail: info@jvajva.com

Anderson Hallas Architects, PC

ARCHITECTURE
HISTORIC PRESERVATION
PLANNING

715 FOURTEENTH STREET
GOLDEN, COLORADO 80401
(303) 278-4378
FAX (303) 278-0521



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ANDERSON HALLAS ARCHITECTS, P.C.


# Louisville Grain Elevator
## Historic Structures Assesment
Louisville, Colorado

| ISSUED | H.S.A. SET |
|---|---|
| DATE | 03/09/2011 |

| REVISION | DATE |
|---|---|

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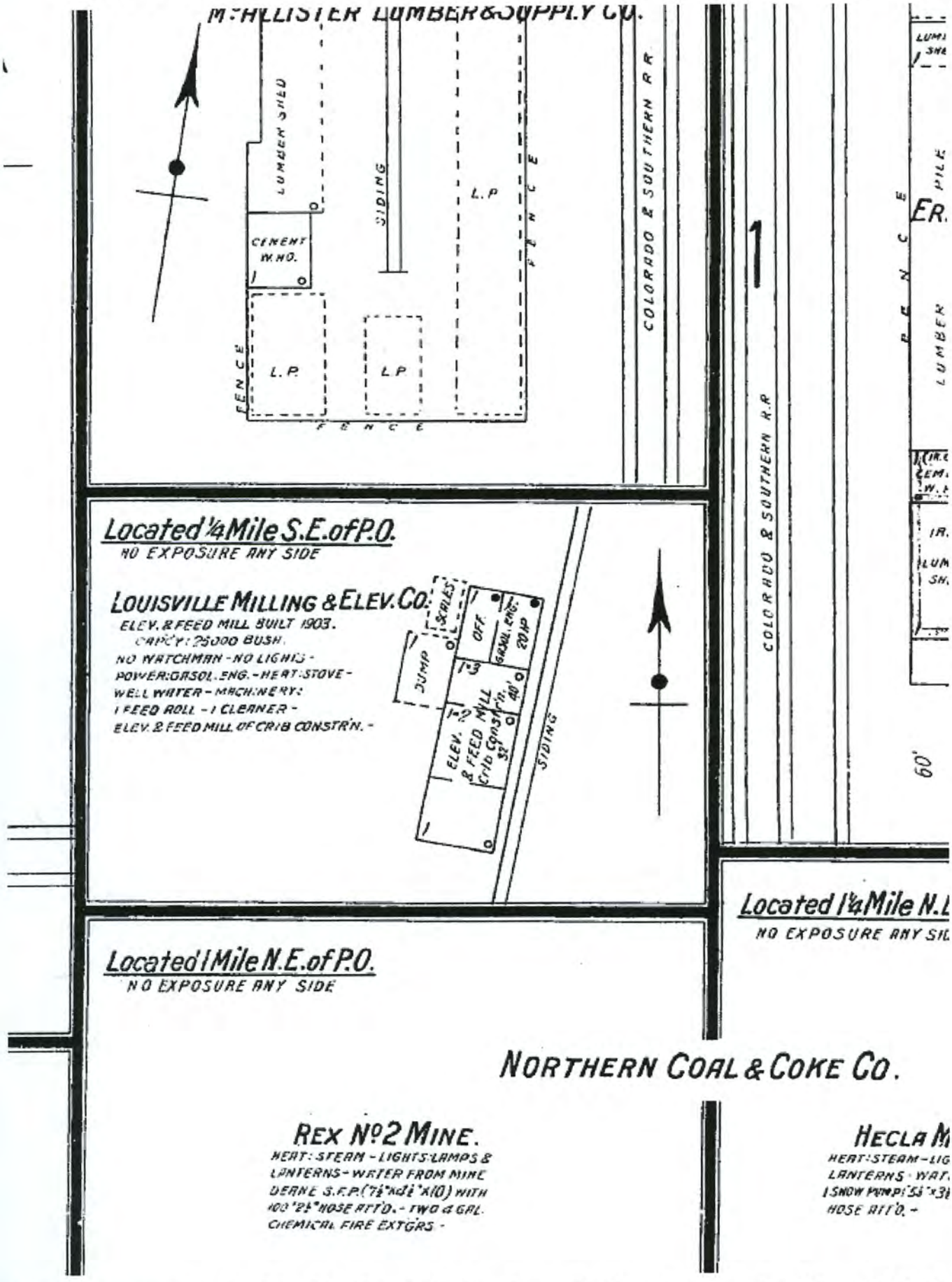
| DRAWN | IRG |
| CHECKED | DEC |
| PROJECT NO. | 2011100 |

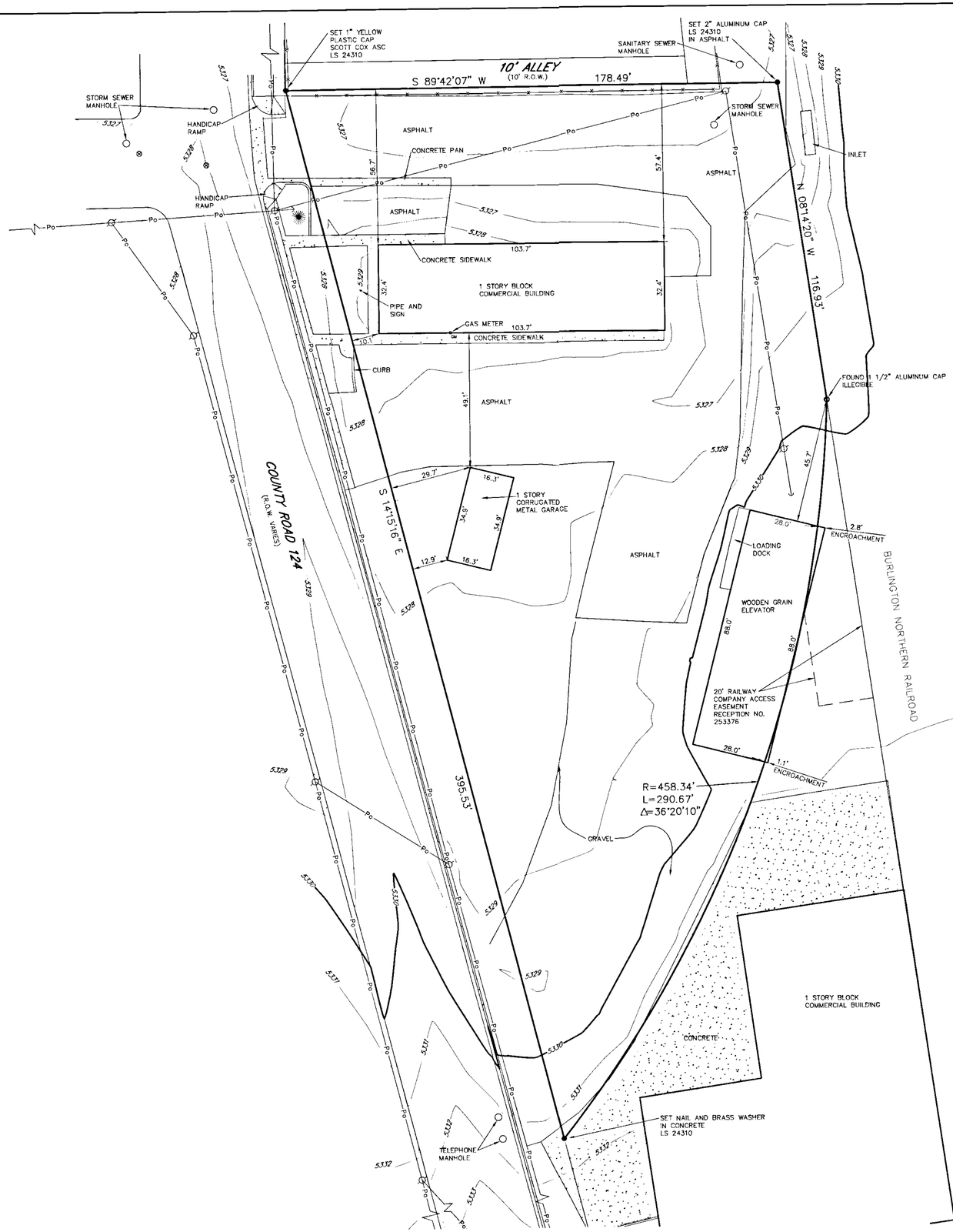
SHEET TITLE
Basement Wall Sections

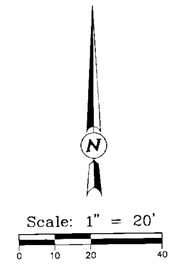
SHEET NO. S1.0


Z:\14858 Louisville Grain Elevator\14858-S10v2.dwg, 3/9/2011 9:40:37 AM, irg

# 1908 Sanborn Map - courtesy of the City of Louisville and the Louisville Historical Museum

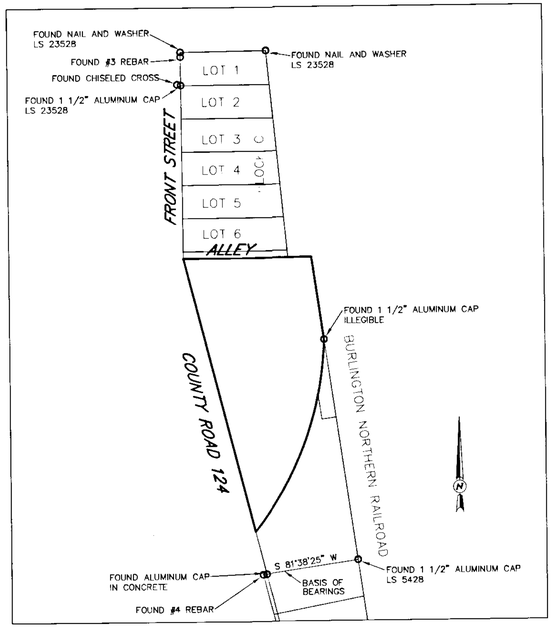





## LEGEND

- SET MONUMENT AS NOTED
- FOUND MONUMENT AS NOTED
- EXISTING WATER VALVE
- EXISTING GAS METER
- EXISTING POWER POLE
- EXISTING OVERHEAD POWER LINE
- EXISTING MANHOLE COVER




## CONTROL DIAGRAM

SCALE : 1" =100'

## LEGAL DESCRIPTION

BEGINNING AT THE SOUTHEAST CORNER OF BLOCK 4 OF THE ORIGINAL TOWN OF LOUISVILLE, THENCE SOUTH 10 FEET TO CORNER NUMBER ONE, THE TRUE POINT OF BEGINNING; THENCE EASTERLY ALONG SOUTH LINE OF ALLEY 221 FEET MORE OR LESS TO CORNER NUMBER TWO, SAID CORNER NUMBER TWO BEING THE INTERSECTION OF THE SOUTH LINE OF SAID ALLEY EXTENDED EAST WITH AMCE SWITCH; THENCE SOUTHWESTERLY ALONG THE CURVE OF SAID ACME SWITCH TO CORNER NUMBER THREE. SAID NUMBER THREE BEING THE INTERSECTION OF ACME SWITCH WITH WEST LINE OF COUNTY ROAD NUMBER 124. SAID CORNER NUMBER THREE BEARS S21°41'W, 455 FEET MORE OR LESS FROM CORNER NUMBER TWO; THENCE N14°12'W, 435 FEET MORE OR LESS TO PLACE OF BEGINNING; EXCEPTING A STRIP FOR COUNTY ROAD 124 DESCRIBED IN ROAD BOOK "B", PAGE 239 OF THE RECORDS OF THE COUNTY CLERK AND RECORDER'S OFFICE OF BOULDER COUNTY, SAID TRACT BEING IN THE SE 1/4 OF THE SE 1/4 OF SECTION 8, T1S, R69W, COUNTY OF BOULDER, STATE OF COLORADO.

## SURVEY NOTES

1. THE BASIS OF BEARINGS IS THE NORTH LINE OF LOT 2, MANSOUR-ENGLE SUBDIVISION, PLANTLE P-19 F-1 #40 AS FILED AT THE BOULDER COUNTY CLERK AND RECORDER, BETWEEN THE FOUND MONUMENTS SHOWN HEREON, ASSUMED TO BEAR S 81°38'25" W.
2. THE SIZE AND TYPE OF MONUMENTS FOUND ARE SHOWN HEREON.
3. THE SURVEY FIELD WORK ON THIS SITE WAS COMPLETED ON JULY 17, 2003.
4. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED ON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVERED SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON. CRS-13-80-105 (3)(a)
5. OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY ORDER NO. W365699, EFFECTIVE DATE JUNE 3, 2003 AT 5:00 P.M. WAS USED FOR RECORDED EASEMENTS, RIGHT-OF-WAY, AND ENCUMBRANCES IN THE PREPARATION OF THIS SURVEY.
6. THIS SITE IS ENCUMBERED BY COAL AND MINERAL RIGHTS AS RECORDED IN BOOK 296 AT PAGE 53.
7. ELEVATIONS ARE BASED UPON THE CITY OF LOUISVILLE VERTICAL DATUM BASE, BM MONUMENT IN RANGE BOX AT THE E 1/4 CORNER OF SECTION 8, T1S, R69W OF THE 6TH P.M. ELEVATION =5316.65

## CERTIFICATION

TO: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY; TIM RETZIK

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA, ACSM AND NSPS IN 1999, AND INCLUDES ITEMS 1, 4, 5, 7a, 8, 10, AND 11a OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA, NSPS, AND ACSM AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT THE SURVEY MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE "MINIMUM ANGLE, DISTANCE AND CLOSURE REQUIREMENTS WHICH CONTROL LAND BOUNDARIES FOR ALTA/ACSM LAND TITLE SURVEYS".




JOHN J. HILL PLS 24310
FOR AND ON BEHALF OF
SCOTT, COX & ASSOCIATES, INC.

# ALTA/ACSM LAND TITLE SURVEY
# A PARCEL OF LAND
# LOCATED IN THE SE 1/4
# SE 1/4 OF SECTION 8, T1S
# R69W OF THE 6TH P.M.
# COUNTY OF BOULDER
# STATE OF COLORADO

SCOTT, COX & ASSOCIATES, INC.
consulting engineers • surveyors
1530 55th Street • Boulder, Colorado 80303
(303) 444 - 3051

| | | | | | |
|---|---|---|---|---|---|
| Designed by JJH | Date | Scale | Survey | Sheet 1 | Drawing no. |
| Drawn by JAS | 7/30/03 | 1"=20' | Page | of 1 | 03360 |
| Checked by JJH | Revision | Description | | Date | Project no. |
| | | | | | 03360 |

LS-03-0131

*Report:*

# Wood Investigation of the Louisville Grain Elevator, Louisville, Colorado



*Submitted to:*

Andrews & Anderson Architecture, PC
715 Fourteenth Street
Golden, Colorado, 80401

*Submitted by:*

Anthony & Associates, Inc.
P.O. Box 271400
Fort Collins, CO 80527-1400

February 17, 2011

# Wood Investigation of the Louisville Grain Elevator, Louisville, Colorado

## BACKGROUND

The Louisville Grain Elevator, located just south of downtown Louisville, Colorado, was constructed in 1903 by the Louisville Milling and Elevator Company. The grain elevator served area farmers until its closure in the 1950s. The building's name was changed to the Denver Elevator in the early 1950s and it was acquired by the Thomas family in the 1960s. The Louisville Grain Elevator (the Building), which is still privately owned, has remained vacant since it ceased operation. It was listed as the Denver Elevator in 1984 in the National Register of Historic Places.

The Building has a rectangular footprint and is oriented on an approximate north-south axis. It is constructed of a combination of dimension lumber, large timbers, and stacked plank construction.

The City of Louisville is interested in developing an adaptive reuse plan for the Building. There are concerns regarding the condition of the structural wood elements. There is evidence of fire damage within the interior levels of the Building, and the extent of any deterioration caused by wood decay fungi and/or insects is unknown. The species and grade of the structural wood elements is also unknown, which is necessary for establishing capacities of the existing framing elements.

Anthony & Associates, Inc. was contracted to conduct a wood investigation of the structural wood elements within the Building, as well as determine the species and/or species group of key structural members of concern to the architect and engineer. *The scope of this investigation is intended to provide insight about the general condition of the wood throughout the Building, not serve as a comprehensive survey of all wood elements.* This report summarizes our findings and provides the preservation architect and structural engineer with information for developing a plan for potential uses of the Building.

## SCOPE OF WORK

As noted above, the species, condition and structural grade of the timbers and structural lumber within the Building were unknown. A wood investigation, summarized in this report, was conducted to provide information on the general

condition of the wood throughout the Building. The scope of work included the following tasks:

- Removing 3-6 wood species samples to identify the wood species or wood species groups for a few structural elements such as columns, joists, and roof framing.
- Identifying, via a walk-through inspection, locations in the Building that have potential insect, mold, or decay damage.
- Taking moisture content measurements of a representative sample of structural wood elements to determine whether conditions in the Building are favorable for deterioration of the wood.
- Conducting limited resistance drilling in suspect locations to determine the extent of decay or insect damage.
- Commenting on the *likely* allowable structural grade(s) of the wood elements.

## NOMENCLATURE

The Louisville grain elevator is comprised of five sections. The sections were described in a 2000 Colorado Resource Survey as (from north to south) the Office, the Elevator, the Elevator Tower, the Grain Bins, and the Warehouse. The current survey team relabeled each section with a simple numbering scheme (Sections 1 through 5, from north to south) and added room names that reference the function of the interior spaces. Section 1 is a single story and includes the Machine Room in the basement and the Entry and Office rooms on the first floor. Section 2 is two stories with a basement and includes the Basement Storage Room, the Corridor and Back Room on the first floor, and the Second Floor Room. Section 3 comprises the tallest section of the Building and contains several rooms, including Tower Level 0, Tower Level 1, Tower Level 3 with Chutes 1 through 4, Tower Level 4, and Tower Level 6. Six grain bins comprise Section 4. The grain bins are numbered 1 through 6 and extend from the basement level to the Bin Catwalk on the fifth floor. Section 5 is comprised of the Storage Room on the south end of the Building. References to conditions, species sample locations, and resistance drilling locations in this report are by section, floor or level, and room name, as well as by the grid lines established by the architects, where possible. Figures A1 and A2 in the appendix include section and room names as established by the 2011 survey team.

## FIELD PROCEDURES

Anthony & Associates, Inc. provided a wood scientist and a wood specialist to conduct an investigation of wood elements in the Louisville Grain Elevator on January 20, 2011. The investigation was based on a combination of visual inspection and probing, species identification, moisture content determination, and decay quantification. These methods are described below. Results of the investigation can be used to draft a preservation plan and establish repair priorities for the Building.

### Species Identification

The Building makes extensive use of heavy timber, framing lumber, and boards. Identifying wood species, along with determining the structural grade, makes it possible to determine design properties for conducting a structural analysis and to identify compatible material for repairs. Wood species were identified by removing small samples throughout the Building from which the species or species group was identified under microscopic examination (Figure 1). In consultation with the structural engineer, 10 samples were removed from the Building to identify species of key structural wood elements to aid in developing historical documentation, conducting structural analysis, and specifying repairs.



**Figure 1.** Removing a sample for species identification from a built-up beam, Section 5, Storage Room.

### Visual Inspection and Probing

Visual examination of the wood allows for identifying components that are missing, broken, or in an advanced state of deterioration. Missing components are those which have been removed or have fallen away because of deterioration, structural failure, or vandalism. If missing components were intended to provide structural support or protection from the elements (e.g., to prevent

moisture intrusion), their replacement may be essential to prevent long-term damage to the structure. Visual inspection also allows for the detection of past or current moisture problems, as evidenced by moisture stains on the exposed surface of the wood. Further, visual inspection enables detection of external wood decay fungi or insect activity as determined by the presence of decay fruiting bodies, fungal growth, insect bore holes or wood substance removed by wood-destroying insects.

Internal decay and insect damage are often difficult to detect due to the lack of evidence on the exposed surface of the wood. Probing the wood with an awl enables rapid detection of voids in the wood that may not be visible on the surface. It can also indicate the approximate depth of any deterioration that is visible on the surface. Visual inspection and probing provides a rapid means of identifying areas that may need further investigation. Based on input from the preservation architects and structural engineers, several accessible areas of the Building were visually inspected for evidence of moisture intrusion and deterioration caused by wood decay fungi, insects, and fire damage.

**Moisture Determination**

Prolonged exposure to moisture can produce undesirable conditions and long-term maintenance issues for wood in a structure. Excessive shrinkage or swelling, checking, and loose connections are typical problems. Moisture content measurements can also identify wood with favorable moisture levels for the growth of wood-decay fungi. Generally, if the moisture content is less than 20 percent wood-decay fungi are unable to grow. While fungi may be present at lower moisture contents they are unable to continue to deteriorate the wood without sufficient moisture. Moisture contents from 20 to 30 percent indicate areas of concern where sufficient moisture is present for fungi to grow but not sufficient to indicate advanced decay. Moisture contents above 30 percent are often an indication of advanced decay with internal voids and / or surface deterioration. Limited moisture diagnostics were conducted within the basement and roof framing of the Building to determine whether further investigation of moisture intrusion issues is warranted.

**Lumber and Timber Grading**

Lumber and structural timbers used in new construction are intended to comply with the relevant building code for that jurisdiction. For wood construction, structural engineers rely on design values referenced in the building code to determine an acceptable species, size, and grade for a particular load condition. The design values given in the building code for solid wood products are established by the American Forest & Paper Association and published as the

*National Design Specification for Wood Construction*.[1] The published design values are based on test data and procedures published by the American Society for Testing and Materials (ASTM) that demonstrate the engineering performance of the material.[2] Wood products are graded in accordance with procedures promulgated by one of several forest products industry associations, such as the Western Wood Products Association (WWPA).[3]

For existing buildings the engineer often relies on available species and current standards to determine the adequacy of the wood elements to remain in service. Since many older buildings were built before building codes or design values for wood products were established (and, thus, before grade stamps were used), engineers are often in a quandary when determining what design values are appropriate. Frequently an assumed species and grade are assigned, only to show that the wood elements are structurally deficient. The result is often an overly conservative estimate of design values and unnecessary replacement and repair decisions with the associated unnecessary project costs.

Typically in older buildings, knots and slope of grain are the grade-limiting characteristics that can impact structural performance. Anthony & Associates, Inc. conducted in-situ visual grading of a representative sample of structural wood elements within the basement and the roof framing of interest to the structural engineer in order to provide information on the *likely* grade of the timber and lumber (Figure 2). Because only a representative sample of the structural wood elements was graded, and the sizes of the defects within the sample were typically estimated, the grades reported are likely conservative. More detailed measurements may allow for assigning more definitive and, in some cases, higher grades with increased allowable design stresses. The information reported provides general data sufficient for conducting preliminary structural analyses to determine the Building's ability to support current and future loading conditions.

**Decay Quantification**

In addition to the inspection of the wood elements using a combination of visual observations and moisture content measurements, limited resistance drilling was conducted to determine loss of material due to wood decay. Resistance drilling is a quasi-nondestructive assessment method best suited for determining internal

[1] American Forest & Paper Association and American Wood Council, 2005, *National Design Specification for Wood Construction*, Washington, D.C.
[2]American Society for Testing and Materials, 2006, *Annual Book of Standards*, Vol. 04.10: D245, Standard Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber; D2555, Standard Test Methods for Establishing Clear Wood Strength Values. ASTM, West Conshohocken, Pennsylvania.
[3] Western Wood Products Association, 2005. *Western Lumber Grading Rules*, Portland, Oregon.

problems in timber that does not show obvious external signs of deterioration. Any internal void or early-stage decay at the location drilled can be detected by determining the relative density of the wood. The relative density is printed on a strip of paper as a small diameter needle penetrates the wood. The technique is very reliable for quantifying the extent of voids when used in combination with other techniques to rapidly locate areas of probable deterioration. Resistance drilling was conducted on structural elements within the basement and the stacked plank walls of Section 4 on the west elevation (Figure 3).



**Figure 2.** Measuring the slope of grain on a column with an acetate grid.



**Figure 3.** Resistance drilling a sill beam in the basement between Basement Storage and Tower Level 0.

## FINDINGS AND DISCUSSION

### General Observations

The wood grade and condition information provided is based on the conditions of wood elements that were visible and accessible for assessment. Access to structural members within the Building was limited in some areas, including the structural framing within Section 1 and the foundation of the Section 5.

Wood conditions found within the Building were divided into three classifications: good, fair, and poor. Good condition describes wood that has no evidence of insect damage or deterioration from wood decay fungi. Wood in good condition may exhibit moisture staining but is not structurally impacted. Wood in fair condition may exhibit evidence of past moisture damage, including minor deterioration from wood decay fungi, and may also have minor insect damage. Wood in poor condition may have ongoing deterioration caused by wood decay fungi and may also exhibit severe visible insect damage.

In general, with the exception of fire-damaged dimension lumber, most of the structural elements within the Building are in fair to good condition; areas of poor condition tend to be limited to structural elements in contact with the ground around the building's perimeter. In a few instances, such as along the south side of Section 5 and the first floor of Section 3 on the west elevation, the structural elements are in extremely poor condition and have failed due to deterioration caused by wood decay fungi (Figures 4 and 5).



**Figure 4.** Interior view of the west basement wall of Section 3, Level 0, which has collapsed due to deterioration caused by wood decay fungi.



**Figure 5.** Interior (crawl-space) view of the south foundation of Section 5 with collapsed elements.

Moisture staining is prevalent on structural elements in contact with wall or roof sheathing but is not generally apparent on wood located towards the interior of the Building. Current moisture intrusion issues could better be determined after periods of recent rainfall and should be mitigated to extend the long-term serviceability of the wood used in the Building. There was no identified evidence of insect damage on the structural wood elements.

### Species Identification

Ten samples were removed from structural elements of interest to the engineer for species identification. The samples and their locations are provided in Table 1. Samples were not taken from Section 1 or from the foundation of Section 5 due to a lack of access to structural elements. The findings suggest that the central portion of the Building (Sections 2 through 4) was likely constructed at the same time out of Douglas-fir (*Pseudotsuga menziesii*), while Section 5 may have been constructed later using a mix of species, primarily locally available western yellow pine (*Pinus spp.*) in addition to Douglas-fir. Western yellow pine is a species group that includes ponderosa pine and lodgepole pine. These two species are indistinguishable based on microscopic characteristics.

### Moisture Determination

Limited moisture diagnostics were conducted within the basement and roof framing of the Building using a resistance meter for timber and a capacitance meter for dimension lumber. Moisture contents of the roof framing above the Grain Bins (Section 4) ranged from 7 to 9 percent. Moisture contents of the first floor framing, accessed from the basement, ranged from 12 to 15 percent for interior posts and 17 to 22 percent for girders and posts that abutted exterior walls or concrete foundations. Given the low temperatures during the field

investigation (18° to 30° F), the moisture content measurements may not accurately reflect the actual moisture content of the wood. As wood temperature decreases, its electrical resistance increases and indicated moisture contents are lower. Thus, the readings should be considered only as indicators of likely areas of concern rather than definitive data for identifying moisture-damaged areas.

**Table 1.** Wood species identified from the Louisville Grain Elevator

| Sample No. | Room (Section) | Floor | Element | Location Description | Species | Comments |
|---|---|---|---|---|---|---|
| 1 | Storage (5) | First | rafter | south shed/addition | Douglas-fir (*Pseudotsuga menziesii*) | |
| 2 | Storage (5) | First | built-up beam purlin | south shed/addition | western yellow pine (*Pinus spp.*) | |
| 3 | Storage (5) | First | wall stud | south shed/addition | western yellow pine | |
| 4 | Bin 6 (4) | First | stacked plank | south wall | Douglas-fir | nominal 2 x 6 |
| 5 | Tower Level 0 (3) | Basement | girder | central girder 3A – 3Z | Douglas-fir | |
| 6 | Back Room (2) | First | floor joist | near south end of a central joist | Douglas-fir | accessed from Basement Storage |
| 7 | Chute 1(3) | Third | stacked plank | west interior wall | Douglas-fir | nominal 2 x 4 |
| 8 | Bin Catwalk (4) | Fifth | west purlin | above bins | Douglas-fir | |
| 9 | Bin Catwalk (4) | Fifth | rafter | above bins, east side | Douglas-fir | |
| 10 | Bin 1 – Bin 2 (4) | Fifth | stacked plank | interior wall between bins | Douglas-fir | nominal 2 x 4, accessed from Bin Catwalk |

### Lumber and Timber Grading

Lumber and timber grades are determined by species, size of the member(s), and growth characteristics such as knots and slope of grain. Knots and slope of grain tend to be the grade-limiting characteristics for lumber and timber in older buildings. Measurement of knots and slope-of-grain provides an indication of

the allowable lumber grade for a given wood species. Knot size and slope of grain were either measured or estimated for a representative sample of the key structural elements of interest to the engineer. A few of the structural elements in the Building were essentially free of large knots and slope of grain and could be assigned a high structural grade. However, a significant number of elements have knots or slope of grain that either do not meet structural grade requirements or necessitate the assignation of a lower structural grade (Figure 6).



**Figure 6.** Large knots on a roof rafter above the Grain Bins (Section 4) that limit the structural grade.

To be assigned a particular grade, 95 percent of the pieces graded should meet or exceed the grade requirements. Since there are typically limited wood elements of any type available for inspection in the Building, the percentage within a grade can fall below the 95 percent level even if only a few members fail to meet a higher grade. In these cases, the structural engineer may elect to apply the higher overall grade if knowledge of the structural loads warrants it, provided that wood elements with large knots (i.e., lower grades) are replaced or augmented to provide adequate support. The results of the in-situ visual grading survey can be found in Table 2.

Based on grading rules applicable to the 2005 NDS specifications, the likely structural grade of the accessible structural elements within the Building as a whole is No. 3 Western Woods. If considering the Building in sections, the first-floor floor framing of Section 2 can be considered No. 3 Douglas-fir, the roof framing over the Grain Bins in Section 4 can be considered No. 3 Douglas-fir, and the roof framing of Section 5 can be considered No. 3 Western Woods. It should be noted that if more definitive grades are desired, particularly for critical areas of the Building, additional measurements could be taken to obtain sufficient data to make those determinations.

**Table 2.** Visual grading results for the Louisville Grain Elevator

| Room (Section) | Floor | Element | Likely Grade | Comments |
|---|---|---|---|---|
| Storage (5) | Roof | rafters | No. 3 | At least 10% do not meet requirements for No. 2 Western Woods or No. 2 Douglas-fir |
| Storage (5) | Roof | purlin | No. 3 | At least 10% of laminations do not meet requirements for No. 2 Western Woods |
| Corridor and Back Room (2) | First | floor joists | No. 3 | 5% do not meet a structural grade; at least 15% do not meet requirements for No. 2 Douglas-fir |
| Tower Level 0 (3) | Basement | girder | Select Structural | |
| Roof Framing over Grain Bins (4) | Fifth | rafters | No. 3 | At least 10% do not meet requirements for No. 2 Douglas-fir |
| Roof Framing over Grain Bins (4) | Fifth | purlins | No. 2 | Approximately 75% do not meet requirements for No. 1 Douglas-fir |

**Fire Damage**

Within the interior of the Building, there is evidence of fire damage on a number of floors. Wood with various degrees of charring can be found within Sections 2 and 3 at all levels except the basement (Level 0). Char is evident on dimension lumber such as roof rafters and sheathing, as well as on larger structural elements such as purlins and columns.

Wood elements subjected to fire develop a layer of char that protects the wood below the char layer by slowing the rate of combustion. Structural timbers generally perform well in fire, while thinner wood elements, such as boards and dimension lumber, may lose a significant portion of their cross section or burn through completely. In fires where the burning period is relatively brief, many of the wood elements will exhibit various stages of char development. For evaluating the effect of char after a structure fire, it is assumed that un-charred wood is sound and has the same strength as the wood did before the fire. To decide whether a structural member can remain in service, measuring the depth of the char is often necessary to determine the remaining cross section (Figure 7).



**Figure 7.** Measuring the depth of char on a joist with a char depth gauge. Note the alligatoring on the floor sheathing above the joist.

Char is the result of combustion of the wood. For the purposes of this report, the lightest degree of char is limited to discoloration due to scorching of the wood surface. Once the wood begins to burn, the scorched surface develops a two-dimensional pattern called alligatoring. Numerous small fissures develop across the grain of the wood as the fibers contract due to the heat, ultimately breaking and forming shallow fissures. As combustion continues, the alligatoring pattern extends into the wood developing deeper fissures that form three-dimensional pockets of burned wood. This degree of char is called pillowing. Figure 8 shows wood within the Building with various degrees of charring.

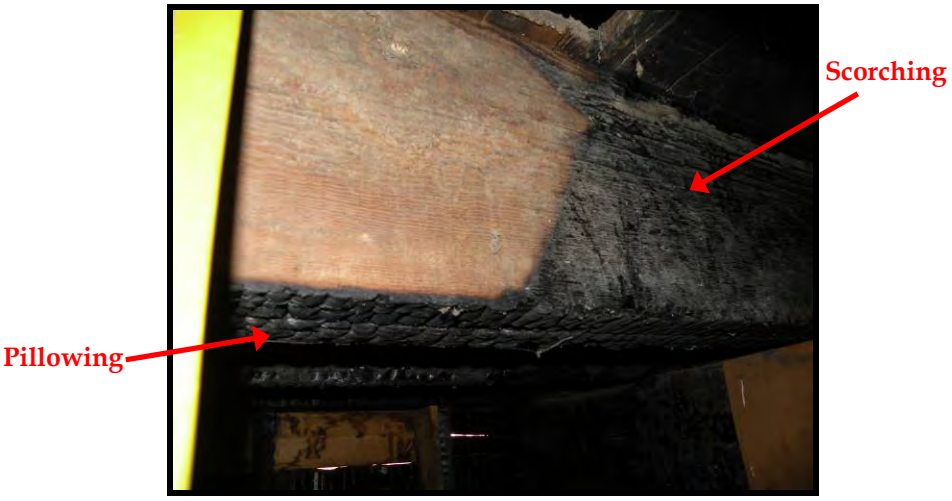



**Figure 8.** Pillowing and scorching on the same joist, Section 3, Level 1. Areas of undamaged wood are visible where charred elements have been removed.

Once pillowing develops, the rate of combustion of the wood slows considerably. The char layer protects the wood below from the heat of the fire. Large cross section timbers frequently survive even very hot fires and can remain in service

because the ratio of surface area (that was burned) to volume (of the cross section) is small. Dimension lumber (like purlins and roof sheathing) typically suffer much more damage during a fire because the ratio of surface area to volume is large enough that the char is unable to protect the interior of the thin wood. Several char depth measurements were taken on two second-floor floor joists within the Tower to determine the relative severity of the fire. Char depths from $^{1}/_{8}$-inch to $^{9}/_{32}$-inch were measured on the 2 ½" x 11" (actual dimensions) floor joists near the west wall.

Decisions about replacement of charred wood elements, subject to the requirements of the architect and engineer, can be a relatively simple process based on the following information:

- Wood that has burned through must be replaced.
- Any wood member with surface char only (scorching) can remain in service.
- Thin wood elements (e.g., roof sheathing) with alligatoring should be replaced.
- Nominal 2-inch dimension lumber (rafters) and boards (roof sheathing) with pillowing should be replaced or reinforced.
- Depending on the loads calculated by the engineer, dimension lumber greater than 2 inches thick (floor joists) and larger timbers may be able to remain in service if there is sufficient cross section remaining even though alligatoring and/or pillowing is present.
- In some cases, replacement of elements with little charring may be necessary because of the difficulty (i.e., construction or cost) in replacing adjacent damaged elements.
- It must be noted that for any degree of charring, the ability to clean the surface to produce the desired aesthetic and remove the odor of burned wood may override whether the wood can perform structurally.

**Decay Quantification**

Limited resistance drilling was conducted within the basement and along the west exterior wall of Grain Bins 4 through 6 (Figure 9). Wood elements around the perimeter of the Building in contact with the ground were not assessed based on discussions with the architect. Within the Basement Storage Room and Tower Level 0, there are numerous wood columns, sill beams, and sill plates that rest on concrete foundation walls or footers. Resistance drilling results of E-W sill beams indicate a pattern of deterioration extending into the beams from the exterior ends that abut the east elevation exterior wall. This deterioration extends at least 12 inches but no more than 33 inches into the southern sill beam

on the eastern end (grid 3A – 3Z), and at least 5 inches but no more than 14 inches into the northern sill beam (grid 2A – 2Z) on the eastern end. Resistance drilling of interior columns and sill plates within the basement found no voids at the drilling locations.

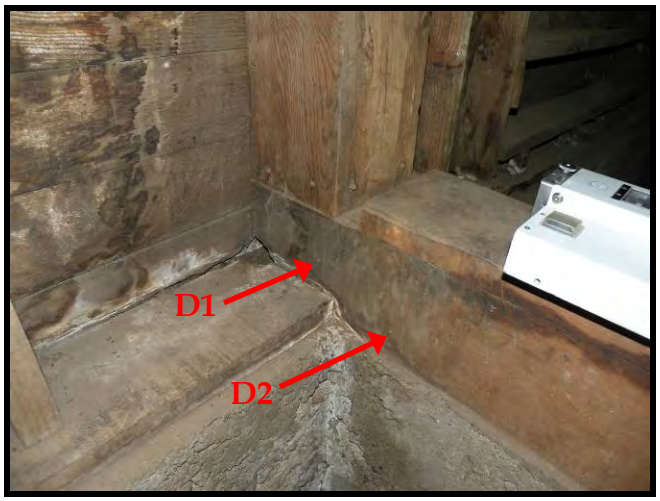



**Figure 9.** Resistance drilling locations D1 and D2 at the east end of the E-W basement sill beam dividing the Basement Storage Room from Tower Level 0.

The stacked plank construction on the west elevation of the Grain Bins was investigated using limited resistance drilling as well. Drilling locations were primarily located around the area of visible deterioration between Bins 5 and 6. Resistance drilling results indicate that the wood 12 to 16 inches above the ground line near the area of visible deterioration and sagging has internal deterioration. Resistance drilling results above or away from the visibly deteriorated area indicated no internal voids are present. Typically, stacked plank construction is very durable, particularly above grade, except where the wood may be subjected to moisture intrusion from leaks. The deterioration found in the stacked plank wall was near or below grade where poor drainage away from the foundation has allowed for a favorable environment for active wood decay to develop over a prolonged period of time. The appendix includes a resistance drilling log and schematics of drilling locations.

## WOOD CONDITION SUMMARY

The findings of the investigation can be summarized as follows:

- The primary wood species of the Louisville Grain Elevator is Douglas-fir (*Pseudotsuga menziesii*). A sample taken from a lamination from a purlin and a sample removed from a wall stud within Section 5 were identified as western yellow pine (*Pinus spp.*).

- The *likely* allowable structural grade, based on a representative sample of key structural elements, is No. 3 Western Woods for Section 5 and No. 3 Douglas-fir for Sections 2 through 4. Additional measurements of lumber defects could provide more definitive grades in critical areas of the Building.
- A large percentage of the timbers and dimension lumber within the interior of Section 2 and nearly all levels of Section 3 have varying degrees of fire damage. Larger timbers can remain in service if sufficient cross section remains to support existing or future loads.
- Moisture content readings within the roof framing of the Grain Bins (Section 4) indicate that the structural elements are currently unable to support active wood decay.
- Moisture content readings within the Basement Storage Room (Section 2) and Tower Level 0 (Section 3) indicate that the structural elements that are not in contact with the ground or with perimeter walls are currently unable to support active decay but have elevated moisture contents that indicate during wetter periods, some of these elements most likely have sufficient moisture contents to support active wood decay. Drainage away from the repaired foundation should be considered to extend the service life of any wood near grade.
- The structural wood elements within the Building, excluding fire-damaged dimension lumber, are in general in fair to good condition and may be suitable for continued use provided deteriorated elements and those that fail to meet the necessary grade requirements as determined by the engineer are repaired or replaced.

# APPENDIX

## Resistance Drilling Results

## Schematics of Louisville Grain Elevator and Drilling Locations

**Table A-1.** Resistance drilling results, Louisville Grain Elevator

| Drilling No. | Room | Section | Element | Location | Drilling Direction | Comments |
|---|---|---|---|---|---|---|
| D1 | Basement Storage | 2 | sill beam 3A-3Z | 6" from east end, 2" from bottom | N-S | 50% of the cross section is deteriorated |
| D2 | Basement Storage | 2 | sill beam 3A-3Z | 12" from east end, 2" from bottom | N-S | 4" internal void |
| D3 | Basement Storage | 2 | sill beam 3A-3Z | 34" from east end, 2" from bottom | N-S | no voids found |
| D4 | Basement Storage | 2 | sill beam 2A-2Z | 5" from east end, 4" from bottom | S-N | 3" solid, then void |
| D5 | Basement Storage | 2 | sill beam 2A-2Z | 15" from east end, 2" from bottom | S-N | no voids found |
| D6 | Tower Level 0 | 3 | SW interior column, central | 2" from bottom, mid-width | E-W | no voids found |
| D7 | Tower Level 0 | 3 | NE column sill plate, central | directly under column, mid-depth | S-N | no voids found |
| D8 | Bin 5, west elevation | 4 | stacked plank | 12" above grade, 45" north of Bin 6 wall | W-E | possible internal deterioration |
| D9 | Bin 6, west elevation | 4 | stacked plank | 16" above grade, 51" south of Bin 5 wall | W-E | 1" shell, then void |
| D10 | Bin 6, west elevation | 4 | stacked plank | 36" above grade, 51" south of Bin 5 wall | W-E | no voids found |
| D11 | Bin 4, west elevation | 4 | stacked plank | 8" above grade, 14" south of Tower wall | W-E | no voids found |

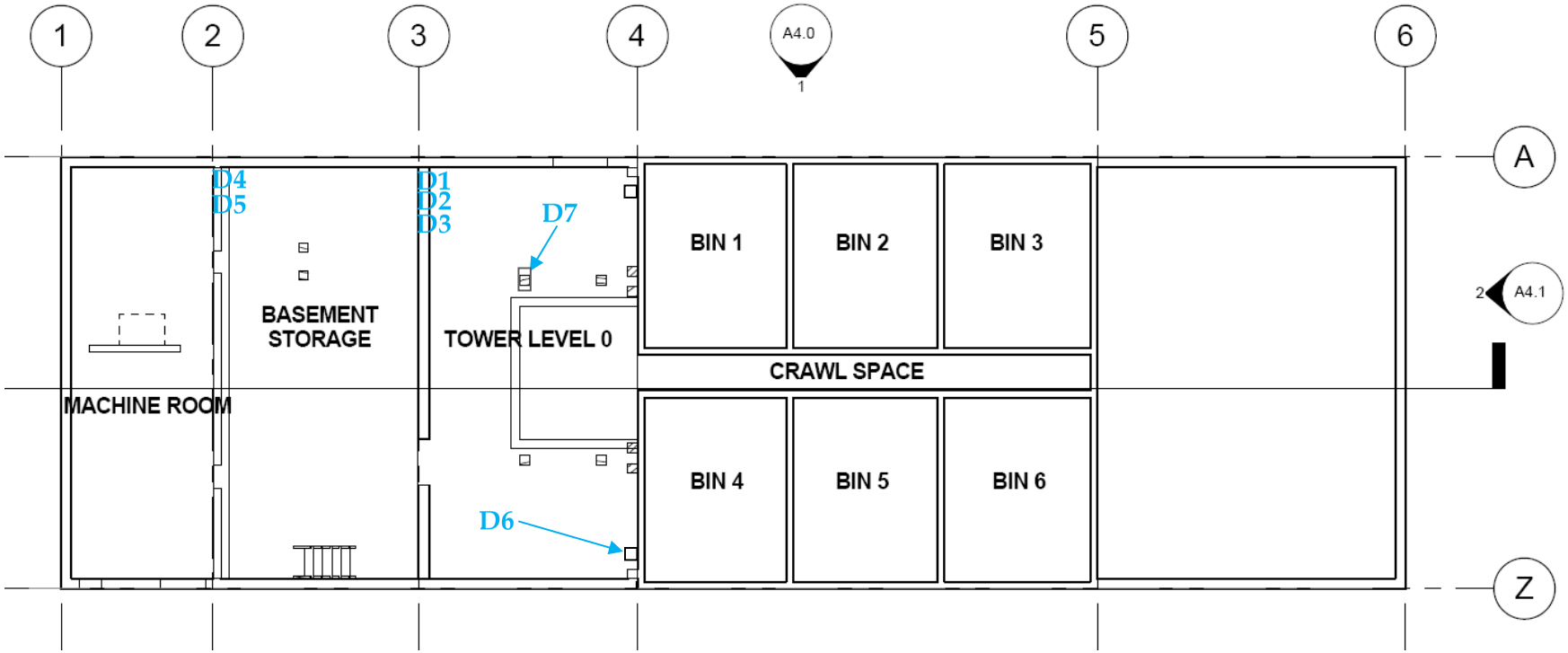



**Figure A-1.** Basement plan of the Louisville Grain Elevator, showing resistance drilling locations (blue).

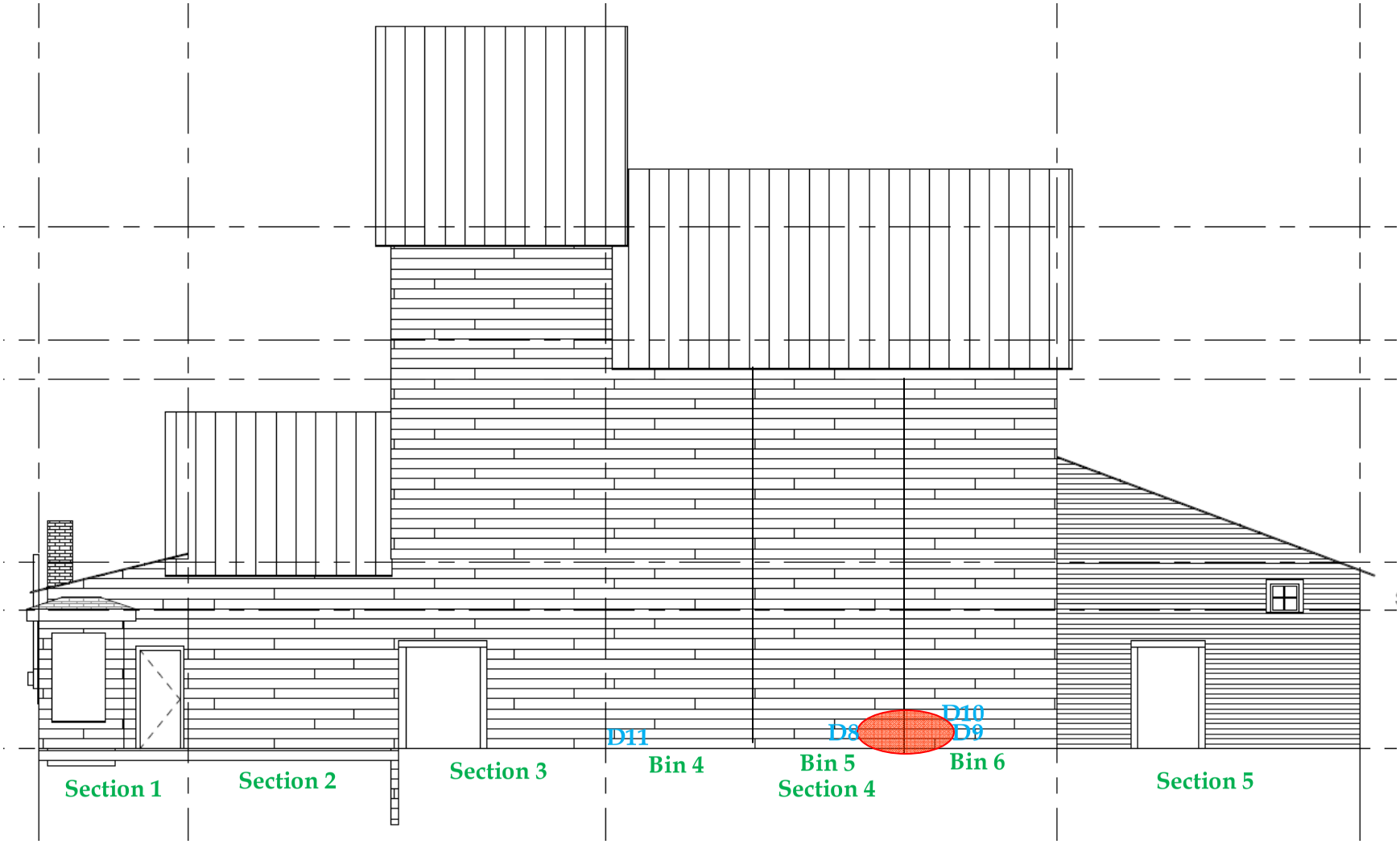



**Figure A-2.** West elevation of the Louisville Grain Elevator, with resistance drilling locations (blue), 2011 survey section names (green), and deterioration (red) marked.

March 3, 2011

Ms. Nanon Anderson
Anderson & Anderson Architects, PC
715 Fourteenth Street
Golden, CO 80401

**RE: Results of Environmental Assessment at the Former Louisville M. & E. Company Grain Elevator, Louisville, Colorado.**
**Landmark Project No.: 10048.001**

Dear Ms. Anderson:

Landmark Environmental, Inc. (Landmark) has conducted an Environmental Assessment of the property located at 540 County Road, Louisville, Colorado (subject property) on January 20, 2011. The Environmental Assessment included collection of samples from suspect asbestos containing materials (ACM) and lead containing/based paint (LCP/LBP) and observational/visual assessment of other regulated building materials (RBM) and conditions associated with animal infestation. The purpose of the Environmental Assessment is to support evaluation of the current status of the structure, as well as the possibility for reuse. This report presents findings and summarizes the regulatory requirements pertaining to environmental cleanup for the renovation rather than structural demolition scenario.

The subject property includes an approximate 2,800 square foot (building footprint) structure that was constructed in 1903 and was formerly used as a Grain Elevator and Feed Store. The structure is multi-level with approximately 8,500 square feet of accessible interior floor space and is located on an approximate 1.2 acre parcel. The structure is composed of five sections: office, elevator, elevator tower, grain bins; and a warehouse area. The structure was vacant at the time of the site visit and included numerous stored items, trash and, animal wastes.

This report presents the findings of the inspection and sampling efforts in the structure at the subject property in three general categories, asbestos, lead-containing paints and other RBMs. Under each category, the report is further organized by sampling approach, applicable regulatory criteria; and results, followed by recommendations associated with the findings and results. Further detail is provided in Attachment 1 (Asbestos), Attachment 2 (Paints); and Attachment 3 (Regulated Building Materials). Photographs are provided in Attachment 4 and Preliminary Cost Estimates are included in Attachment 5.

**Asbestos Sample Collection and Analysis**

The purpose of the ACM inspection is to identify the presence, location, quantity, friability, and condition of any ACMs and quantifying the suspect ACMs, which must be removed prior to renovation. Landmark collected fourteen samples of suspect ACM during the site inspection. The sampling was conducted according to requirements of the Colorado Department of Public Health and Environment (CDPHE), U.S. Environmental Protection Agency (EPA) Asbestos Hazard, Emergency Response Act (AHERA); and U.S. Occupational Safety and Health Administration (OSHA) Chapter 29 Code of Federal Regulations (CFR) §1926.1101, as well as generally accepted industry standards. Asbestos inspection activities were conducted by EPA AHERA and CDPHE accredited personnel.

Building material samples of the suspect ACM were collected in a representative manner as determined by the inspector and samples were collected by taking a composite core that includes all layers within the suspect ACM. Suspect ACM that were identified and sampled include the following.

- White plaster-like wall treatment/coating.
- Loose fill insulation on the third floor.
- Window putty on exterior windows.
- Asphalt roofing shingles.
- Paper vapor barrier on walls in the south addition.
- Sheet vinyl.
- Chimney plaster.
- Hot pad material.

Table 1 in Attachment 1 summarizes sample descriptions, locations, and analytical results. Laboratory Reports for suspect ACM samples are also provided in Attachment 1.

The suspect asbestos samples were submitted to Reservoirs Environmental Services, Inc. (Reservoirs), located in Denver, Colorado. Reservoirs is a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory and is also accredited by the American Industrial Hygiene Association (AIHA). The samples were analyzed by Polarized Light Microscopy (PLM) to determine asbestos type and percent. The total asbestos reported is the average of all components in the material, with the asbestos content of separate layers also identified. Unused portions of samples are archived for 60 days unless the client requests special handling.

**Asbestos Regulatory Criteria**

This brief overview of certain applicable asbestos regulatory criteria is general and for informational purposes only. Asbestos is one of the most widely regulated environmental substances and for specific requirements refer to applicable statutes and regulations. The OSHA regulations in 29 CFR 1926.1101 require that building owners inform prospective contractors, employees, and tenants of the presence, location, and quantity of ACM or presumed ACM, in their buildings and facilities.

Applicable asbestos regulations define ACM as material containing greater than 1.0 percent asbestos by weight, volume or visual surface area and also distinguish between friable and non-friable forms of ACM. Friable ACMs can be crumbled or reduced to powder by hand pressure when dry. Non-friable materials cannot be crumbled, pulverized, or reduced to powder by hand pressure.

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) further classify non-friable ACM as Category I and II. Category I non-friable ACMs include asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products. Category II non-friable ACMs are defined as all other non-friable ACM, such as cement board, window putty, etc. During abatement and renovation projects, applicable regulations identify removal requirements based on the friability classification of an ACM. Category I non-friable ACMs can remain in a building during standard structural demolition projects (i.e. demolition by heavy equipment, not burning or implosion). Category II non-friable ACM may also remain in the building under certain specific circumstances as long as the materials are not rendered friable during demolition, though typically these materials are abated prior to demolition. The EPA NESHAP and CDPHE Regulation #8, Part B require point count analysis for friable materials found to contain detectable asbestos at 1.0 percent or less by PLM analysis.

In general, removal of ACM is not required by regulation unless the potential for an airborne release of asbestos fibers in excess of allowable levels exists. Typically, the potential for an airborne release of asbestos fibers exists in three circumstances:

1. The ACM will be impacted during maintenance, renovation, or demolition.

2. The material is significantly deteriorated to the extent that asbestos debris is present.

3. The ACM will be subject to future deterioration by vibration, airflow, or weathering.

**Asbestos Inspection Results**

Landmark collected fourteen representative samples from suspect ACM identified in the structure. Results of laboratory analysis report that all of the fourteen samples are None Detected (ND) for asbestos, therefore no asbestos is presently identified in the structure.

**Paint Sample Collection and Analysis**

Bulk paint chip samples of suspect LBP were collected in a representative manner as determined by the inspector. Samples were collected from window sills and the exterior of the structure. The paint chip samples were submitted to Reservoirs, which is an Environmental Lead Laboratory Accreditation Program (ELLAP) accredited laboratory that uses procedures developed in compliance with the guidelines established by the National Institute of Occupational Safety and Health (NIOSH) Method 7420. The samples were analyzed by Atomic Absorption (AA)/Inductively Coupled Plasma (ICP) protocol to determine lead content. The total lead concentration reported is the average of all layers in the sample. Lead content results are reported as a percent by weight.

**Lead-containing Paint Regulatory Criteria**

The EPA and U.S. Department of Housing and Urban Development (HUD) regulate lead-based paint (LBP) abatement activities in target housing and child occupied facilities. OSHA regulates worker exposure to lead for coatings with any detectable lead. The EPA and HUD regulations related to LBP abatement do not apply to the project site unless abatement activities occur (specifically designed to permanently remove LBP). LBP is defined as paint containing 0.5 percent by weight or 1.0 milligram per cubic centimeter by both the EPA and HUD.

The CDPHE Regulation 19 regulates lead paints in housing and child-occupied facilities (not commercial properties) and CDPHE also regulates concentrations in soil that exceed 400 milligrams per kilogram (mg/kg), as provided in the CDPHE Soil Cleanup Table Value Standards, for residential/unrestricted land use.

The OSHA lead in construction standard 29 CFR 1926.62 addresses requirements for sites where the employer has reason to believe that any employee may be exposed to lead in excess of OSHA's action level (AL) of 30 micrograms per cubic meter (30 µg/m3) over an eight-hour time weighted average. The OSHA standard applies to all construction activities that may impact LCP (any detectable lead).

**Paint Sampling Results**

For this inspection, bulk paint samples are correlated to testing combinations using substrate, component, and color. The substrate is the material from which the component is fabricated. Substrates are classified as brick/masonry, concrete, drywall, metal, plaster, or wood.

A component is defined as a particular item, such as a door, a wall, or a cabinet. Laboratory analysis concluded that the lead concentration in sample PC-LGE-012011-EP-01collected from the exterior of the structure was 0.008 percent. Sample PC-LGE-012011-WP-01, collected from the interior window sills, resulted in a lead concentration of 7.7 percent. Lead paint concentrations of less than 0.5 percent are categorized as Lead Containing, not Lead Based. Laboratory results are summarized in Table 2 in Attachment 2 and laboratory analysis reports are also included in Attachment 2.

**Regulated Building Materials Observations**

Regulated Building Materials are generally materials that may require special handling, recycling, and/or disposal prior to building demolition or renovation and include paint, aerosol containers, fluorescent light tubes and ballasts, petroleum products, chlorofluorocarbons (CFCs) in refrigeration and air conditioning systems, and compressed gas cylinders. RBMs observed during the site survey include the following.

- Several refrigerated display cases and refrigerators.
- Five fluorescent light fixtures.
- One compressed gas cylinder (unmarked).
- One 55-gallon drum (contents undetermined).
- Numerous paint cans.
- Numerous automobile tires.
- Two television sets and other items with electronic components.
- One lawnmower and other equipment that may contain fuels or oils.

A complete inventory of RBMs observed at the Louisville Grain Elevator is included in Table 3 in Attachment 3. Photographs showing some of the RBM's (Photographs #1 through photograph #6) are included in Attachment 4.

**Environmental Observations**

Additional environmental conditions were noted during the site survey which included significant quantities of animal feces and bird/bat guano throughout the building on vertical and horizontal surfaces, in debris piles, and fixtures (see photographs #7 and #8 in Attachment 4). Guano and feces are known to carry diseases such as hystoplasmosis and hantavirus. A strong odor apparently from recent skunk habitation was noticeable when entering the building. Several animal carcasses believed to be raccoons were observed in the basement.

No discolored soil or stressed vegetation was observed during the site visit. Landmark did not observe evidence/indication of recognized environmental conditions (RECs) during the subject property site reconnaissance. A REC is described by the ASTM Standard E 1527-05 as: *the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property*.

**Recommendations**

Landmark recommends the following administrative and abatement activities be conducted prior to renovations and re-occupancy.

Asbestos

If planned renovations will include rehabilitation of structural members within the building, Landmark recommends that required permitting costs and timeframes be contemplated for the project. Two permits are required before structural demolition (if applicable), one from the CDPHE and one from Boulder County. If demolition of load bearing structures will occur, a Notification of Demolition Form must be submitted to the CDPHE, even if no asbestos was found during the inspection, along with payment of a $275 notification fee. A ten (10) working day waiting period is required before a permit is issued and the structural rehabilitation/demolition can proceed. The Notification of Demolition Form requires the signature of a CDPHE certified asbestos building inspector, stating that no ACM is present or that regulated ACM has been removed from the structure as applicable. Boulder County also requires a demolition permit. To obtain the Boulder County demolition permit, the contractor is required to provide a copy of CDPHE permit for demolition, a copy of the asbestos inspection report and pay a $25.00 fee.

Lead Containing Paints

Lead-containing materials, paints and coatings that may be impacted by demolition activities are regulated by OSHA 29 CFR 1926.62, which requires training, respiratory protection, medical monitoring and worker exposure assessment. Abatement of LCP is not required prior to renovation or structural rehabilitation. However, Landmark recommends that renovation plans be evaluated to determine the extent and nature of impacts to LCP/LBP and a work plan/specification that addresses basic lead hazard controls be developed.

During demolition, samples of building debris that are coated with LBP/LCP should be collected from representative areas of the waste and Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead should be performed to verify the appropriate landfill to dispose of the demolition debris (i.e., Subtitle D (municipal landfill) or Subtitle C (hazardous waste landfill).

Loose/flaking LCP was identified on the exterior walls. Paint chip debris was noted on localized areas of surface soils at the foundation. Because the identified peeling LBP has the potential to further impact the surrounding soil during rehabilitation activities such as power washing etc., construction methods that prevent further paint chip debris from impacting soils are recommended.

Regulated Building Materials and Animal Debris

Landmark recommends that the identified RBMs be removed and properly disposed prior to the planned renovation project, that a licensed transporter complete a Universal or Hazardous Waste Manifest and a certificate of destruction be obtained from the disposal facility when RBMs are removed and disposed.

Regarding animal debris and feces, Landmark recommends that the structure be first and immediately secured in a manner that prevents further inhabitation by animals, and that if access to the interior is required, that personal protective equipment (PPE) be used until cleanup is complete. Landmark recommends that a work plan/specification that addresses biological hazards and controls be developed and that cleaning/biocide treatment of all surfaces contaminated with animal feces and bird/bat guano occur by an experienced and licensed abatement contractor, both while stored items are removed and segregated as trash or usable items, and as a second prior to renovation/construction activities.

**Cost Estimate**

Landmark has developed an estimate of probable abatement cost that includes line items for lead-containing paint stabilization during renovation (not abatement) and removal, transport and disposal of identified RBMs.

The estimate for abatement of animal debris and feces is developed based on the approach that cleaning of stored items will occur as a first step where trash is segregated from any items that would be salvaged, followed secondly by general decontamination of the structure. The estimate of probable abatement costs is included in Attachment 5.

**Limitations**

Landmark does not imply or guarantee that every suspect ACM on or in the building has been identified or sampled. The services performed and any opinions expressed by Landmark in the report are based on the limits of the investigation as described above. It is understood that Landmark has relied on the accuracy of documents, oral information, and other material and information provided by the Client and others, and Landmark assumes no liability for the accuracy of such data. Landmark assumes no responsibility for property conditions or activities that are outside the scope of the services, or for changes to property conditions or regulatory requirements which may apply after completion of the services by Landmark.

Services performed by Landmark on this Environmental Assessment were performed in a competent and professional manner in accordance with sound consulting practices and procedures. The inspection did not include a subsurface investigation or destructive sampling (i.e., sampling or visual inspection behind physical barriers, if structures were present). Therefore, Landmark warrants the conclusions contained in this report, but cannot warrant site conditions beyond matters amenable to visual confirmation.

This report does not warrant against operations or conditions present of a type or at a location not investigated during this study. Additionally, this document does not warrant against future conditions or exacerbation of contaminants by others. Conclusions presented in this report are professional opinions based solely on visual observations and supplemental testing of environmental media within the study area. Such opinions are intended exclusively for the purpose outlined herein and at the Site and project indicated.

Please call me 720.283.8974 if you have any questions.

Respectfully,
Landmark Environmental, Inc.



Matthew Roberts
President

Enclosures:

| | |
|---|---|
| Attachment 1 | ACM Sample Table and Laboratory Report |
| Attachment 2 | Lead Containing Paint Sample Table and Laboratory Report |
| Attachment 3 | Regulated Building Materials Summary Table |
| Attachment 4 | Photographs |
| Attachment 5 | Estimate of Probable Costs |

**Attachment 1**

**ACM SAMPLE TABLE AND LABORATORY REPORT**

| Asbestos Sample Results<br>Louisville Grain Elevator<br>Louisville, Colorado | | | |
|---|---|---|---|
| Sample Number | Material | Results | Location |
| B-LGE-012011-HP-01 | Hot Pad | ND | First Floor |
| B-LGE-012011-WT-01 | Wall Treatment | ND | 1st Floor Entrance No. Wall |
| B-LGE-012011-WT-02 | Wall Treatment | ND | 1st Floor Entrance So. Wall |
| B-LGE-012011-WT-03 | Wall Treatment | ND | 1st Floor Entrance West Wall |
| B-LGE-012011-I-01 | Insulation | ND | Third Floor East |
| B- LGE-012011-I-02 | Insulation | ND | Third Floor East |
| B- LGE-012011-I-03 | Insulation | ND | Third Floor East |
| B-LGE-012011-WP-01 | Window Putty | ND | First Floor North |
| B-LGE-012011-S-01 | Asphalt Shingle | ND | Above Entrance |
| B-LGE-012011-FT1-01 | Sheet Vinyl | ND | 1st Floor Entrance |
| B-LGE-012011-PS-01 | Vapor Barrier | ND | South Addition |
| B-LGE-012011-PS-02 | Vapor Barrier | ND | South Addition |
| B-LGE-012011-PS-03 | Vapor Barrier | ND | South Addition |
| B-LGE-012011-CC-01 | Chimney Plaster | ND | 1st Floor North Wall |

* ND = None Detected

# Reservoirs Environmental, Inc.

January 28, 2011

| | |
|---|---|
| **Laboratory Code:** | **RES** |
| **Subcontract Number:** | **NA** |
| **Laboratory Report:** | **RES 206023-1** |
| **Project # / P.O. #** | **10048.001.001** |
| **Project Description:** | **Louisville Grain Elevator** |

Mike Ritter
Landmark Environmental, Inc.
250 Bryant Street
Denver CO 80219

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

**RES 206023-1** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

Analyst(s): _____
Paul D. LoScalzo Wenlong Liu
Michael Scales Rich Wegrzyn
Anita Grigg Robert R. Workman Jr.
Bethany Nichols

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0

TDH Licensed Laboratory # 30-0136

**TABLE PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME**

RES Job Number: **RES 206023-1**
Client: **Landmark Environmental, Inc.**
Client Project Number / P.O.: **10048.001.001**
Client Project Description: **Louisville Grain Elevator**
Date Samples Received: **January 21, 2011**
Analysis Type: **PLM, Short Report**
Turnaround: **3-5 Day**
Date Analyzed: **January 24, 2011**

| Client Sample Number | Lab ID Number | LAYER | Physical Description | Sub Part (%) | Asbestos Content: Mineral | Asbestos Content: Visual Estimate (%) | Non Asbestos Fibrous Components (%) | Non-Fibrous Components (%) |
|---|---|---|---|---|---|---|---|---|
| **B-LGE-012011-HP-01** | EM 685780 | A | White carbonate | 100 | | **ND** | 0 | 100 |
| **B-LGE-012011-WT-01** | EM 685781 | A | White compound | 100 | | **ND** | 0 | 100 |
| **B-LGE-012011-WT-02** | EM 685782 | A | White compound w/ tan paint | 100 | | **ND** | 0 | 100 |
| **B-LGE-012011-WT-03** | EM 685783 | A | White compound | 100 | | **ND** | 0 | 100 |
| **B-LGE-012011-I-01** | EM 685784 | A | Yellow insulation | 100 | | **ND** | 95 | 5 |
| **B-LGE-012011-I-02** | EM 685785 | A | Yellow insulation | 100 | | **ND** | 95 | 5 |
| **B-LGE-012011-I-03** | EM 685786 | A | Yellow insulation | 100 | | **ND** | 95 | 5 |
| **B-LGE-012011-WP-01** | EM 685787 | A | Cream glaze w/ white paint | 100 | | **ND** | 0 | 100 |
| **B-LGE-012011-S-01** | EM 685788 | A | Red shingle w/ tan fibrous material | 50 | | **ND** | 20 | 80 |
| | | B | Red shingle | 50 | | **ND** | 20 | 80 |
| **B-LGE-012011-FT1-01** | EM 685789 | A | Tan sheet vinyl w/ black fibrous backing | 100 | | **ND** | 30 | 70 |
| **B-LGE-012011-PS-01** | EM 685790 | A | Red paper | 100 | | **ND** | 90 | 10 |
| **B-LGE-012011-PS-02** | EM 685791 | A | Red paper | 100 | | **ND** | 90 | 10 |
| **B-LGE-012011-PS-03** | EM 685792 | A | Red/brown paper | 100 | | **ND** | 90 | 10 |
| **B-LGE-012011-CC-01** | EM 685793 | A | White plaster w/ cream paint | 100 | | **ND** | 0 | 100 |

ND=None Detected
TR=Trace, <1% Visual Estimate
Trem-Act=Tremolite-Actinolite
Note: Further analysis by TEM is recommended for organically bound material (i.e. floor tile) if PLM results are ≤1%.

Data QA

RES 206023

-1 PCM - 2 MM

Due Date: 1-26-1-28

Due Time: 9:45a

Page 1 of 2

# REI LAB Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV

| SUBMITTED BY: | | INVOICE TO: (IF DIFFERENT) | | CONTACT INFORMATION: | |
|---|---|---|---|---|---|
| Company: | Landmark Environmental INC | Company: | | Contact: | Contact: MIKE RITTER |
| Address: | 250 Bryant St<br>Denver, CO 80219 | Address: | | Phone: | Phone: |
| | | | | Fax: | Fax: |
| | | | | Cell/pager: | Cell/pager: 303-961-3218 |
| Project Number and/or P.O. #: | 10048.001.001 | | | Final Data Deliverable Email Address: | |
| Project Description/Location: | LOUISVILLE GRAIN ELEVATOR | | | mritter@landmarkenviro.com | |

**ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm**

PLM / PCM / TEM ___ RUSH (Same Day) ___ PRIORITY (Next Day) X STANDARD (Rush PCM = 2hr, TEM = 6hr.)

**CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm**

Metal(s) / Dust ___ RUSH ___ 24 hr. X 3-5 Day

RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day **Prior notification is required for RUSH turnarounds.**

Organics ___ 24 hr. ___ 3 day ___ 5 Day

**Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.**

Special Instructions: _____

**REQUESTED ANALYSIS**

- PLM - Short report, Long report, Point Count
- TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps
- PCM - 7400A, 7400B, OSHA
- DUST - Total, Respirable
- METALS - Analyte(s) LEAD RCRA 8, TCLP, Welding Fume, Metals Scan
- ORGANICS - BTEX, MTBE, 8260, GRO, DRO
- OTHER -

**VALID MATRIX CODES**

| | |
|---|---|
| Air = A | Bulk = B |
| Dust = D | Paint = P |
| Soil = S | Wipe = W |
| Drinking Water = DW | |
| Waste Water = WW | |
| Other = O | |

**ASTM E1792 approved wipe media only**

**LAB NOTES:**

| | Client sample ID number (Sample ID's must be unique) | PLM | Sample Volume (L) / Area | Matrix Code | # Containers | Date Collected mm/dd/yy | Time Collected hh/mm a/p | EM Number (Laboratory Use Only) |
|---|---|---|---|---|---|---|---|---|
| 1 | B-LGE-012011-HP-01 | ✓ | | B | 1 | 01/20/11 | | 68578 80 |
| 2 | B-LGE-012011-WT-01 | ✓ | | | | | | 81 |
| 3 | 02 | ✓ | | | | | | 82 |
| 4 | 03 | ✓ | | | | | | 83 |
| 5 | B-LGE-012011-I-01 | ✓ | | | | | | 84 |
| 6 | B-LGE-012011-I-02 | ✓ | | | | | | 85 |
| 7 | 03 | ✓ | | | | | | 86 |
| 8 | B-LGE-012011-WP-01 | ✓ | | | | | | 87 |
| 9 | B-LGE-012011-S-01 | ✓ | | | | | | 88 |
| 10 | B-LGE-012011-FT1-01 | ✓ | | | | | | 89 |
| 11 | B-LGE-012011-PJ-01 | ✓ | | | | | | 90 |
| 12 | 02 | ✓ | | | | | | 91 |
| 13 | 03 | ✓ | | | | | | 92 |

Number of samples received: _____ (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

**Relinquished By:** Mike Ritter Date/Time: 1/21/11 9:43

**Laboratory Use Only**

Received By: _____ Date/Time: 1-21-11 @ 945a Carrier: fed

Sample Condition: On Ice Y/N Sealed Y/N Intact Y/N

Temp. (F°) _____

| Results: | Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |

Due Date: 1-26-1-28

Due Time: 9+5a

Job # 206023

Page 2 of 2

# REI LAB Reservoirs Environmental, Inc.

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| SUBMITTED BY: | INVOICE TO: (IF DIFFERENT) | CONTACT INFORMATION: | |
|---|---|---|---|
| Company: Landmark Environmental INC | Company: | Contact: | Contact: |
| Address: 250 Bryant St | Address: | Phone: | Phone: |
| Denver, CO 80219 | | Fax: | Fax: |
| | | Cell/pager: | Cell/pager: |
| Project Number and/or P.O. #: 10048.001.001 | | Final Data Deliverable Email Address: | |
| Project Description/Location: Louisville Grain Elevator | | | |

**ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm**

PLM / PCM / TEM ___ RUSH (Same Day) ___ PRIORITY (Next Day) X STANDARD

(Rush PCM = 2hr, TEM = 6hr.)

**CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm**

Metal(s) / Dust ___ RUSH ___ 24 hr. X 3-5 Day

RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day

Organics ___ 24 hr. ___ 3 day ___ 5 Day

**Prior notification is required for RUSH turnarounds.**

**Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notifited if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.**

Special Instructions:

**REQUESTED ANALYSIS**

**VALID MATRIX CODES**

| | |
|---|---|
| Air = A | Bulk = B |
| Dust = D | Paint = P |
| Soil = S | Wipe = W |
| Drinking Water = DW | |
| Waste Water = WW | |
| Other = O | |

**ASTM E1792 approved wipe media only**

**LAB NOTES:**

| Client sample ID number (Sample ID's must be unique) | PLM - Short report, Long report, Point Count | TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps | PCM - 7400A, 7400B, OSHA | DUST - Total, Respirable | METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan | ORGANICS - BTEX, MTBE, 8260, GRO, DRO | OTHER - | Sample Volume (L) / Area | Matrix Code | # Containers | Date Collected mm/dd/yy | Time Collected hh/mm a/p | EM Number (Laboratory Use Only) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 B-LGE-012011-CC-01 | ✓ | | | | | | | | B | 1 | 01/20/11 | | 685793 |
| 2 PC-LGE-012011-EP-01 | | | | | Lead | | | | P | 1 | | | 94 |
| 3 PC-LGE-012011-WP-01 | | | | | Lead | | | | P | 1 | | | 95 |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |

Number of samples received: _____ (Additiional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Michael Fitter Date/Time: 1/21/11 9:43

Laboratory Use Only

Received By: [signature] Date/Time: 1-21-11 @ 9+5a Carrier: Fed

Sample Condition: On Ice Y/N Sealed Y/N Intact Y/N

Temp. (F°) _____

| Results: | Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |

**Attachment 2**

**LEAD CONTAINING PAINT SAMPLE TABLE**
**AND LABORATORY REPORT**

# Reservoirs Environmental, Inc.

January 25, 2011

| | |
|---|---|
| **Laboratory Code:** | **RES** |
| **Subcontract Number:** | **NA** |
| **Laboratory Report:** | **RES 206023-2R** |
| **Project # / PO #:** | **10048.001.001** |
| **Project Description:** | **Louisville Grain Elevator** |

Mike Ritter
Landmark Environmental, Inc.
250 Bryant Street
Denver CO 80219

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption Spectroscopy (AAS) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. Reported sample results were not blank corrected. The analysis has been completed in general accordance with the appropriate methodology as stated in the analysis table. Results have been sent to your office.

**RES 206023-2R** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. The results described in this report only apply to the samples analyzed. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Jeanne Spencer Orr
President

# RESERVOIRS ENVIRONMENTAL, INC.

**5801 Logan St., Suite 100**
**Denver CO 80216**

## TABLE ANALYSIS: LEAD IN PAINT

| | |
|---|---|
| RES Job Number: | **RES 206023-2R** |
| Client: | **Landmark Environmental, Inc.** |
| Client Project Number / P.O.: | **10048.001.001** |
| Client Project Description: | **Louisville Grain Elevator** |
| Date Samples Received: | **January 21, 2011** |
| Analysis Type: | **USEPA SW846 3050B / AA (7420)** |
| Turnaround: | **3-5 Day** |
| Date Samples Analyzed: | **January 25, 2011** |

| Client ID Number | Lab ID Number | Reporting Limit (%) | LEAD CONCENTRATION (%) |
|---|---|---|---|
| **PC-LGE-012011-EP-01** | EM 685794 | 0.003 | 0.008 |
| **PC-LGE-012011-WP-01** | EM 685795 | 0.003 | 7.696 |

*** Unless otherwise noted all quality control samples performed within specifications established by the laboratory.**

BRL = Below Reporting Limit



Data Qa _____

RES 206023

-1 PCM - 2 MM

Due Date: 1-26-1-28

Due Time: 9:45a

Page 1 of 2

# REI LAB Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV

| SUBMITTED BY: | INVOICE TO: (IF DIFFERENT) | CONTACT INFORMATION: |
|---|---|---|
| Company: Landmark Environmental INC | Company: | Contact: MIKE RITTER |
| Address: 250 Bryant St Denver, CO 80219 | Address: | Phone: |
| | | Fax: |
| | | Cell/pager: 303-961-3218 |
| Project Number and/or P.O. #: 10048.001.001 | | Final Data Deliverable Email Address: mritter@landmarkenviro.com |
| Project Description/Location: LOUISVILLE GRAIN ELEVATOR | | |

**ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm**

PLM / PCM / TEM ___ RUSH (Same Day) ___ PRIORITY (Next Day) X STANDARD (Rush PCM = 2hr, TEM = 6hr.)

**CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm**

Metal(s) / Dust ___ RUSH ___ 24 hr. X 3-5 Day

RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day

Organics ___ 24 hr. ___ 3 day ___ 5 Day

**Prior notification is required for RUSH turnarounds.**

**Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.**

Special Instructions: ___

**REQUESTED ANALYSIS**

PLM - Short report, Long report, Point Count

TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps

PCM - 7400A, 7400B, OSHA

DUST - Total, Respirable

METALS - Analyte(s) LEAD RCRA 8, TCLP, Welding Fume, Metals Scan

ORGANICS - BTEX, MTBE, 8260, GRO, DRO

OTHER -

**VALID MATRIX CODES**

| | |
|---|---|
| Air = A | Bulk = B |
| Dust = D | Paint = P |
| Soil = S | Wipe = W |
| Drinking Water = DW | |
| Waste Water = WW | |
| Other = O | |

**ASTM E1792 approved wipe media only**

| Client sample ID number (Sample ID's must be unique) | Sample Volume (L) / Area | Matrix Code | # Containers | Date Collected mm/dd/yy | Time Collected hh/mm a/p | LAB NOTES: EM Number (Laboratory Use Only) |
|---|---|---|---|---|---|---|
| 1 B-LGE-01201-HP-01 | | B | 1 | 01/20/11 | | 685780 |
| 2 B-LGE-01201-WT-01 | | | | | | 8781 |
| 3 | | | | | | 8782 |
| 4 | | | | | | 8783 |
| 5 B-LGE-01201-I-01 | | | | | | 8784 |
| 6 B-LGE-01201-I-02 | | | | | | 8785 |
| 7 | | | | | | 8786 |
| 8 B-LGE-01201-WP-01 | | | | | | 8787 |
| 9 B-LGE-01201-S-01 | | | | | | 8788 |
| 10 B-LGE-01201-FT1-01 | | | | | | 8789 |
| 11 B-LGE-01201-PJ-01 | | | | | | 8790 |
| 12 | | | | | | 8791 |
| 13 | | | | | | 8792 |

Number of samples received: ___ (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

**Relinquished By:** Mike Ritter Date/Time: 1/21/11 9:43

Sample Condition: On Ice Y/N Sealed Y/N Intact Y/N

Temp. (F°) ___

**Laboratory Use Only**

Received By: ___ Date/Time: 1-21-11 @ 945a Carrier: fed

| Results: | Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |

Due Date: 1-26-1-28

Due Time: 9+5a

Job # 206023

Page 2 of 2

# REI LAB Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph 303 964-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV

| SUBMITTED BY: | INVOICE TO: (IF DIFFERENT) | CONTACT INFORMATION: | |
|---|---|---|---|
| Company: Landmark Environmental INC | Company: | Contact: | Contact: |
| Address: 250 Bryant St | Address: | Phone: | Phone: |
| Denver, CO 80219 | | Fax: | Fax: |
| | | Cell/pager: | Cell/pager: |
| Project Number and/or P.O. #: 10048.001.001 | | Final Data Deliverable Email Address: | |
| Project Description/Location: Louisville Grain Elevator | | | |

**ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm**

PLM / PCM / TEM ___ RUSH (Same Day) ___ PRIORITY (Next Day) X STANDARD

(Rush PCM = 2hr, TEM = 6hr.)

**CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm**

Metal(s) / Dust ___ RUSH ___ 24 hr. X 3-5 Day

RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___ 10 day

**Prior notification is required for RUSH turnarounds.**

Organics ___ 24 hr. ___ 3 day ___ 5 Day

**Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notifited if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.**

Special Instructions:

**REQUESTED ANALYSIS**

**VALID MATRIX CODES**

| | |
|---|---|
| Air = A | Bulk = B |
| Dust = D | Paint = P |
| Soil = S | Wipe = W |
| Drinking Water = DW | |
| Waste Water = WW | |
| Other = O | |

**ASTM E1792 approved wipe media only**

**LAB NOTES:**

| Client sample ID number (Sample ID's must be unique) | PLM - Short report, Long report, Point Count | TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps | PCM - 7400A, 7400B, OSHA | DUST - Total, Respirable | METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan | ORGANICS - BTEX, MTBE, 8260, GRO, DRO | OTHER - | Sample Volume (L) / Area | Matrix Code | # Containers | Date Collected mm/dd/yy | Time Collected hh/mm a/p | EM Number (Laboratory Use Only) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 B-LGE-012011-CC-01 | ✓ | | | | | | | | B | 1 | 01/20/11 | | 685793 |
| 2 PC-LGE-012011-EP-01 | | | | | Lead | | | | P | 1 | | | 94 |
| 3 PC-LGE-012011-WP-01 | | | | | Lead | | | | P | 1 | | | 95 |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |

Number of samples received: _____ (Additiional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Michael Fitter Date/Time: 1/21/11 9:43

Laboratory Use Only

Received By: [signature] Date/Time: 1-21-11 @ 9+5a Carrier: Fed

Sample Condition: On Ice Y/N Sealed Y/N Intact Y/N

Temp. (F°) _____

Results:

| Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contact | Page | Phone | Email | Fax | Date | Time | Initials | Contact | Page | Phone | Email | Fax | Date | Time | Initials |

**Attachment 3**

**REGULATED BUILDING MATERIALS SUMMARY TABLE**

| Regulated Building Materials Inventory<br>Louisville Grain Elevator<br>Louisville, Colorado | | | |
|---|---|---|---|
| Description | Quantity | Size | Location |
| Fluorescent Light Fixtures | 4 | 3 feet | Ground Floor |
| Fluorescent Light Fixture | 1 | 6 feet | Ground Floor |
| Refrigerator | 5 | Standard Household | Ground Floor |
| Refrigerated Display Cases | 4 | 6-8 Feet | Ground Floor |
| Vintage Television | 2 | 1 Console, 1 - 12” | Ground Floor |
| Compressed Gas Cylinder | 1 | Volume Undetermined | Ground Floor |
| Lawn Mower | 1 | 1 Qt. Gasoline | Ground Floor |
| Paint | 12-15 | 1 Gallon | Ground Floor |
| Metal Drum | 1 | 55 Gallon – Unknown Content | Second Floor |
| *Automobile Tires | 8-10 | N/A | Ground Floor |

* Not an RBM, Requires Proper Disposal

**Attachment 4**

**PHOTOGRAPHS**

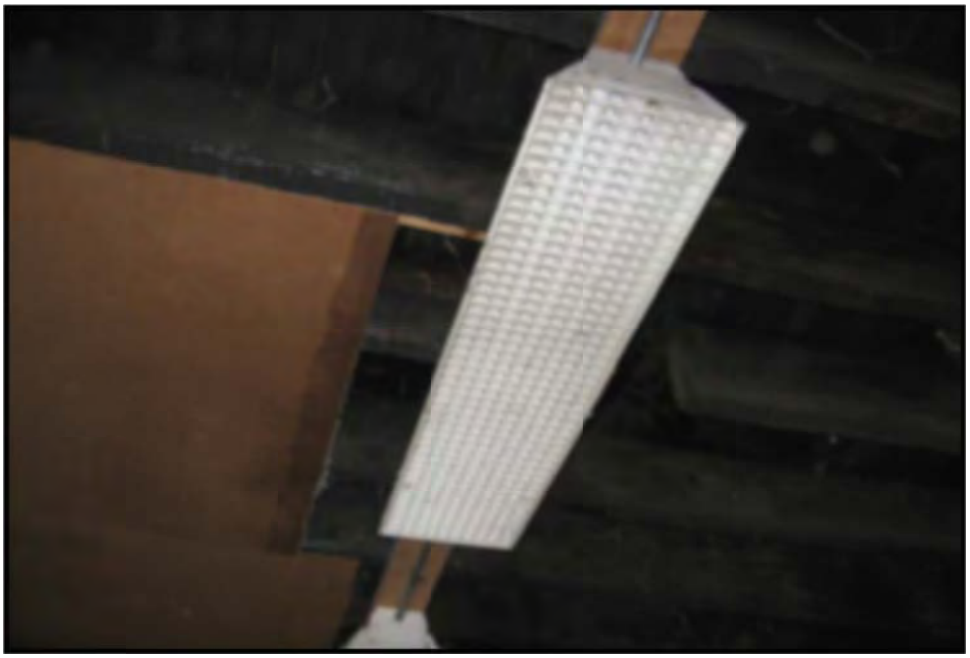


**Photo 1 - First Floor Light Fixture**



**Photo 2 - Gas Cylinder and Refrigerated Display Case**



**Photo 3 - Vintage Television**



**Photo 4 - Discarded Vehicle Tires**



**Photo 5 - 55 Gallon Drum – Contents Unknown**

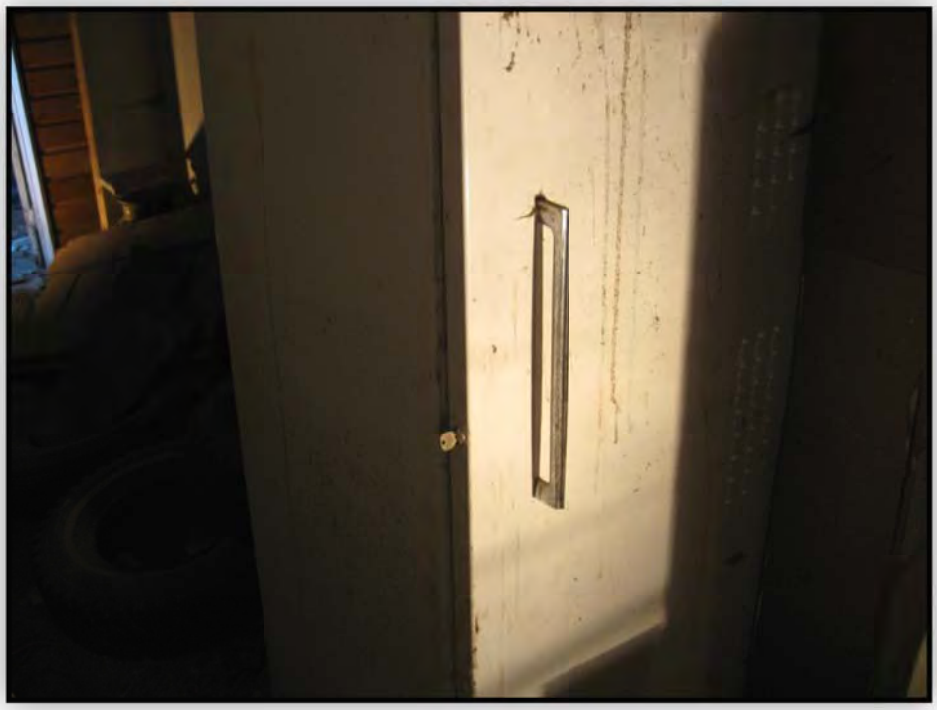


**Photo 6 - One of Five Refrigerators**

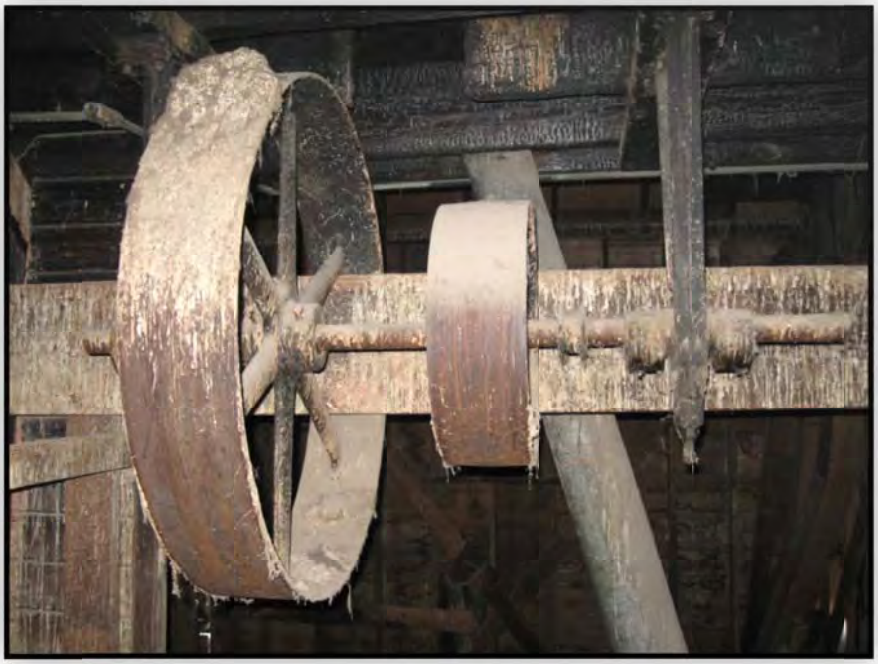


**Photo 7 - Guano on Upper Floor Mechanical Components**



**Photo 8 - Animal Feces – Upper Floors**

**Attachment 5**

**ESTIMATE OF PROBABLE COSTS**

**Preliminary Cost Estimate**

**A&A**

**Prepared By:**
**M. Roberts**
**7-Feb-11**

| ITEM | SPEC. SECTION | DESCRIPTION | QUANTITY | UNIT | | UNIT PRICE | SUBTOTAL | COMMENT |
|---|---|---|---|---|---|---|---|---|
| 1 | | Mobilization | 1 | LS | @ | $ 500.00 | $ 500.00 | |
| 2 | | Demobilization | 1 | LS | @ | $ 250.00 | $ 250.00 | |
| 3 | | Labor Pre-cleaning of Stored Items for Recycling or Re-use | 1 | LS | @ | $ 1,500.00 | $ 1,500.00 | 1 day segregation & cleaning |
| 4 | | Labor Trash Removal | 1 | LS | @ | $ 1,200.00 | $ 1,200.00 | 45 CY - 1 day |
| 5 | | Labor Cleaning Animal debris, feces from Surfaces in Building | 8,500 | SF | @ | $ 0.60 | $ 5,100.00 | 8,500 Sf surfaces - 2 days |
| 6 | | Selective demo and removal of animal-stained areas | 400 | SF | @ | $ 2.50 | $ 1,000.00 | 400 SF selective demo - 1 day |
| 7 | | Biocide of Surfaces | 8,500 | SF | @ | $ 0.20 | $ 1,700.00 | |
| 8 | | Remove and dispose/recycle identified RBM's | 1 | LS | @ | $ 1,600.00 | $ 1,600.00 | Identified RBMs |
| 9 | | LCP Exterior Stabilization - Incremental Cost for Painter's Prep. | 1 | LS | @ | $ 1,500.00 | $ 1,500.00 | Training, PPE and controls |
| 10 | | LBP Removal - Component Window frame remove & dispose | 2 | EA | @ | $ 150.00 | $ 300.00 | Replacement not incl. |
| 11 | | Equipment and Supplies (daily rate) | 5 | EA | @ | $ 250.00 | $ 1,250.00 | |
| 12 | | Solid Waste Transport & Disposal | 45 | CY | @ | $ 25.00 | $ 1,125.00 | |
| | | | | | | | | |
| | | | | | | | **Total** | |
| 13 | | | | | | | $ 17,025.00 | |
| | | | | | | | | |
| 13a | | Industrial Hygiene Inspections/Oversight and Work Plan Development - 15% | | | | | $ 2,553.75 | |
| 13b | | Contracting and Unforseen Condition Contingency 10% | | | | | $ 1,702.50 | |
| | | | | | | | | |
| | | | | | | | **Grand Total** | |
| 14 | | | | | | | $ 21,281.25 | |
| | | Estimated project performance period is 5 working days expedited schedules and associated overtime are not included in this estimate | | | | | | |

COLORADO HISTORICAL SOCIETY
Office of Archaeology and Historic Preservation
1300 Broadway Denver, Colorado

Historic Building Inventory Record

NOT FOR FIELD USE
___ ELIGIBLE
___ DET. NOT ELIG.
___ NOMINATED
___ CERTIFIED REHAB
DATE _____

| project name | county | city | state ID no. / temporary no. |
|---|---|---|---|
| Louisville Survey | Boulder | Louisville | 5BL830.20 / LSV14 |

current building name: Grain Elevator

address: Tract 712, Louisville, CO

owner: Charles Thomas, Empire Road, Louisville, CO

tnsp 1S range 69W sec 8 ,SE ¼, SE ¼

historic name: Denver Elevator(Grain Elevator)

USGS quad name: Louisville 65(79)___yr. X 7.5' ___15'

district name: N/A

blk. lot(s) addition yr. of addition: Previously unincorporated Louisville

| film roll | negative nos. | loc. of neg. |
|---|---|---|
| by S.F.Mehls no. LSV-1 | 28,29 | CHS |

paste photograph here. use archival glue.

date of construction
_____estimate 1904 actual
source: Present Owner

use
Vacant _____present
Grain Elevator _____historic

condition
_____excellent _____good
XX fair _____deteriorating

extent of alterations
XX minor ____moderate ____major
describe:
doors moved

XX ____original ____moved
date(s) of move:

| style | stories |
|---|---|
| Nineteenth Century Commercial | 1-3 |

| materials | sq. footage |
|---|---|
| Wood siding & corrugated metal sheathing/wood frame | 4,950 |

field assessment
XX eligible ____not eligible

architectural description

A wood-sided and corrugated metal 19th century grain elevator, functional in design. Has multi-gabled roofs with sections of disparate height. The main body consists of two tall units with few openings, with a shed-roofed appendage on the south side and a one-story section on the opposite, north side. There are openings on all sides in all sections excellent for the smaller of the two taller brick. Changes include metal siding on the tallest unit. Boardwalk on west side deteriorated.

district potential
____yes XX no ____contributing
____non-contributing

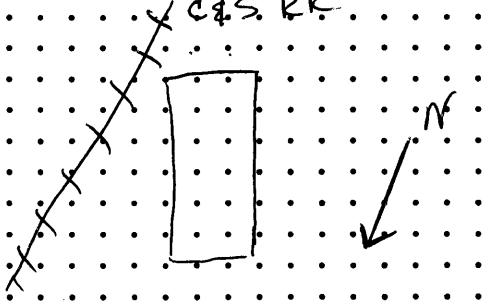
local landmark designation
Louisville Landmark _____name _____date

associated buildings? ____yes
type No

if inventoried, list ID nos.

additional pages ____yes XX no

plan shape




architect Unknown

source

builder/contractor Unknown

source

original owner Denver Elevator Co. (J.K. Mullen)

source Present Owner

theme(s) Mountains-farming
Urban-Rail Era

construction history (descriptions, names, dates, etc. relating to major additions or alterations to original structure)

Wings on north side appear to have been modified at unknown date after initial construction. Other modifications have been minimal, consisting primarily of metal sheathing. Also, removal of steam boiler occurred at some date after 1960.

continued ___yes XX no

historical background (discuss important persons and events associated with this structure)

Built in 1908 to serve farmers in area surrounding Louisville. On exterior wall was once visible a sign saying "The Denver Elevator's".

continued ___yes XX no

significance (check appropriate categories and briefly justify below)

architectural significance:
___represents the work of a master
___possesses high artistic values
XX represents a type, period or method of construction

historical significance:
___associated with significant persons
___associated with sig. events patterns
___contributes to an historic district

Area of Significance: Agriculture, Architecture
Level of Significance: Local Dates: 1900 -

statement of significance

Built in 1908 for use as a grain elevator, this building is historically and visually the most significant structure associated with the agricultural history of the community. Its frame construction and functional design illustrate an important resource type traditionally associated with agriculture.

The building addresses the following RP3 concerns: correlates non-mining economic activity to the community-agricultural production; provides information on the physical form of rail towns-located directly on the tracks.

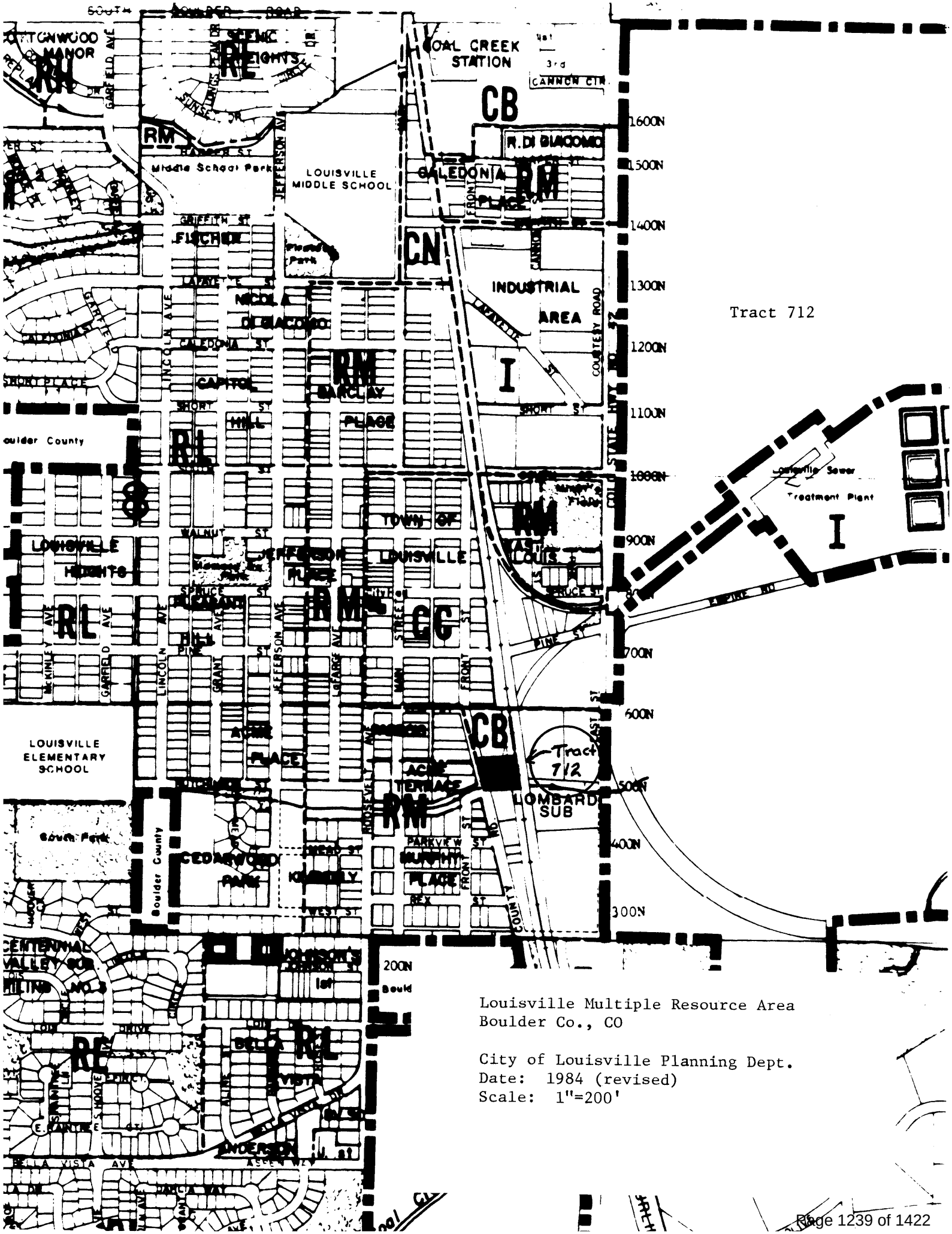
continued ___yes XX no

references (be specific)

Personal communication with Charles Thomas, present owner, 8/2/85.
Conarroe, Carolyn, The Louisville Story, Louisville: Louisville Times, 1978.

continued ___yes XX no

surveyed by S.Mehls, C.Mehls, J.Fell | Affiliation Western Historical Studies | date 7/28/85


Tract 712
Tract 712
Louisville Multiple Resource Area
Boulder Co., CO
City of Louisville Planning Dept.
Date: 1984 (revised)
Scale: 1"=200'

Denver Elevator, Louisville, CO

# 3. Classification

| Category | Ownership | Status | Present Use | |
|---|---|---|---|---|
| ___ district | ___ public | ___ occupied | ___ agriculture | ___ museum |
| XX building(s) | XX private | XX unoccupied | ___ commercial | ___ park |
| ___ structure | ___ both | ___ work in progress | ___ educational | ___ private residence |
| ___ site | **Public Acquisition** | **Accessible** | ___ entertainment | ___ religious |
| ___ object | n/a in process | XX yes: restricted | ___ government | ___ scientific |
| | n/a being considered | ___ yes: unrestricted | ___ industrial | ___ transportation |
| | | ___ no | ___ military | XX other: Vacant |



Denver Elevator
Boulder County, Colorado

Photographer: Steven Mehls
Locale of Negative: Office of Archaeology
& Historic Preservation
1300 Broadway, Denver, CO
Date of Photo: August 1985

Photo 1 of 2
View looking southeast



Denver Elevator
Boulder County, Colorado

Photographer: Steven Mehls
Locale of Negative: Office of Archaeology
& Historic Preservation
1300 Broadway, Denver, CO
Date of Photo: August 1985

Photo 2 of 2
View looking northeast

OAHP1403
Rev. 9/98

COLORADO CULTURAL RESOURCE SURVEY

# Architectural Inventory Form

(Page 1 of 5)

**Official Eligibility Determination**
(OAHP use only)
Date_____ Initials_____
___Determined Eligible - National Register
___Determined Not Eligible - National Register
___Determined Eligible - State Register
___Determined Not Eligible - State Register
___Needs Data
___Contributes to eligible National Register District
___Noncontributing to eligible National Register District

## I. IDENTIFICATION

1. Resource number: **5BL961.11**
2. Temporary number: **N/A**
3. County: **Boulder**
4. City: **Louisville**
5. Historic building name: **Louisville Milling & Elevator Co. Elevator**
6. Current building name: **Louisville Milling & Elevator Co. Elevator**
7. Building address: **Tract 712, Louisville**
8. Owner name: **Charles K. & Iona Thomas**
   Owner address: **P.O. Box 156**
   **Louisville, CO 80027**

## II. GEOGRAPHIC INFORMATION

9. P.M. **6th** Township **1S** Range **69W**
   **NW¼** of **NE¼** of **SE¼** of **SE¼** of section **8**

10. UTM reference
    Zone **13**
    Easting: **488940**
    Northing: **4424830**
11. USGS quad name: **Louisville, Colorado**
    Year: **1965 (Revised 1994) 7.5'**
12. Lot(s): **Tract 712** Block: **n/a**
    Addition: **n/a** Year of Addition: **n/a**
13. Boundary Description and Justification: **This legally defined parcel encompasses but does not exceed the land historically associated with this property.**

## III. ARCHITECTURAL DESCRIPTION

14. Building plan (footprint, shape):
    **Rectangular**
15. Dimensions in feet: **2464 square feet**
16. Number of stories: **Three**
17. Primary external wall material
    **Wood / Weatherboard**
    **Wood / Stacked Lumber**
18. Roof configuration (enter one):
    **Gabled Roof**
19. Primary external roof material (enter one):
    **Asphalt Roof**
20. Special features (enter all that apply):
    **Chimney**

Survey completed April 2000
National Register Landmark 1984

22. Architectural style / building type:

    **Other Style**
    **(Stacked Plank Grain Elevator)**



## 21. General Architectural Description

This structure is oriented north-northeast to south-southwest, with overall measurements of 88' by 28'. From the north-northeast end, the building is composed of five sections, including an office, an elevator, an elevator tower, grain bins, and a warehouse. Each of these sections are described below.

The **Office** section is one-story tall, measures 10' by 28', is supported by a concrete foundation, and is covered with a shed roof, covered with rolled asphalt roofing. A brick chimney, with concrete pargeting, penetrates the roof near the north-northeast end. The office's exterior walls are painted white horizontal weatherboard, with 1" by 4" corner boards. A rectangular hipped-roof bay window, and a single wood-paneled door, are located on the office's north-northwest elevation. Three window openings on the office - two on the north-northeast elevation, and one on the east-southeast elevation - are covered with plywood.

The **Elevator** section is 1½-stories tall, measures 14' by 28', is supported by a low concrete perimeter walls foundation, and is covered by a gable roof, with red asphalt shingles, and exposed rafter ends with fascia. The elevator's exterior walls are painted white horizontal wood siding. A vertical wood plank horizontal sliding door is located on the elevator's west-northwest elevation.

The **Elevator Tower** section is three-stories tall, measures 14' by 28', is supported by a low concrete perimeter walls foundation, and is covered by a gable roof with red asphalt shingles, and exposed rafter ends with fascia. The elevator tower's first story exterior walls are painted white horizontal weatherboard; the elevator tower's second story walls are painted white stacked plank construction (2x lumber); the elevator tower's third story exterior walls are painted white square-cut wood shingle siding. Painted white wood plank, horizontal sliding doors are located on the tower's east-southeast and north-northwest elevations.

The **Grain Bins** section is 1½-stories tall, measures 30' by 28', is supported by a low concrete perimeter walls foundation, and is covered by a gable roof with corrugated metal, and exposed rafter ends with fascia. The Grain Bins section features painted white stacked plank walls (2x lumber), and there is one window opening in the upper gable end.

The **Warehouse** section is one-story tall, measures 20' by 28', has a wood timbers on grade foundation, and is covered by a shed roof with corrugated metal over 1x wood decking and 2x wood rafters. The warehouse's walls are painted red horizontal weatherboard. One door opening is located on the west-northwest elevation.

## 29. Construction History (include description and dates of major additions, alterations, or demolitions:

This structure was built in 1903.

23. Landscape or setting special features:
Now abandoned, this grain elevator is located on a tract of land between Front Street and the railroad tracks, south of Elm Street, to the southeast of downtown Louisville.

24. Associated buildings, features, or objects
**n/a**

## IV. ARCHITECTURAL HISTORY

25. Date of Construction:
Estimate
Actual **1903**

Source of information:
**1908 Sanborn map lists structure's date of construction as "1903.". Louisville Milling & Elevator Co. is first listed in the 1904 Boulder County Directory.**

26. Architect:
**n/a**

Source of information:
**n/a**

27. Builder/ Contractor:
**unknown**

Source of information:
**n/a**

28. Original owner:
**Louisville Milling & Elevator Co.**

Source of information:
**Boulder County Directories**

30. Original location: **yes**
Moved **no**
Date of move(s) **n/a**

## V. HISTORICAL ASSOCIATIONS

31. Original use(s): **Agriculture/ Subsistence / Grain Elevator**

32. Intermediate use(s): **n/a**

33. Current use(s): **Vacant / Not In Use**

34. Site type(s): **Grain Elevator**

### 35. Historical Background

This structure was constructed in 1903 by the Louisville Milling and Elevator Company. Built with a 25,000 bushel capacity, this grain elevator served area farmers until its closure in the 1950s. Howard A. Moore of Louisville was the facility's manager, during the 1910s and 1920s, Moore, and his wife Zara, lived on Spruce Street in Louisville, just west of McKinley Avenue. In the late 1930s and 1940s, the Louisville Milling and Elevator Company was managed by Donald C. Moore. (Donald was perhaps Howard's son.) Donald Moore, and his wife Sadie, lived at 633 Garfield Avenue in Louisville. By the early 1950s, the facility's name had been changed to "The Denver Elevator." Dan Gunkel was the manager in 1951. By the 1960s, the elevator had been acquired by Charles and Iona Thomas, and by Quentin C. Thomas, who ran a feed store in Louisville. The Thomases were descendant from a long-time Louisville coal mining family. Charles and Iona Thomas are still the building's owner in 2000.

### 36. Sources of Information

(Boulder County) "Real Estate Appraisal Card - Urban Master", on file at the Boulder Carnegie Library.

"Grain Elevator A Silent Sentinel of Plains. *The Denver Post*, April 4, 1999, p. 99.

Mehls, Steven F., and Mehls, Carol Drake. "Colorado Historical Society, Historic Building Inventory Record", (Tract 712, Louisville), July 28, 1985. On file at the Colorado Historical Society, Office of Archaeology and Historic Preservation, Denver, CO.

*Polk's Boulder County Directory* [generally published annually], Denver, Kansas City, and Salt Lake City: R.L. Polk and Company Publishers.

*Polk's Longmont City Directory*, [generally published annually], Denver, Kansas City, and Salt Lake City: R.L. Polk and Company, Publishers, 1966 - 1997.

Sanborn Fire Insurance Map, August 1908.

## VI. SIGNIFICANCE

37. Local landmark designation:
Yes
No xx
Date of Designation: n/a

38. Applicable National Register Criteria

xx A. Associated with events that have made a significant contribution to the broad patterns of our history;

B. Associated with the lives of persons significant in our past;

xx C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;

D. Has yielded, or may be likely to yield information important in history or prehistory;

Qualifies under Criteria Considerations A through G (see Manual).

Does not meet any of the above National Register criteria.

39. Area(s) of Significance:

**Agriculture; Commerce**

40. Period of Significance: **1903 - 1950**

41. Level of Significance:
National:
State: xx
Local: xx

### 42. Statement of Significance

This building has been individually listed in the National Register of Historic Places. It is historically significant, relative to National Register Criterion A, for its association with the theme of agriculture during the first half of the twentieth century. The structure is architecturally significant, under National Register Criterion C, because it one of the region's last remaining wooden grain elevators, and because of its rare stacked plank construction. The preservation of this building should be one of Louisville's highest preservation priorities.

### 43. Assessment of historic physical integrity related to significance:

This structure has had no additions, and very minimal alterations, subsequent to its original construction in 1903. As such it exhibits a high degree of historical integrity, in accordance with National Park Service and Colorado Historical Society guidelines. The property's owners are unfortunately allowing the building to deteriorate.

## VII. NATIONAL REGISTER ELIGIBILITY ASSESSMENT

44. National Register eligibility field assessment:
Eligible: xx
Not Eligible:
Need Data:

45. Is there National Register district potential?
Yes:
No: xx
Discuss: **This structure is in a relatively isolated location, at Louisville's southeastern outskirts.**

If there is National Register district potential, is this building:
Contributing: n/a
Noncontributing: n/a

46. If the building is in an existing National Register district, is it:
Contributing: n/a
Noncontributing: n/a

## VIII. RECORDING INFORMATION

47. Photograph numbers:
Roll: **CM-6**
Frame(s): **25-28**
Negatives filed at: **City of Louisville, Administration**
**749 Main Street**
**Louisville, Colorado 80027**

48. Report title: **"Old Town" Louisville Historical Building Survey**

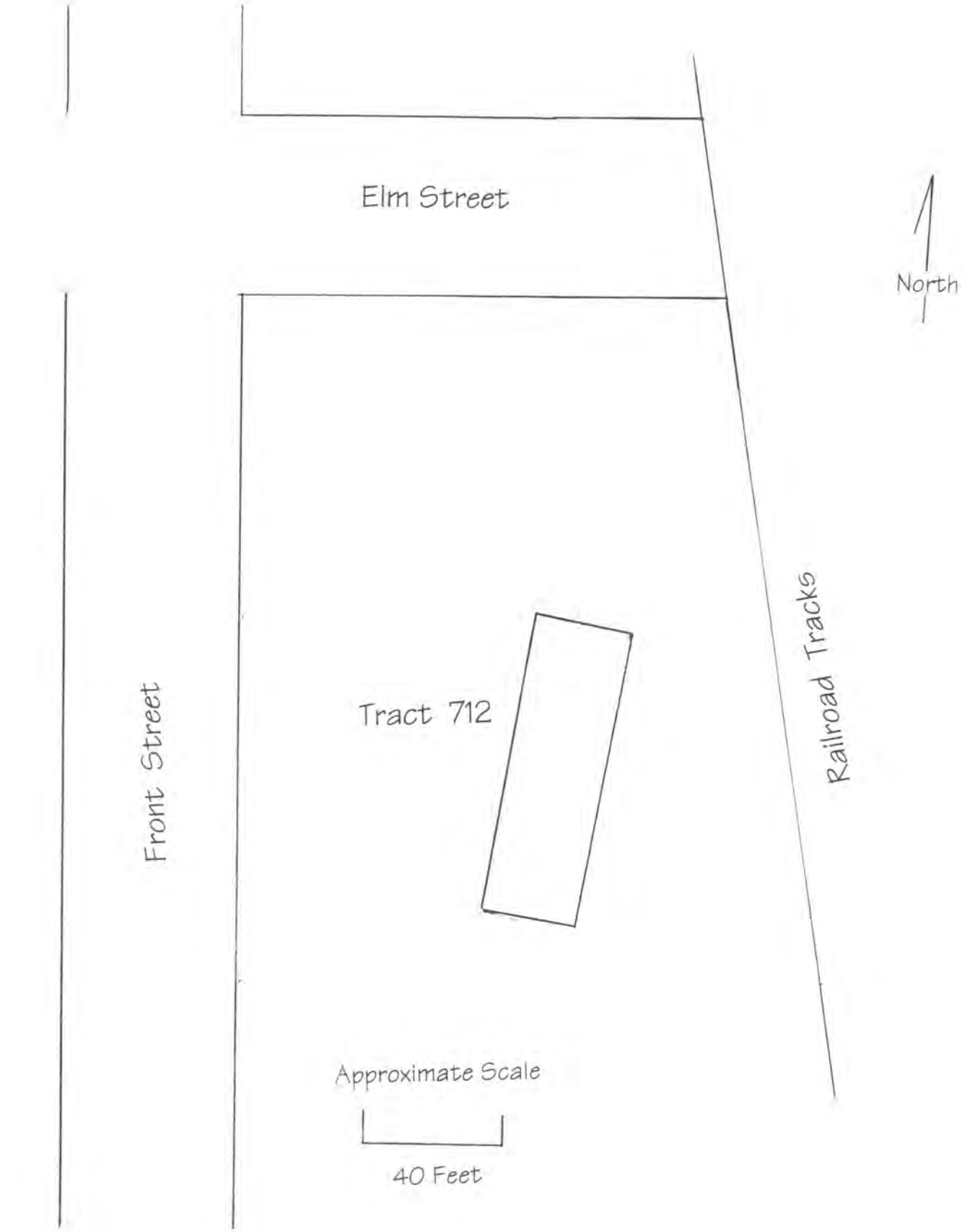
49. Date: **February 1, 2000**

50. Recorder(s): **Carl McWilliams**

51. Organization: **Cultural Resource Historians**

52. Address: **1607 Dogwood Court**
**Fort Collins, Colorado 80525**

53. Phone number: **970/493-5270**




SKETCH MAP

Tract 712, Louisville, Colorado




LOCATION MAP

Tract 712, Louisville, Colorado



5BL961.11 Tract 712, Louisville
The Denver Elevator
26 April 2000
Negative located at: City of Louisville
749 Main Street, Louisville, CO 80027
Photographed by Carl McWilliams
Roll CM-6 Frame 26
View to SE

5BL961.11 Tract 712, Louisville
The Denver Elevator
26 April 2000
Negative located at: City of Louisville
749 Main Street, Louisville, CO 80027
Photographed by Carl McWilliams
Roll CM-6 Frame 27
View to NNE

November 21, 2025

J. Erik Hartronft
HAPC
950 Spruce St.
#2C
Louisville, CO 80027

Reference: Ascent Job# 2025-0150: Louisville Historic Grain Elevator

Dear Mr. Hartronft,

At your request, our firm observed the existing grain elevator structure located at 540 County Road, Louisville, CO with respect to the structural references within Historic Structure Assessment (HSA) prepared by Anderson Hallas Architects, PC Dated May 2nd 2011.

Since that document was prepared, your firm and another structural engineering firm JVA Consulting Engineers, prepared a structural stabilization plan with the anticipation of restoring the boardwalk and porte cochere on the west side of the building and a low profile addition on the east side of the building. Construction efforts to prepare and stabilize the structure were commenced but not fully completed.

Our firm reviewed the current condition of the structure with respect to the structural stabilization documents and the 2011 HSA and have prepared the following narrative. The *Italicized* text is directly from the 2011 HSA and is included in this document for reference. In the HSA Text, note that "GRID Z" referenced in the original Historic Structure Assesment text corresponds to "GRID C" in the construction plans prepared by HAPC, JVA and Ascent Group Inc.

*3.2 Foundation Systems*

*Description*

*Sections 1, 2, and 3: The existing foundation is largely visible in the basement. The basement is approximately six feet tall from the bottom of the first floor joists to the dirt floor. The dirt floor approximately matches the top of continuous footing elevation. Continuous strip footings, where visible, were measured to be 6" thick by 2'-0" wide. These footings support half-height concrete stem walls. The stem walls support half-height wood stud walls around the perimeter and timber posts and beams along the interior bearing lines. Along gridline 4, full-height timber posts are supported on isolated spread footings.*

*In one location along gridline A and in two locations along gridline Z, the concrete stem wall is omitted where historic door openings once existed. The block-outs in the concrete stem wall are now covered with wood sheathing.*

*The current exterior grade elevation approximately matches first floor elevation. The historic grade elevation was approximately three feet lower, near the top of concrete stem wall elevation and with isolated areas of lower grade at the basement door openings. A boardwalk, visible in the February 8, 1916 photograph, afforded access to the first floor level door openings.*

*In Section 2, two interior timber posts on isolated spread footings support basement level machinery. In Section 3, four interior timber posts on isolated spread footing support the first floor in locations presumed to have previously housed heavy equipment. One of these four posts is no longer in-place.*

*In the central portion of Section 3, an 8'-8" x 7'-8" x 5'-0" deep pit exists. The pit walls are unreinforced concrete approximately 7" thick. The pit floor is either dirt or a concrete slab concealed beneath the dirt.*

*Section 4: Four continuous strip footings running in the north to south direction support the stacked-plank bin walls. The footings measure 14" thick by 3'-0" wide. The top of footing elevation is approximately 5'-6" below the first floor elevation.*

*The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning east to west, bear on two untreated 3"x12" plates on top of the strip footings. The stacked-plank bin walls rest on the ends of the floor joists. The space between the joists are infilled with 3"x10" spacer blocks beneath the bin walls.*

*Section 5: The crawlspace under Section 5 is not accessible and is currently only visible through a small wall opening along gridline 5. A total of nine timber posts and the perimeter walls support the first floor above. Isolated footings were visible under the six northern posts at the dirt floor elevation, roughly three feet below the bottom of first floor joist elevation. Footings were not visible under the three posts along the south.*
*The perimeter foundation walls along gridlines A, Z, and 6 are constructed of wood studs and posts. The walls are sheathed on the exterior side with horizontal siding. The walls along gridlines A and Z are also sheathed on the interior side. Remnants of historic crawl space access openings are visible on each of the three foundation walls.*

*Along gridline 5, substantial wall settlement is visible along the entire length of this wall with isolated areas of failure where the studs have collapsed inward. The walls along gridlines A and Z do not show signs of movement, but various diagonal braces have been installed perpendicular to the wall plane to resist soil pressure.*

*The Architectural Inventory Form, (dated April 26, 2000) states that this building section has a wood timber on grade foundation. This is consistent with the substantial wall movement visible along gridline 6, signaling a deteriorated grade beam. The foundations along gridlines A and Z are likely constructed with the same materials. A small portion of concrete footing is visible along gridline A approximately 10 feet north of gridline 6. This concrete is possibly part of a later repair; a departure from the typical foundation construction on the end walls; or an isolated footing at the jamb of the crawlspace access opening.*

*Evaluation*

*Sections 1, 2, and 3: The existing footings where visible were in good condition and showed no signs of distress or movement. Although the 6" thick strip footings are relatively thin, they are still capable of carrying Code required gravity wall loads. The width of the footings is acceptable assuming an allowable bearing pressure of 2500 psf. However, the existing perimeter footings are inadequate to resist the rotation induced by the lateral earth pressures applied to the stem wall.*

*The concrete stem walls are in good condition and showed no signs of distress, cracking, or movement.*

*The interior wood foundation walls are in fair condition. The untreated sill plates are in contact with concrete which is not permitted by current Code. However, there were no obvious signs of deterioration at the time of our assessment, except at one location near grid intersection 3/A noted in the Wood Scientist's report located in the Appendix.*

*The exterior stud walls were clearly not intended to retain soil originally and the wall is performing poorly as a result. The walls are deteriorated in some locations and deterioration would be expected to continue and become widespread if the wall is not repaired. The wood is absorbing moisture from the retained soil and wood with high moisture content is prone to decay. See the Wood Scientist's report for more discussion on wood decay. Current Code prohibits the use of untreated wood in contact with soil for this reason.*

*Along gridline Z, in Section 3, the full-height stud wall has failed due to a combination of overload (soil pressure) and wood deterioration. In this location, the first floor and the walls above are supported by a timber beam which spans to gridlines 3 and 4. Thus, the failed stud wall does not pose an immediate risk of structural collapse of the framing above.*

*Section 4: The existing footings, where visible near gridline 4, were in good condition and showed no signs of distress or movement. The footings were sized to support the weight of the stacked-plank bin walls and the weight of grain in a filled bin. Provided the bin walls remain largely intact and no more than two or three levels of floor framing are introduced in any adaptive re-use program, the existing footings should be able to remain in service unaltered.*

*The existing bin walls below grade range from poor to good condition. In Bins 5 and 6, severe deterioration was readily visible. In the remaining bins, the condition likely varies considerably based on localized areas of high moisture content coupled with environmental conditions favorable to promoting wood decay. Because no visible deterioration was obvious, it is assumed that the remaining bin walls below grade are in fair to good condition with only small areas of wood in poor condition requiring repair.*

*Section 5: The six visible isolated spread footings to the north appear to be in good condition. The remaining three isolated spread footings to the south were not visible and either never existed or have settled substantially. Their condition is poor.*

*The condition of the foundations along gridlines A and Z is poor since the untreated wood wall and grade beam is in contact with the soil. Wood deterioration was visible at the exterior grade elevation through a small break in the siding at grid intersection Z/6.*

*The foundations along gridline 6 are in poor condition as segments of the foundation wall above have collapsed and settled significantly. Since this wall supports portions of the first floor and the roof, it should be corrected immediately or temporarily shored until permanent repairs can be performed.*

*Recommended Treatment*

*Sections 1, 2, and 3: If the exterior grade is returned to its historic elevation and the fill inside the basement is raised so that the difference in soil retaining heights on both sides of the wall is minimized, then the strip footings and concrete foundation walls, in general, may remain in service although isolated deficiencies will likely be uncovered during excavations that will require repair. It is also anticipated that alterations required for adaptive re-use of the building will concentrate or change loads in some locations. In these locations, the footing will need to be strengthened or enlarged. Deteriorated portions of the wood stud foundation walls, once they are re-exposed along the exterior and no longer in contact with the surrounding soils, will require repair and replacement where deteriorated. Historic basement level door openings, will need to be infilled with concrete up to the top of the concrete stem wall.*

*If the grading alterations recommended above are not possible or desired, another basic foundation stabilization option exists. Details of the stabilization will be further developed during design phases after the final use of the building has been decided and in consideration of costs, durability, and other site constraints. The general approach would be as follows:*

*After excavating around the perimeter of the building to the bottom of the existing footing elevation, the first floor would be shored so that the existing untreated wood foundation walls could be removed. These walls would be replaced with concrete infill walls or preservative-treated wood stud walls and sheathing. The new walls would need to be anchored to the top of the existing stem wall and the first floor diaphragm. The existing concrete wall and footing would need to be augmented with a doweled footing extension and periodic counterforts to resist the lateral earth pressures. After the new wall assembly is constructed, appropriate waterproofing materials would need to be applied to the exterior side of the wall.*

*The four isolated posts and footings in Section 3 may be removed if office use first floor loading is anticipated. They may also remain if assembly occupancy or large concentrated loads on the first floor are planned. One of the four timber columns will need to be reset. The existing pit in Section 3 should be backfilled to minimize potential settlement of the Section 4 bin strip footings if the pit were to deform.*
*Section 4: No treatment to the bin footings is required. Note that if extensive alteration of the bin walls (i.e. punched openings) and/or significant recruitment of the bins wall for the lateral force resisting system is proposed as part of the adaptive re-use program, it will tend to concentrate load in discrete locations along the length of the existing strip footing. Large concentrated loads will require that the footing be strengthened in these locations.*

*In Bins 5 and 6, the severely deteriorated portions of the walls require replacement. Needle beam shoring may be required above the deteriorated areas. The deteriorated areas should be removed back to competent, dry material and replaced, ply-by-ply. Until repairs are made, the area between Bin 5 and Bin 6 should be periodically inspected. It may be prudent to shore the bin walls above this deterioration to prevent localized collapse until repairs are completed.*

*In the remaining bins, the extent of stacked-plank deterioration requiring replacement should be quantified by resistance boring from the interior of the bins. After the bins have been cleaned and the exterior walls currently below grade are exposed during excavation, the condition should also be visually assessed prior to recommendation of final repairs. It is assumed that small areas of the bin walls below grade will require replacement.*

*Along gridlines A and Z, the exterior grade should be removed so that the stacked-plank wood bin walls are not in contact with the surrounding soils. If this is not possible, the grade should be excavated to the footing elevation so that deteriorated areas of the wall can be removed and replaced. Prior to backfilling, the exterior side of the walls should be surfaced with an impervious waterproof membrane. Reinforcement, if required, to resist the soil pressures could be installed on the exterior side of the wall and be constructed with preservative treated lumber.*
*Section 5: The soil around the six isolated spread footings to the north should be removed around the base of the timber columns to prevent potential deterioration to the column bases. The footing capacities can be determined once their size is determined, the nature of the first floor loading is determined, and the allowable soil bearing capacity is established.*

*The three isolated spread footings to the south, if existing, should be removed. New footings should be cast integrally with the new stem wall recommended along gridline 6. Pilasters can be introduced along the stem wall that support the first floor girders in-lieu of replacing the timber posts.*

*The first floor and stud walls along gridlines A, Z, and 6 should be shored and the existing untreated wood foundations removed. The foundations should be replaced with a concrete stem wall and continuous strip footing. A difference in exterior and interior grade elevations may be maintained by connecting the top of the new concrete stem wall to the first floor diaphragm.*

UPDATE: Stabilization of the foundation has occurred in close conformance to the Construction Phase 3.3 plans prepared by JVA and stamped 11/4/16.

Due to new foundation stabilization and new perimeter foundation walls and counterforts, the foundation walls are in good condition with the exception of one portion of wood framed wall in section 1 on grid A. This will be rebuilt with concrete. Sections 1, 2 & 3 have had counterforts installed along grid A and the existing grade against the wood walls has been removed, but this area is currently a well and does not drain away from the building. New sister foundation walls have been added along grids 1 & 6. West of grid Z (Grid C on current plans) secondary

foundation elements have been placed to support a future boardwalk and porte cochere. This area has a temporary framed lid and the top of the new foundation walls are such that the grade slopes away from the structure to the west. Concrete caps have been added to the top of some walls replacing rotted wood plates and to increase grade levels against the foundation. Bins have been cleaned and the exterior walls and most interior walls have been repaired as per the structural stabilization documents. Once section of interior wall between bins 4 & 5 still requires repair adjacent to the new opening between bins. The previously deteriorated bin floor framing is still in its rotted condition directly on the foundation. This will require repair and replacement of these timber elements. New foundation elements will occur with the new boxcar addition to the east and any un-discovered repair areas at interior locations.

*3.2b Perimeter Foundation Drainage*

*DESCRIPTION: There is no known perimeter drainage system and it would have been unlikely to have been installed at the time of construction.*

*The exterior grade elevation is approximately equal to the first floor elevation along the north, east, and south sides of the building. Along the east elevation, a concrete curb divides the soils from the exterior wall and diverts surface drainage away from the building edge to the south. The depth of the curb is unknown but is expected to only be a few inches below the surface. Along the north and south elevation, the grade generally slopes away from the base of the building although a depression is centrally located along the north wall. Along the west elevation, the outlying grade is lower and is bermed up to the first floor elevation. This condition clearly diverts surface runoff away from the building envelope.*

*EVALUATION:*

*Although the current grading appears to slope away from the building in most locations, the soil is still capable of wetting and transferring moisture into the wood foundation walls.*

*RECOMMENDED TREATMENT:*

*The foundations appear stable and no signs of water infiltration were visible in the basement which indicates that a perimeter drain may not be appropriate.[1,2]*

*The final grade around the building perimeter, no matter of the elevation, should be sloped away from the building at least 2% to encourage surface runoff to migrate away from the foundation walls as recommended in Section 3.1 Site.*
*Until foundation stabilization and grading is complete, the interface between the existing curb and building's sheathing should be maintained to prevent water from infiltrating the joint. Snow that accumulates along the base of the building should be removed rather than allowed to melt while in contact with the building's wood materials. The grade depression along the north wall, potentially trapping water, should be corrected.*

*Footnotes:*

*1. The groundwater elevation and the in-situ soil characteristics are unknown. A Geotechnical Engineer's Report will be required to design foundation repairs and that Report should also asses the suitability of a perimeter drain. Since the building's perimeter grade will be excavated during foundation stabilization operations, a perimeter drain could be installed at that time for little additional cost. Perimeter drainage would minimize the possibility of saturated soils increasing the lateral earth pressure on the foundation walls, the periodic increases in moisture in the basement, and moisture changes at the footing depth that may lead to settlement.*
*2. The Code requires that wood foundation walls enclosing usable spaces below grade be adequately drained.*

UPDATE: Completed foundation recommendations will allow the future drainage plan to be completed.

*3.3 Structural Systems*

*3.3 General Structural System Description*

*DESCRIPTION:*

*Demolition was not performed during the building assessment visit and thus only areas readily visible were assessed. However, the majority of framing assemblies were visible as most of the building's interior is unfinished. The primary exceptions to this were the Section 1 basement and wall framing, and the Section 5 crawl space which were not readily accessible or visible.*

*The original construction drawings are not available nor does documentation describing any repairs, alterations or additions exist.*

*Note that this report departs from the Architectural Inventory Form (dated April 26, 2000) convention for describing the distinct building sections. In this report, the sections are described by number, with Section 1 starting at the north and ending with Section 5 at the south. Structural findings and recommendations are referenced to section numbers, room numbers, and gridlines per the drawings in the Appendix which were developed as part of this assessment.*

*The structure contains five distinct sections demarcated by their construction type, height and historic use. There are multiple floor levels in the approximately 48 foot tall Section 3, the tallest portion of the building. A full basement exists under Sections 1, 2, and 3.*

*Roof framing consist of sloped wood rafters bearing on interior dropped purlins and stud walls or bin walls on the exterior. Sections 1, 2, 3, and 5 are conventional light-framed wood construction. The floors are constructed of 2x and 3x joists with wood floor sheathing. The walls are constructed of 2x studs surfaced with horizontal wood siding. The first floor level of Section 3 is framed with timber posts and beams.*

*Section 4 is constructed of stacked-plank wood walls which form the six grain bins. There are similar stacked-plank walls on the third level of Section 3.*

*A mixture of foundations and foundation wall types exist and are described in Section 3.2 in this report.*

*All wood joists, studs, beams, and post sizes measured corresponded to typical dressed sizes. As such, lumber is referred to by its nominal size in this report. The wood species of the framing elements in Sections 1, 2, 3, and 4 has been identified as Douglas-fir. The wood species in Section 5 has been identified as a mixture of Douglas-Fir and Western yellow pine. Please refer to the Wood Scientist's Report in the Appendix for more details.*

*Detailed structural system descriptions are found elsewhere in this report.*

*EVALUATION: The building structure below the first floor is in poor condition. The building from the first floor and above is generally in fair condition. Selective strengthening of the framing systems will be required to address fire damaged members and localized framing areas having calculated overstresses.*

*The structure is currently a "U" or utility occupancy. The proposed use will result in a classification that, per IEBC Table 912.4, represents an increase in hazard category. The occupancy category also increases from I to II per IBC Table 1604.5. This triggers a number of structural upgrade provisions in Section 907 of the IEBC. Per 907.2, the existing building shall be analyzed and comply with applicable wind or snow load provisions of the IBC. Per 907.3.1, the existing building shall conform to the seismic requirements of the IBC for the new seismic use group. This will require that the roof framing and lateral force resisting systems be strengthened to comply with current Code.*

*The final use of the building has not been determined. However, where the proposed use results in an increase in live load, the capacity of the floors and their supporting elements will have to be determined and strengthening will be required where they are found deficient.*

*RECOMMENDED TREATMENT: See detailed structural system descriptions for recommended treatments.*

UPDATE: The intended use for the existing structure is a restaurant serving occupants on the first floor of sections 1, 2, 3 & 5, and the 2nd floor and basement of section 3. Much of the structural stabilization has taken place with some exceptions and deviations from the construction documents prepared by JVA. This is described in the following structural system descriptions.

*3.3a Floor and Ceiling Systems*

*DESCRIPTION:*

*Section 1: The first floor is framed with 2"x8" joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud walls along gridlines 1 and 2. An interruption in the floor framing exists where a basement stair exists and is now abandoned. The floor opening has been sheathed over.*

*The first floor ceiling is framed with 2"x6" joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud wall along gridlines 1 and 2 and are surfaced on their underside with finishes. No other ceiling finishes exist in the building.*

*Section 2: The first floor is framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple walls along gridlines 2 and 3. An interruption in the floor framing exists at the basement stairs.*

*The second floor is framed with two bays of 2"x8" joists spaced at 24 inches spanning in the east to west direction. The joists bear on wood stud walls along gridlines A and Z and a central bearing line that equally divides the two bays. The central bearing line was a*

*wood stud wall, but it has been removed. The existing top plate remains in place and is supported in three places by wood props. The second floor framing is fire damaged.*

*Section 3: The first floor is framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple wall along gridline 3 and timber posts and beams along gridline 4. Four isolated posts with wood 'corbels' are spaced roughly equidistantly in a rectangular pattern beneath the center of the bay. It is assumed these additional floor supports accommodated machinery historically stored on the first floor of Section 3. One of the four posts in no longer in place.*

*The third, fourth, and sixth floors are also framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists span the full bay width to bearing lines along gridlines 3 and 4. The floor joists on all three floors are fire damaged. The maximum depth of char measured is 9/32 inches. Multiple interruptions in the floor framing exist around chutes, machinery, stairs, and ladderways. The sixth floor is an approximately 8 feet wide centrally located mezzanine with open areas to the east and west.*

*Section 4: The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning in the east to west direction, bear on 3"x12" plates over the existing continuous footings. The bin floor joists are presumed to be wood sheathed, but the flooring materials were not visible beneath the existing grain and detritus.*

*The fifth floor is approximately 10 feet wide, centered over the bins below, with open areas to the east and west. The floor framing consists of 2"x8" joists at random spacing spanning approximately 9 feet in the north to south direction to the bin stacked-plank walls. The flooring is flat 2"x4" gapped boards. Six small openings in the flooring provide access to each bin via ladderways.*

*Section 5: The first floor is framed with 2"x10" joists, spaced at 16 inches, running east to west, and spanning a maximum of 10 feet. The floor joists bear on the foundation walls along gridlines A and Z at the exterior and lap over three-ply 4"x12" dropped timber beams on the interior. The beams are each supported by three 8"x10" timber posts.*

*The three timber posts along and nearest to gridline 6 have failed. Two of the posts have fallen down and the center post has noticeably settled. Along the western bearing line, the south end of the dropped beam has fallen down to the crawlspace floor. The south ends of the two other bearing lines have moved downward approximately 6 inches to 1 foot. The floor joists have also displaced downward sympathetically with the displaced beams.*

*EVALUATION:*

*All Sections: The approximate load carrying capacities of the floor framing systems were calculated based on the member size, approximate span, wood species, and an assumed grade. Fire damaged member sizes were adjusted based on the maximum depth of char measured, subtracted from three faces of the member.*

*The Wood Scientist's findings indicate that the likely grade of the building's wood framing as a whole is #3. Where the lumber grade was assessed, the percentage of members not meeting grade ranged from 10 to 20 percent. Utilizing the estimated grade of #3 in design calculation reduces the calculated joist capacities by approximately 40% compared to a grade of #2. Since this difference is considerably penalizing, a grade of #2 was utilized for estimated framing capacities. The use of the better grade in design calculations is coupled with the assumption that the small percentage of joists that do not meet the requirements of #2 grade can be individually replaced or sistered and consequently minimize the amount of intervention required to stabilize and reoccupy the structure.*

*There are a number of existing interruptions in the floor framing and alterations (i.e. notches) to the floor joists. These framing anomalies were not considered in the determination of the approximate floor capacities.*

*In general and under the above assumptions, the floor framing is robust and has the calculated capacity to support office loading and in some places higher occupancies such as assembly. The existing floor joist sizes and spans are generally appropriate for their historic intended function in a light industrial facility. See the evaluations below, where departures from the above generalization are noted.*

*Section 1: The first floor framing is in good condition and has the capacity to support residential or office uses. The ceiling framing is capable of supporting new finishes and fixtures.*

*Section 2: The first floor framing is in good condition and has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The second floor joists are in poor condition and are overstressed under live loads in excess of 20 pounds per square foot, but the floor capacity as a whole is limited by the intermediate bearing line which presently has no excess calculated load carrying capacity.*

*Section 3: The first floor framing has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The third, fourth, and sixth floors, are hindered by their loss of section due to fire damage. But, these fire damage floor systems are still capable of supporting office loads.*

*The capacity of the timber post and beam framing system is outside the scope of this report, but the member sizes appear adequate for office uses. No signs of deterioration or distress were observed. The charring observed does not substantially affect the uses of the floors structurally.*

*Section 4: The bin floors appear to be in good condition and have very high load carrying capacity congruent with their historic purpose of supporting up to 30 feet of grain. The existing floor sheathing over the grain bin floors is assumed to have areas of deterioration as moisture has likely been trapped by the historic silage or existing detritus. The condition can be considered between poor and fair.*

*The fifth floor is in good condition and is capable of supporting approximately 50 pounds per square foot which is adequate for an office use.*

*Section 5: The first floor framing is in poor condition as the southern half of the floor has failed or nearly failed where the south ends of the dropped beams have been undermined. Once the foundation walls are repaired and the posts and dropped beams are re-supported, the first floor framing will have the calculated capacity to support any of the proposed uses for the building including light storage.*

*RECOMMENDED TREATMENT:*

*All Sections: Once the intended uses of the various floor sections are determined, the floor framing should be selectively strengthened as required to meet Code requirements for that use. Some floor areas will require strengthening while other areas will not.*

*Wood joists and beams should be graded individually by a qualified wood grader. Members not satisfying requirements for #2 grade will likely require replacement or strengthening. This approach requires that the lumber with grade limiting defects be identified by a qualified grader but allows the structural intervention to be minimized to only those members which absolutely require it.*

*All framing anomalies such as deeply notched joists and inadequately framed floor openings should be repaired.*
*Section 1: The first floor framing around the abandoned stair opening should be evaluated as it is not currently visible. Minor repairs should be expected. No treatment of the first floor ceiling is required.*

*Section 2: Minor strengthening of the first floor framing around the basement stair opening are warranted. The second floor joists have little excess load carrying capacity and are charred. The second floor framing should be removed and replaced with a system that meets the adaptive reuse programming needs.*

*Section 3: The basement level post should be reset between the existing spread footing and wood 'corbel'. Some additional posts or stud infill should be expected beneath the first and third level timber beams along gridlines 3 and 4. The extent of upgrades to these bearing lines will depend on the occupancy programmed for the four levels above.*

*From a structural point of view, the third, fourth, and sixth floor framing may remain in place, since the floors have moderate load carrying capacity despite the fire damage. However, the burnt lumber's odor, color, and texture may necessitate that the framing either be removed and replaced or the charred outer portions of the members be scraped off. The floor sheathing on these levels should be removed and replaced.*

*Section 4: Once the detritus is removed, the bin floor joists and floor sheathing should be investigated to identify deterioration. Deteriorated portions of the floor sheathing, and floor joists if occurring, should be removed or epoxy consolidated. If the floor is to be occupied, the floor sheathing will likely require replacement.*

*No treatment is recommended to the fifth floor in order to stabilize the building. If live loads exceeding 50 pounds per square foot are programmed, then selective member strengthening should be expected.*

*Section 5: The ends of the three dropped beams along gridline 6 should re-supported on new timber posts or on pilasters along a new foundation wall. Anchorage should be provided from the dropped beams to all points of support.*

UPDATE: Section 1 & 2 main level floor – Select floor joists may require reinforcement, and framing will be modified for a future stair to the basement.

Section 2: 2nd Floor – Three beam lines will be installed in order for the existing 2x8 floor joists to support occupancy loads. Certain joists may require reinforcement.

Section 3: 1st Floor, 2nd Floor, 3rd Floor, 4th Floor – The central area of the floor has openings for conveyor belts extending to the top. This area will require some reinforcement. The full length joists in good condition are

sufficient. Supporting the 4th floor the timber beam on the south end of grid 4 will require reinforcement if the floor will be used as a public space.

Section 4: The west bin floors have rotted out and will need to be replaced. These members extend under the stacked 2x6 bin walls. Sistered new members will be required and the need to be pressure treated or separated from coming into contact with the concrete. The upper floor walkway over the bins is in good condition to serve as a non-public area.

Section 5: The first floor framing has been reinforced as per the structural stabilization documents prepared by JVA.

*3.3b Roof Framing System*

*DESCRIPTION:*

*Section 1: The shed roof is framed with 2"x6" sloped rafters, spaced at 16 inches, and sheathed with horizontal board sheathing.*

*Sections 2 and 3: The gable roofs are framed with 2"x6" rafters spaced at 24 inches. The rafters are supported by three-ply 2"x8" dropped purlins and the stud walls along gridlines A and Z. At the peak, the rafters abut one another; there is no ridge board. Horizontal skip sheathing is surfaced with plywood which was apparently added after the fire. The 2x framing and skip sheathing are fire damaged.*

*Section 4: The gable roof is framed with 2"x6" rafters spaced at 24 inches. The rafters are supported by a 2x ridge board, 6"x8" dropped purlins, and the stacked plank walls along gridlines A and Z. The purlins are supported by 6"x6" posts at their ends on gridlines 3 and 4, and in two intermediate locations that align with the stacked-plank walls that divide the bins. Four lines of 2x collar ties approximately 9 feet above the fifth floor elevation are spaced at 6 feet. Horizontal skip sheathing is surfaced with corrugated sheet metal roofing. There is no ceiling and the chutes that serviced the bins remain in the open space.*

*Section 5: The shed roof is framed with 2"x8" sloped rafters spaced at 24 inches spanning north to south. The northern bay is supported by a ledger along gridline 5 and a dropped four-ply 2"x8" girder. The southern bay is supported by the dropped girder and the stud wall along gridline 6. The dropped girder is located midway between the gridlines 5 and 6 and spans in the east to west direction. It is supported by 8"x8" posts at mid-span and at its ends on gridlines A and Z. The rafters are sheathed with corrugated sheet metal roofing over horizontal skip sheathing.*

*EVALUATION:*

*The roof framing is in poor condition. In general, the rafters and purlins do not have the calculated capacity to support Code required snow load. Since the roof elevation of each building section is different, snow drift loads affect all of the roofs except in Section 3. The skip sheathing in Sections 2, 3, 4, and 5 does not provide the Code required diaphragm capacity to resist and distribute lateral loads.*

*RECOMMENDED TREATMENT:*

*Section 1: The rafters at the high end of the roof are subject to increased snow loads due to drifting and should be sistered. Since there is no accessible attic space, this work will require that either the ceiling finishes or the roof sheathing be removed to perform this strengthening work.*

*Sections 2 and 3: The roof framing and sheathing should be replaced since it is fire damaged and has inadequate capacity. The replacement framing can generally mimic the existing framing although larger framing members and/or tighter spacing will be necessary. Ridge beams will be required to eliminate rafter thrust since collar ties will interfere with the floor spaces. (The second floor diaphragm in Section 2 is several feet below the eave elevation. The sixth floor diaphragm in Section 3 does not extend to the eaves on gridlines A and Z.) One layer of plywood roof sheathing will satisfy diaphragm requirements.*

*Section 4: Selective strengthening of roof framing is required to bring the roof into conformance with Code. Member sistering and/or replacement as well as connection strengthening should be expected. Various roof sheathing, insulation, and roofing material assemblies can be developed which allow the roof structure to remain exposed if desired, provide space for insulation, and address structural diaphragm concerns.*

*Section 5: The ledger connection along gridline 5 should be repaired. This will likely require that the existing ledger be shored and jacked into position flush against the stacked-plank wall and thru-bolted at regular spacing. The rafters in the north bay are subject to snow drift loads and will require sistering. Alternatively, additional rafters could be added between existing rafters to decrease the rafter spacing. The rafters in the south bay require no treatment. The dropped girder supporting the rafters has inadequate capacity to*

*resist Code loading and should be strengthened, replaced or two additional supporting columns should be introduced. A new layer of plywood sheathing should be installed or other materials that provide diaphragm capacity can be considered.*

UPDATE: Sections 1-5 – Roof framing has been reinforced per the structural Stabilization drawings prepared by JVA.

Section 4 – the roof is sheathed only with metal corrugated roofing panels. Some diagonal bracing on the underside of the existing joists might be required. The connection of the roof between Section 3 & the walls of section 4 will require some attention. There is a double stacked bin wall on the 3rd level and a beam at these locations and they may require additional fasteners to integrate the shear walls together.

*3.4 Exterior Wall Structure*

*DESCRIPTION:*

*Sections 1, 2, 3, & 5: The exterior walls are light-framed stud walls. 2x6 studs are spaced at 16 inches and surfaced on the exterior with horizontal siding. In Section 3, intermittent 2x diagonal bracing is nailed to the inside face of the wall studs. The first level walls in Section 3 are stud infill between the existing timber beams and are stacked-plank on the third level. Many of the wall studs in Section 3 have experienced scorching due to the fire. Except in Section 1, there is no insulation between the studs and there are no finishes applied to the inside face of the studs.*

*Section 4: The exterior walls are constructed with 2x stacked planks. At the top of the walls, the planks are 2x4s. Roughly 6 feet below the top of the walls, the planks transition to 2x6s and continue to the bin floors at this width. The central bin wall that runs in the north to south direction and divides the three eastern bins from the three western bins, transitions from one wall to two walls roughly at the first floor elevation. There is crawlspace access between and below these flared walls. The lengths of the planks varies, so that splices in the plies are lapped with the plies above and below. The plies were nailed together as the wall was constructed; the nails are exposed in the deteriorated areas between Bin 5 and Bin 6. The stacked-plank plies alternately lap at the bin wall corners. Along the exterior walls, the end grain of alternating dividing wall plies are visible. In all of the bins, except Bin 6, stacked-plank sister walls exist at their bases on the interior side.*

*EVALUATION:*

*The exterior walls below grade, evaluated previously in this report, are in poor condition, The exterior walls from the first floor and above are in fair condition. The 2x6 stud walls and stacked plank walls are generally capable of resisting Code required gravity loads and out of plane wind loads. The stacked plank walls are particularly robust since they had to resist the lateral pressures imparted by the stored grain or silage.*

*However, some areas of localized deficiencies do exist. In the upper level of Section 3, the wall studs along gridlines A and Z span approximately 11 feet from the fourth floor to the roof eave. The top of the stud wall is not braced where it terminates and supports the rafters since the sixth floor does not extend to the east and west walls.*

*In Section 5, the wall studs along gridlines A and Z vary in height from approximately 12 feet to 20 feet. The taller studs to the north do not meet current Code for resistance to out-of-plane wind loads.*

*In Section 4, the stacked-plank bin walls have localized areas of deterioration described elsewhere in this report. This deterioration is almost entirely isolated to portions of the walls currently below grade. The sister walls in the bases of the bins are believed to have been installed sometime after the original construction to address either wood decay or increased lateral earth pressures.*

*The existing walls also must resist in-plane wind and seismic loads and transmit those loads to the building foundations. The stacked-plank walls have the capacity to resist these loads. However, the horizontal siding on the stud walls and the intermittent 2x diagonal bracing in Section 3, are generally inadequate to resist the in-plane Code prescribed wind and seismic forces. Wall chords and anchorage are also insufficient to resist overturning forces. Drag elements along the interfaces with the stacked-plank walls along gridlines 4 and 5 are undersized to allow load sharing between Section 3, 4, and 5.*

*RECOMMENDED TREATMENT:*

*In Section 3, the top of the stud walls along gridlines A, Z, and 3 should be braced. This can be accomplished by adding strongbacks to the inside face of studs at the top of the wall or extending the sixth floor framing and sheathing to meet the walls at the east and west sides of the building. Studs that have experienced pillowing or alligatoring due to the fire should be removed and replaced.*
*In Section 5, the tall studs along gridlines A and Z should be sistered with new studs. Because the studs are not interrupted by an intermediate plate, these sisters can be easily installed.*

*In Section 4, the deteriorated areas of stacked-plank construction should be removed and replaced as noted elsewhere in this report.*

*In order to bring the existing lateral force resisting system into compliance with current Code, alterations will need to be made to the existing stud walls. These alterations would include installing a layer of plywood sheathing on a portion of all of the perimeter walls and the walls along gridlines 2 and 3. This sheathing would typically be installed on the inside face of the studs and be concealed by new finishes. Blocking between studs will need to be installed at plywood panel edges in heavily loaded walls. Stud packs and holdowns anchors will be required at the ends of all designated shear walls. Footing augmentation should be expected at the ends of all designated shear walls to resist overturning forces. The selective addition of collector and drag elements should also be anticipated.*

*Once the final use of the building has been determined, the required alterations to the lateral force resisting system can be developed. Not all of the walls in the building require the alterations noted in the paragraph above, just those portions of walls designated by the designers to be recruited to work in the lateral force resisting system. Segments of designated shear wall should be expected along gridlines A, Z, 2, 3, and 6. A shear wall should be installed on the first level along gridline 3 since currently there is no line of resistance at this location and this is clearly a weak link in the existing system. Since the stacked-plank walls in Section 4 have considerable in-plane lateral capacity, they can be employed to resist portions of the loads which might otherwise be resisted by new sheathed walls in Sections 3 and 5. This will require strengthening of the connections to the floor and roof diaphragms along gridlines 4 and 5. The amount of load redirected to the stacked-plank walls will need to be carefully balanced with desire to minimize the overturning forces induced in the stacked-plank walls that would trigger adding holdown anchorage to the bin walls and footing underpinning beneath the bins.*

*These modifications all potentially impact the appearance of the building and would be carefully designed to minimize that impact. There are numerous other solutions which can be explored to meet Code and minimize the impact to the historic fabric of the building. Diagonal or cross bracing with wood or steel rods may prove to be a more desirable solution than sheathing walls in terms of both cost and aesthetic impact.*

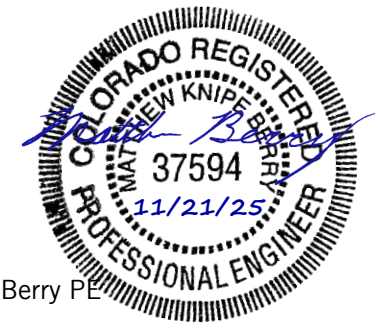
UPDATE: Sections 1 & 2 – OSB Shear walls called out in the stabilization drawings have not yet been installed. Hold downs for the shear walls are mostly in place. This shall be installed. Certain walls that are not already insulated with foam that are designated shear walls may be braced with diagonal braces.

Section 3 – The wall along grid A is designated as a shear wall, but it is not desirable to cover the un-insulated wall studs. The wall lines at sections 1,2 and the bin walls of section 4 will be used. Upper walls of section 3 will require diagonal braces shown in the stabilization documents on grid 3, and the upper gable end rafters will require steel brackets to transfer their loads to the bin walls on grid 4. The 2nd level framing on grid 3 will be connected to a steel braced frame in the boxcar addition. There is a hinge point in the upper level of section 3 outside the 4the level where the wall studs are not continuous from its 3rd floor to the upper roof past that 4th level. Currently there is an LVL brace spanning from wall to wall at this location. This is not desired. A steel wind girt may need to be added to replace these braces.

Section 4 – The exterior bin walls have been repaired. The top of the bin walls along grid 4 where it connects to the exterior gable end walls of Section 3 & 4 is dropped approximately three inches from the bottom of the wall studs. It is unclear if this is settlement, or if the top courses of wood were removed. The bin walls may need to be lifted upward when the floors below are replaced or studs added to the top courses to re-engage the studs.

It is a pleasure to work with you on this project and we look forward to its successful completion. Please feel free to contact our office if you have any questions or if we may be of any further assistance regarding these matters.

Sincerely,




Matthew K. Berry PE
Principal

| Attachment 8. Analysis of Qualifying Extraordinary Circumstances Grant Requests | | | |
|---|---|---|---|
| **Requests** | | **Analysis** | |
| Description | Amount | Preservation, Restoration, Rehabilitation | Eligible Expense |
| **Site** | | | |
| 1. Final site grading (includes excavation and backfill for foundation insultation/damproofing) | $117,694 | Preservation | Yes |
| 2. New water service for fire sprinklers | $128,836 | Rehabilitation | Yes |
| 3. New sanitary sewer service | $76,102 | Rehabilitation | Yes |
| **Foundation** | | | |
| 4. Granular backfill at all crawlspace areas (hand placed over vapor barrier) | $13,101 | Preservation | Yes |
| 5. Sump to drain at scale pit (Including plumbing equipment) | $74,627 | Rehabilitation | Yes |
| 6. Replace/reinforce section of wood foundation wall at Section 1 | | Preservation | Yes |
| 7. Complete miscellaneous foundation construction in areas not previously addressed in stabilization phase. | | Preservation | Yes |
| **Building Structural System** | | | |
| 8. First floor: Remove abandoned stairs; re-frame floor around stair opening at Section 1 and 2 - Reframe for new stairs as indicated | $103,965 | N/A | No |
| 9. At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge | | Preservation | Yes |

| | | | |
|---|---|---|---|
| 10. Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure that provides lateral bracing for the building. | | Preservation | Yes |
| ***All Sections; Lateral Force Resisting System*** | | | |
| 11. Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation | $32,040 | Preservation | Yes |
| 12. Miscellaneous drag strut and collector elements as indicated Will drag some force into existing bin walls in order to minimize number of new wood shear walls. | | Preservation | Yes |
| ***All Sections; Floor framing and wall framing at all sections*** | | | |
| 13. Repair, re-frame, or replace percentage of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc. | $279,920 | Preservation | Yes |
| 14. Sister or replace floor framing having grade limiting size knots or slope | | Preservation | Yes |
| 15. Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated | | Preservation | Yes |
| 16. Remove and replace structural elements affected by previous fire damage (to be reviewed on site with structural engineer and architect) | | Preservation | Yes |
| 17. New structural steel elements for reinforcing structure | $254,395 | Preservation | Yes |
| ***Restoration of wagon ramp, porte cochere & boardwalk*** | | | |
| 18. Reconstruction of original Porte Cochere wall and roof to cover wagon ramp | $109,887 | Restoration | Yes |
| 19. Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp | | Restoration | Yes |

| | | | |
|---|---|---|---|
| 20. Reconstruct wood boardwalk along west side of building with stairs on each end. Add railings for safety where required. | | Restoration | Yes |
| 21. Disassemble scales, move and reassemble scale equipment and infill excavated scale pit at existing site | $20,000 | Restoration | Yes |
| 22. Miscellaneous structural repairs and unknown conditions | $30,000 | N/A | No |
| **Exterior Wall Construction & Envelope** | | | |
| 23. Selective repair or replacement of severely damaged wood shiplap siding. Additional siding replacement as required | $131,562 | Preservation | Yes |
| 24. Selective repair or replacement of severely damaged wood tongue and groove siding | | Preservation | Yes |
| 25. Repaint exterior of building including moderate preparation and some siding repair remains. | | Restoration | Yes |
| 26. Paint new boardwalk, porte cochere, and wagon ramp) with two pain coats | | Restoration | Yes |
| 27. Code compliant wall and roof/attic insulation enclosing conditioned spaces | $79,764 | N/A | Yes |
| **Envelope - Roofing & Waterproofing** | | | |
| | | | |
| 28. New metal roofing, flashings gutters & downspouts for new (Porte Cochere only) | $13,319 | Restoration | Yes |
| 29. Membrane roofing and flashing at wagon ramp over basement space | $3,897 | Restoration | Yes |
| 30. Below Grade Damproofing for entire perimeter of existing building | $6,245 | Preservation | Yes |
| 31. Reconfigure gutters as required for proper drainage, discharge to rain gardens for water quality | $24,230 | Preservation | Yes |
| **Windows and Doors** | | | |
| 32. Replace (7) eight lite double hung wood windows and frames to match original. | $74,163 | Restoration | Yes |
| 33. Replace (4) two lite double hung windows. | | Restoration | Yes |

| | | | |
|---|---|---|---|
| 34. Repair (2) fixed four lite windows (2'x2') | | Restoration | Yes |
| 35. Reconstruct existing eight lite double hung wood window | | Restoration | Yes |
| 36. Replace 50% of the wood on the sliding doors (6'x7'). | $26,113 | Restoration | Yes |
| 37. Sand and refinish 4 panel wood door, refurbish hardware non-operating. | | Restoration | Yes |
| 38. Replace 50% of the wood boards composing exterior doors (3'x7'). | | Restoration | Yes |
| 39. Remove, wire brush and oil all hardware that remains. | | Restoration | Yes |
| 40. Install new hardware to match historic as closely as possible. | | Restoration | Yes |
| 41. New barn door rollers and track for sliding door to match original | | Restoration | Yes |
| **Interior Rehabilitation (Code, Safety, and Structure)** | | | |
| 42. Code compliant stairs from first to second level and from first level to basement in similar location to existing. | $84,223 | Rehabilitation | No |
| 43. Replace floorboard subfloor | | | No |
| 44. Remove non-compliant access ladders (ship ladders). | | | No |
| 45. Media blast wood surfaces in the building | | | No |
| 46. Treat charred wall areas to avoid dusting for safety. | | | No |
| **Mechanical Systems and Fire Protection** | | | |
| 47. Crawlspace ventilation to mitigate moisture and potential wood deterioration and mold. | $26,724 | Rehabilitation | Yes |
| 48. Fire sprinkler system | $136,226 | Rehabilitation | Yes |
| 49. Dry system to avoid freezing | | Rehabilitation | Yes |
| 50. Fire alarm system | | Rehabilitation | Yes |
| 51. Plumbing system rough-in (no interior tenant finish) | $269,929 | Rehabilitation | Yes |
| 52. Electric heat pump system | $187,417 | Rehabilitation | Yes |
| **Electrical Systems** | | | |
| 53. Electric Main Switchgear and Service to Transformer | $ 370,482 | Rehabilitation | Yes |

| | | | |
|---|---|---|---|
| 54. Branch Circuits, Panels, Outlets & Lighting | | Rehabilitation | Yes |
| 55. Xcel New Service Connection | $50,000 | Rehabilitation | Yes |
| **Hazardous Material Mitigation** | | | |
| 56. Follow up testing and mitigation allowance due to time of vacancy | $18,000 | Rehabilitation | Yes |
| **Miscellaneous Soft Costs** | | | |
| 57. 10% Owner's Construction Contingency for Hidden Conditions & Unforeseen Events | $274,286 | N/A | No |
| 58. Building Permit & Plan Review Fees | $35,657 | N/A | No |
| 59. Taxes, other fees, etc. paid at permit | $90,514 | N/A | No |
| 60. Builder's Risk Insurance - Carried by Owner | $76,800 | N/A | No |
| 61. Engineering Fees subsequent to initial stabilization | $109,714 | Preservation | Yes |
| 62. Architecture Fees subsequent to initial stabilization | $174,857 | Preservation | Yes |
| 63. Geotechnical Engineering Fees & Construction Phase Material Testing | $5,368 | Preservation | Yes |
| 64. Wood Scientist to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | $1,000 | Restoration | Yes |
| 65. Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive re-use | $2,000 | Preservation | Yes |
| **Total Project Cost from Applicant** | $3,513,058 | | |
| **Adjusted Eligible Expenses** | $2,921,578 | Not eligible:<br>• Fees ($35,657)<br>• Taxes ($90,514)<br>• Builders Risk Insurance ($76,800)<br>• Interior Rehabilitation ($84,223)<br>• Miscellaneous structure repairs and unknown conditions ($30,000) | |

| | | |
|---|---|---|
| | | • Owners Contingency ($274,286)<br><br>Total ineligible: $591,480 |
| **Half of Eligible Project Cost** | $1,460,789 | |
| **Total Requested** | $1,475,000 | |
| **Total Recommended Grant** | $1,460,789 | |

# PROJECT INFORMATION

## LOUISVILLE HISTORIC GRAIN ELEVATOR
REHABILITATION/RENOVATION & ADDITION
CONSTRUCTION PHASE 5.0 – SECTION 1–5


**OWNER:** LOUISVILLE MILL SITE LLC*
J. Erik Hartronft
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Louisville, Colorado 80027
P (303) 673-9304 F (303) 673-9319

Ross Bowdey
ross@foxpropertymgmt.com
P (720) 583-4369

**ARCHITECT:** HARTRONFT ASSOCIATES, P.C.
J. Erik Hartronft, AIA
erik@hapcdesign.com
950 Spruce Street, Suite 2c
Louisville, Colorado 80027
P (303) 673-9304 F (303) 673-9319

**STRUCTURAL:** ASCENT GROUP, INC
Matthew K. Berry, P.E.
m.berry@ascentgrp.com
1711 Pearl Street, Suite 300
Boulder, Colorado 80302
P (303) 865-4942

**MEP:** GIVEN & ASSOCIATES, INC.
Brett Boleski, P.E.
brettb@givenandassociates.com
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Lakewood, Colorado 80228
P (720) 638-6588 F (303) 716-1272

**CIVIL:** SITEWORKS
Dash Ash, P.E.
dash@siteworksstudio.com
2101 Pearl Street
Boulder, Colorado 80302
P (303) 918-7859


SITE AREA – LOT 2: 9,122 SF = .21 ACRE
SITE AREA – OUTLOT A: 6,841 SF = .16 ACRE

IBC AREA CALCULATION:

| | |
|---|---|
| BASEMENT FLOOR AREA: | 1,216 SF |
| FIRST FLOOR FLOOR AREA (INCL. BINS): | 3,446 SF |
| SECOND FLOOR FLOOR AREA (INCL. MEZZ.): | 586 SF |
| TOTAL IBC FLOOR AREA: | 5,248 SF |

# PROJECT DATA AND CODE INFO.

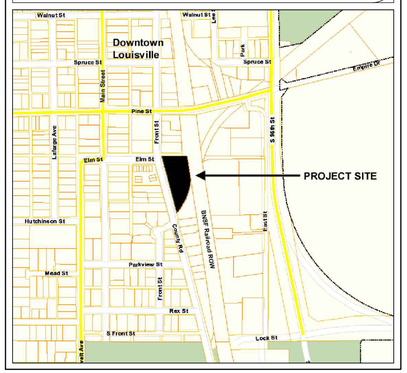
| | |
|---|---|
| PROJECT DESCRIPTION: | Rehabilitation and adaptive re–use of an existing historic wood–framed grain elevator. The Scope of Work includes renovation of the existing structure and reconstruction of the original porte cochere and related walkways, ramps etc. west of Grid C and new construction of a one–story addition, east of Grid A, and sitework. Construction shall be complete for occupancy by the tenant 'The Grain Yard'. |
| ZONING: | CB – The building use shall be #31 Indoor Eating and Drinking Establishments with SRU for Outoor Sales. |
| BUILDING CODE: | 2024 International Codes (IBC, IMC, IPC, IFC, IECC, IEBC, IPMC)<br>2023 National Electrical Code (NEC)<br>All as amended by City of Louisville as well as LMC Ch15<br><br>Note – The existing building may not comply with all provisions of current building codes. New construction shall be required to be in compliance with applicable codes. The occupied areas will be upgraded to comply with life safety and accessibility codes. The existing structure will be reinforced to meet current structural provisions of the Code for the proposed change of use and occupancy, (See Struct. Drawings). Refer to full Building Code Summary on subsequent drawings herein. |
| IBC FLOOR AREA:<br>SPRINKLERED AREA: | TOTAL = 5,248 sf<br>TOTAL = 10,978 sf |
| OCCUPANCY CLASSIFICATION: | EXISTING = U – Utility Occupancy<br>PROPOSED = A2 – Assembly (+possible B for museum) |
| CONSTRUCTION TYPE: | EXISTING = Type V–B (to be Fully Sprinklered) |
| BUILDING HEIGHT: | EXISTING = 3 Stories, 49' +/– |
| OCCUPANT LOAD: | (See Building Code Summary) |
| FIRE SEPARATION: | None |
| PUD: | PUD–000557–2025 |

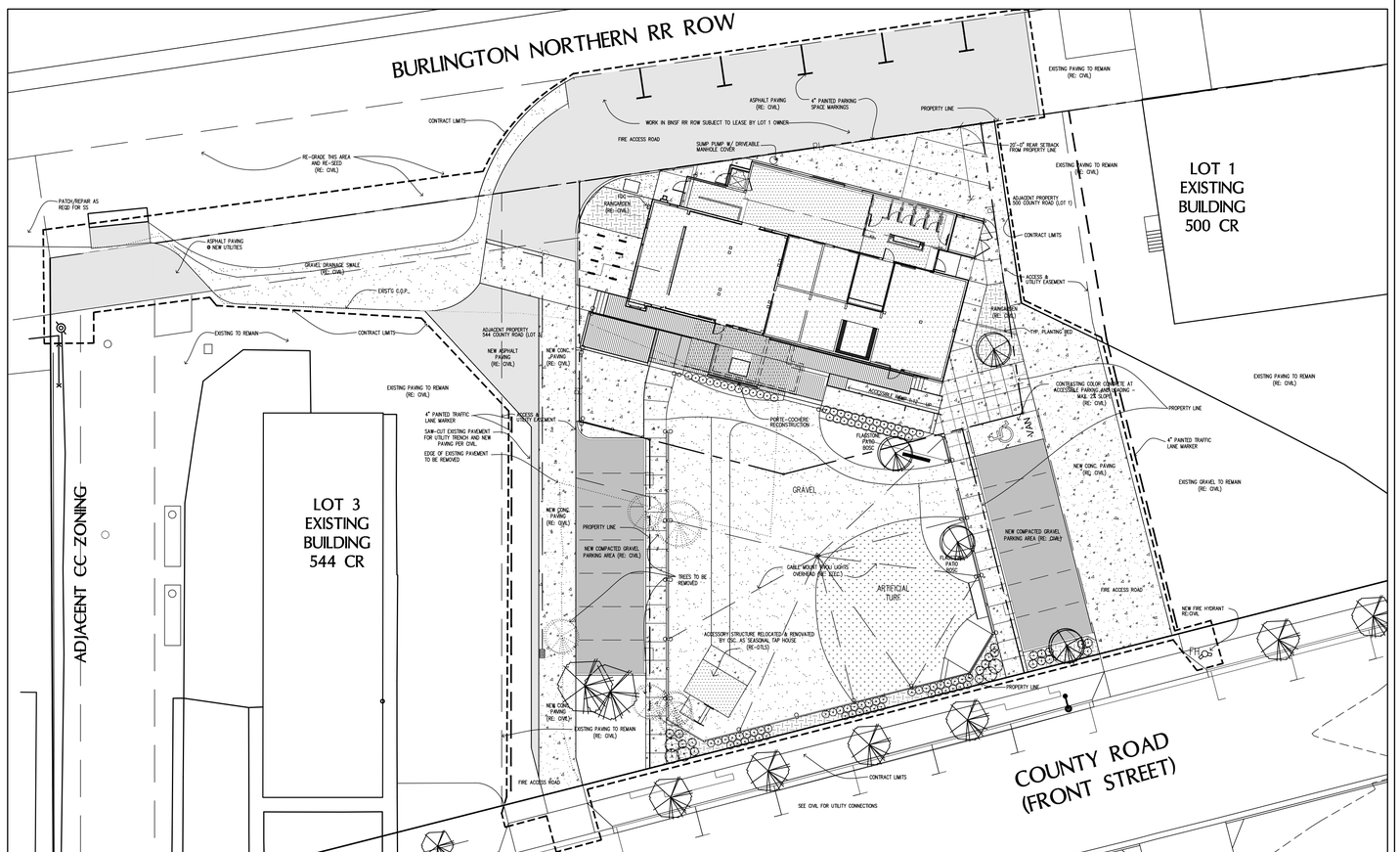
# HISTORIC VIEW OF GRAIN ELEVATOR FROM THE NORTHWEST




Carnegie Branch Library for Local History / Boulder Historical Society Collection

# VICINITY MAP N.T.S.




A1 / A010 OVERALL SITE PLAN – LOUISVILLE MILL SITE SUBDIVISION – PROJECT SITE: LOT 2 AND OUTLOT A

1" = 20'

NORTH

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| C-103 | Utility Plan |
| C-201 | Stormwater Management Plan |
| C-301 | Civil Details |
| C-302 | Civil Details |
| C-303 | Civil Details |
| C-304 | Civil Details |
| C-305 | Civil Details |
| C-306 | Civil Details |
| IR100 | Irrigation Plan |
| IR101 | Irrigation Details |
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| A017 | Code Analysis |
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| A050 | Wall Types & Finish Tags |
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| E2.05 | Sixth Floor Plan - Lighting |
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| M1.02 | First Floor Plan - Mechanical |
| M1.03 | Second/Third Floor Plan - Mechanical |
| M1.04 | Fourth/Fifth Floor Plan - Mechanical |
| M1.05 | Sixth Floor Plan - Mechanical |
| M1.06 | Roof Plan - Mechanical |
| M1.07 | Tap House Plan - Mechanical |
| M5.01 | Mechanical Details |
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CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC


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STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
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# FINAL ENGINEERING PLANS (FEP)

FOR

LOUISVILLE MILL SITE REDEVELOPMENT

540 COUNTY ROAD

LOUISVILLE, COLORADO

## GENERAL NOTES

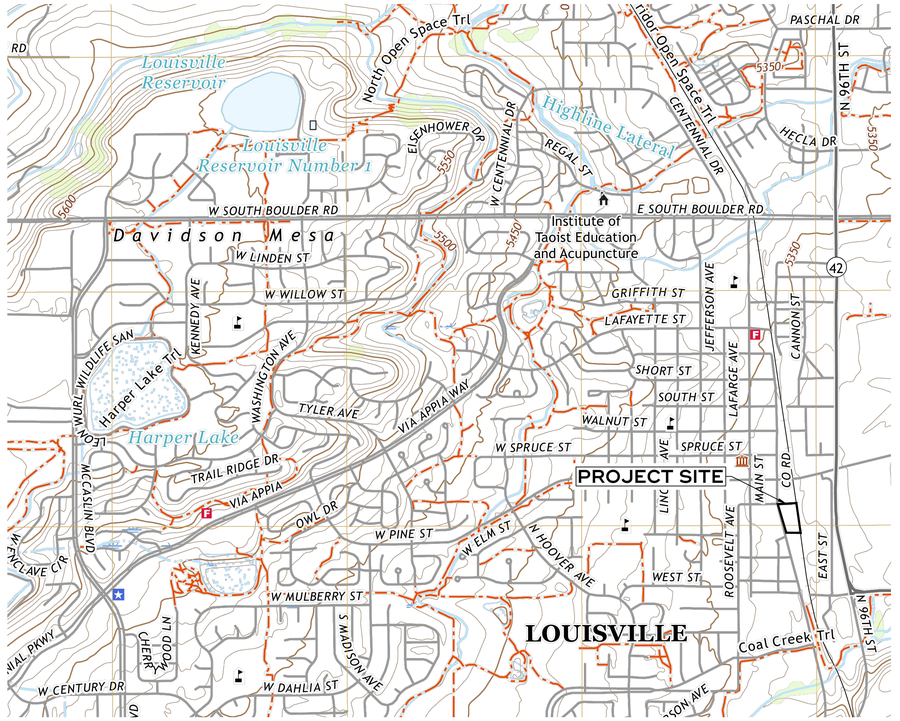
(APPLIES TO ALL SHEETS)

1. BENCHMARK INFORMATION: CITY OF LOUISVILLE LP5, FOUND 2.5" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E ¼ CORNER OF SECTION 8 ELEVATION=5349.49' (NAVD88). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
2. THIS DRAWING IS BASED ON A SURVEY BY SITESURVEYS, LLC. ON 08/26/2025.
3. FLOOD INFORMATION: ACCORDING TO FEMA FLOOD INSURANCE MAP NO. 08013C0582K DATED 08/15/2019. THE NORTH OF OUTLOT A IS LOCATED IN ZONE X (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREA LESS THAN 1 SQUARE MILE. THE ENTIRETY OF LOT 2 IS OUTSIDE OF ANY MAPPED FLOODPLAIN.
4. ALL CUT AND FILL SLOPES IN SHALL BE MINIMUM OF 1.5:1. CUT SLOPES IN COMPETENT BEDROCK SHALL BE 0.5:1.
5. GRADE AWAY FROM BUILDINGS AT A MINIMUM 10% SLOPE IN THE FIRST TEN FEET AT LANDSCAPE AREAS AND AT A MINIMUM 2% SLOPE IN THE FIRST TEN FEET AT IMPERVIOUS AREAS, EXCEPT AS NOTED.
6. FOUNDATION HEIGHT SHALL BE RAISED TO A MINIMUM OF 8" ABOVE EXISTING OR PROPOSED GRADE AT EXTERIOR OF BUILDING.
7. ALL PROPOSED STORM CULVERTS AND FLARED END SECTIONS SHALL BE REINFORCED CONCRETE PIPE (RCP) OR APPROVED EQUAL. ALL CULVERTS AND RIP RAP PROTECTION WILL BE DESIGNED TO CONVEY THE 10 YEAR STORM.
8. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE FEATURES. REFERENCE FINAL ARCHITECTURAL AND LANDSCAPE PLANS FOR FINAL DESIGN LOCATION AND HEIGHTS OF ANY PROPOSED RETAINING WALLS.
9. LAYOUT OF LANDSCAPING AND OTHER ARCHITECTURAL FEATURES MAY VARY FROM THIS PLAN BASED ON FINAL SITE DESIGN AND FROM SITE CONDITIONS.
10. ALL CONSTRUCTION SHALL CONFORM TO THE LOUISVILLE DESIGN AND CONSTRUCTION STANDARDS.

## LEGAL DESCRIPTION

LOT 2 LOUISVILLE MILL SITE

OUTLOT A LOUISVILLE MILL SITE




## VICINITY MAP

SCALE: 1" = 2000'

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| CIVIL DETAILS | C-306 |


## LEGEND

- EXISTING CONTOUR (5325)
- PROPOSED CONTOUR — ADD 5300 TO ALL CONTOURS (5)
- PROPOSED SPOT ELEVATION — ADD 5300 TO ALL SPOT ELEVATIONS (X 25.8)
- EXISTING SPOT ELEVATION (x 25.8)
- PROPOSED FLOW DIRECTION
- HISTORIC SHEET FLOW
- PROPOSED SUB-BASIN DESIGNATION (A / 1)
- AREA IN ACRES
- PROPOSED BASIN BOUNDARY
- INLET PROTECTION (IP)
- CULVERT INLET PROTECTION (CIP)
- SEDIMENT CONTROL LOG (SCL)
- VEHICLE TRACKING CONTROL (VTC)
- LIMITS OF CONSTRUCTION (LOC)
- CONCRETE WASHOUT AREA (CWA)
- EXISTING SEWER CLEANOUT
- EXISTING WATER METER
- EXISTING STORM MANHOLE
- EXISTING WATER VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FIRE HYDRANT
- EXISTING FENCE (X)
- EXISTING OVERHEAD POWER LINE (Po)
- EXISTING SANITARY SEWER W/MANHOLE (SS)
- EXISTING WATER W/FIRE HYDRANT (W)
- EXISTING STORM SEWER W/MANHOLE (ST)
- PROPOSED WATER W/FIRE HYDRANT (W)
- PROPOSED SANITARY SEWER SERVICE (SS)
- PROPOSED GAS SERVICE (G)
- PROPOSED WATER METER


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Louisville Mill Site LLC / Louisville's Living Room LLC

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DONALD P. ASH
01/26/26
36045
PROFESSIONAL ENGINEER

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: DRS
CHECKED BY: DPA
REVISIONS:
1 01/09/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
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COVER SHEET

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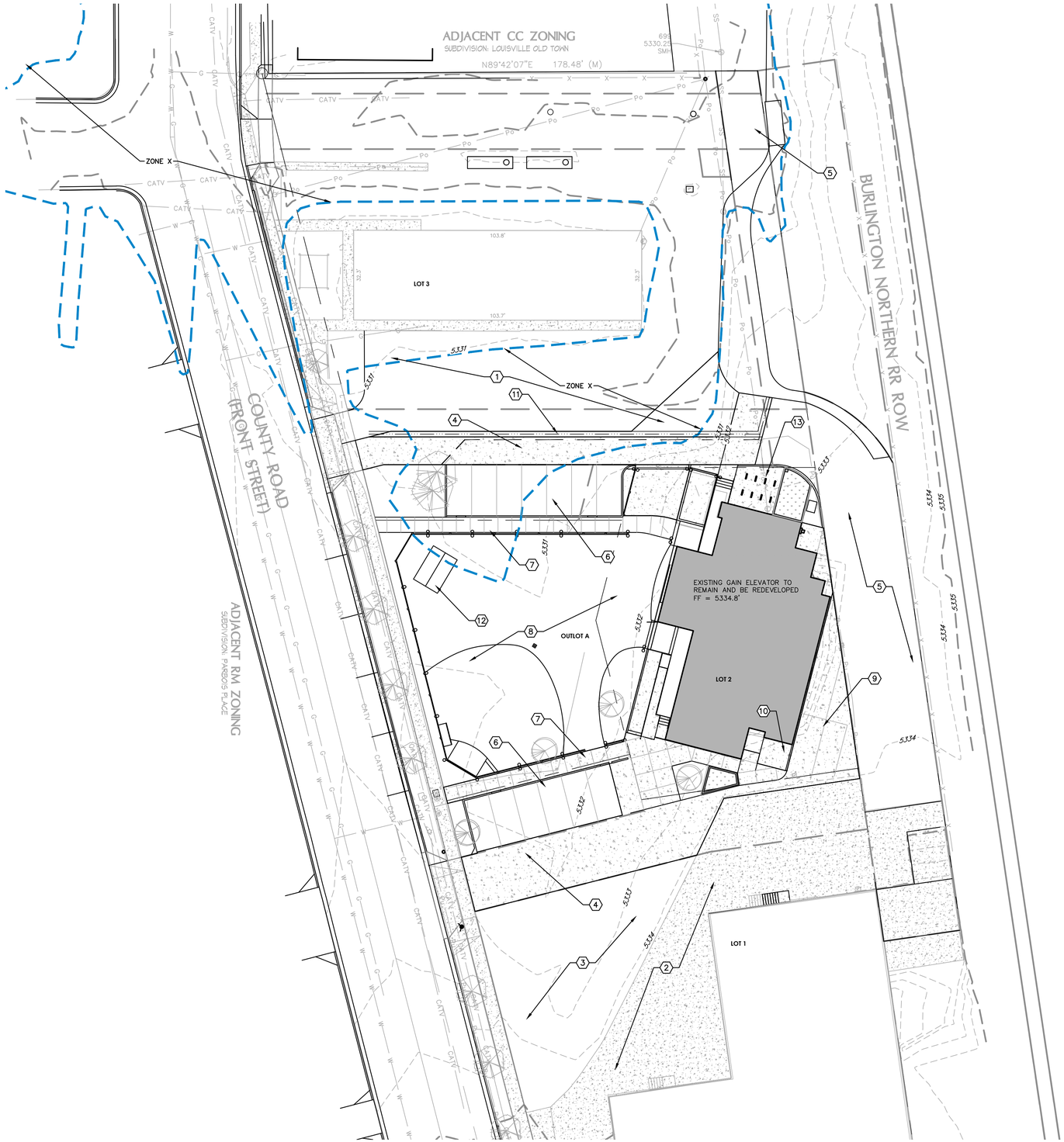


## KEYED NOTES ①

1. EXISTING ASPHALT PARKING SURFACE TO REMAIN.
2. EXISTING CONCRETE PARKING SURFACE TO REMAIN.
3. EXISTING GRAVEL PARKING TO REMAIN.
4. PROPOSED CONCRETE SURFACE.
5. PROPOSED ASPHALT SURFACE.
6. PROPOSED GRAVEL PARKING SURFACE.
7. PROPOSED CONCRETE SIDEWALK.
8. PROPOSED GRAVEL COURTYARD.
9. PROPOSED CONCRETE PARKING SPACES.
10. PROPOSED TRASH AND RECYCLING.
11. PROPOSED CONCRETE DRAINAGE PAN.
12. PROPOSED SEASONAL TAP HOUSE.
13. PROPOSED BICYCLE PARKING.

Scale: 1" = 20'
0 10 20 40

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PROJECT # 1252.50
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REVISIONS:
01/16/26 ADDENDUM 1
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SITE PLAN

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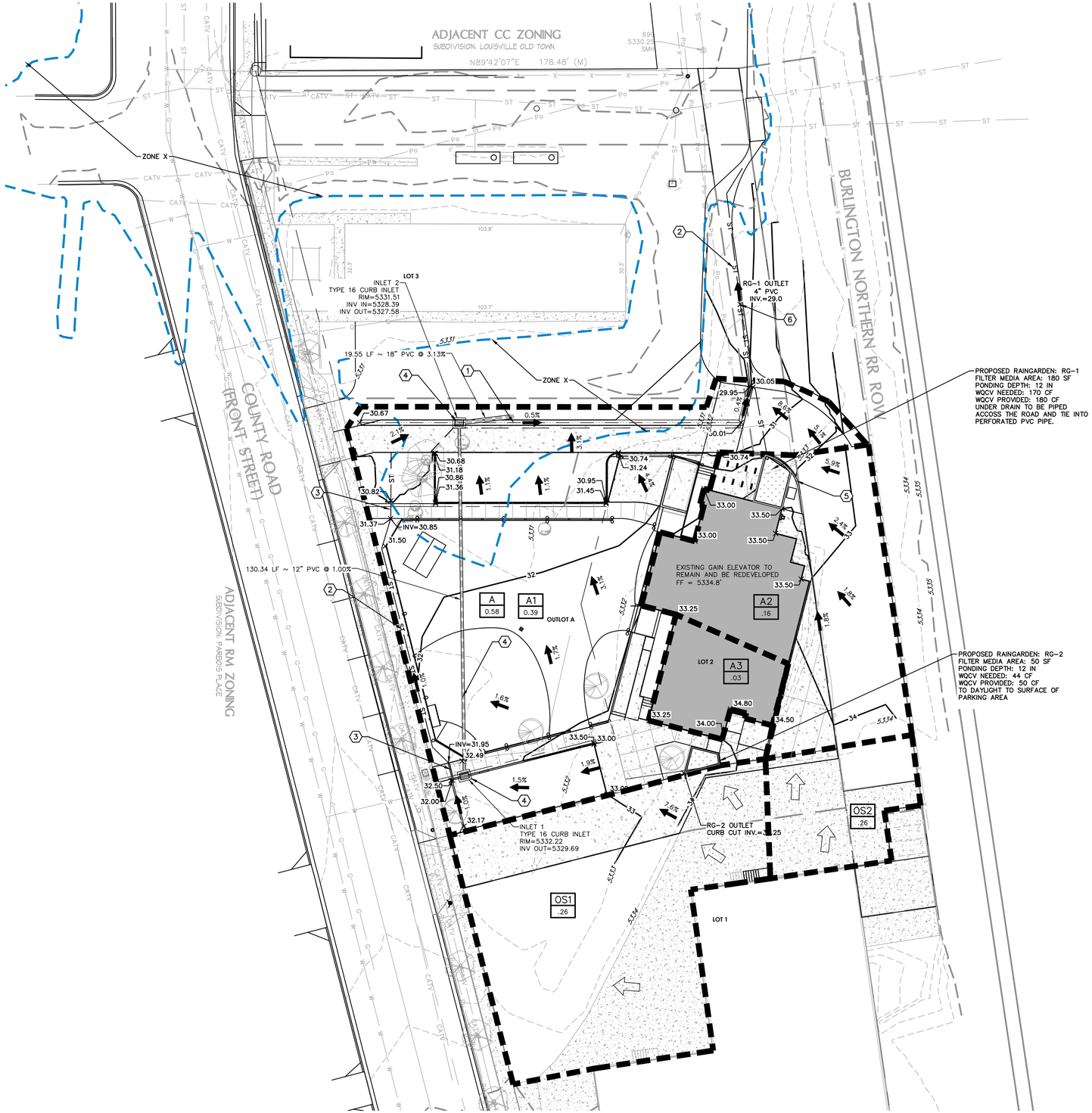


## LEGEND

- PROPOSED CONTOUR — ADD 5300 TO ALL CONTOURS
- X 25.8 — PROPOSED SPOT ELEVATION — ADD 5300 TO ALL SPOT ELEVATIONS
- X 25.8 — EXISTING SPOT ELEVATION
- PROPOSED FLOW DIRECTION
- HISTORIC SHEET FLOW
- A / 1 — PROPOSED SUB-BASIN DESIGNATION / AREA IN ACRES
- PROPOSED BASIN BOUNDARY

## GRADING NOTES

1. FLOOD INFORMATION: ACCORDING TO FEMA FLOOD INSURANCE MAP NO. 08013C0582K DATED 08/15/2019, THE NORTH OF OUTLOT A IS LOCATED IN ZONE X (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREA LESS THAN 1 SQUARE MILE. THE ENTIRETY OF LOT 2 IS OUTSIDE OF ANY MAPPED FLOODPLAIN.
2. BENCHMARK INFORMATION: CITY OF LOUISVILLE LP5, FOUND 2.5" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E ¼ CORNER OF SECTION 8 ELEVATION=5349.49' (NAVD88). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
3. THE LOCATION OF THE ABOVE GROUND UTILITIES SHOWN HEREON ARE BASED ON THE FIELD SURVEY BY SITESURVEYS LLC DATED 08/26/2025. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON SAID SURVEY AND INFORMATION PROVIDED BY OTHERS (WHICH MAY INCLUDE THE UTILITY OWNER OR UTILITY LOCATING SERVICES). SITEWORKS, LLC. IS NOT RESPONSIBLE FOR UTILITY INFORMATION PROVIDED BY OTHERS. SITEWORKS, LLC. RECOMMENDS THAT THE LOCATION OF THE UTILITIES BE FIELD VERIFIED PRIOR TO ANY DIGGING ON, OR ADJACENT TO THE SUBJECT PROPERTY.

## KEYED NOTES

1. PROPOSED 2' CONCRETE SWALE.
2. PROPOSED 4" PERFORATED PVC PIPE BURIED UNDER GRAVEL PLANTING AREA. PIPE TO DAYLIGHT ON NORTH SIDE INTO CONCRETE PAN.
3. PROPOSED 6" SIDEWALK CHASE.
4. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPEMENT. STEEL COVER TO GO OVER STORM SEWER INLETS TO PREVENT ANY DRAINAGE UNTIL FUTURE DEVELOPMENT. STUB FUTURE STORM PIPE PAST CONCRETE DRIVE LANE AND CAP THE END OF THE PIPE.
5. PROPOSED 12" CURB CUT TO ALLOW RUNOFF TO DRAIN INTO RAINGARDEN THROUGH SLOTTED CURB.
6. PROPOSED RAINGARDEN OUTLET PIPE TO TIE INTO 4" PERFORATED PVC PIPE.

Scale: 1" = 20'
0 10 20 40

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Louisville Mill Site LLC / Louisville's Living Room LLC

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DONALD R. ASH
01/26/26
36045
PROFESSIONAL ENGINEER

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2 CMC/DR ADDENDUM 2
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GRADING & DRAINAGE PLAN

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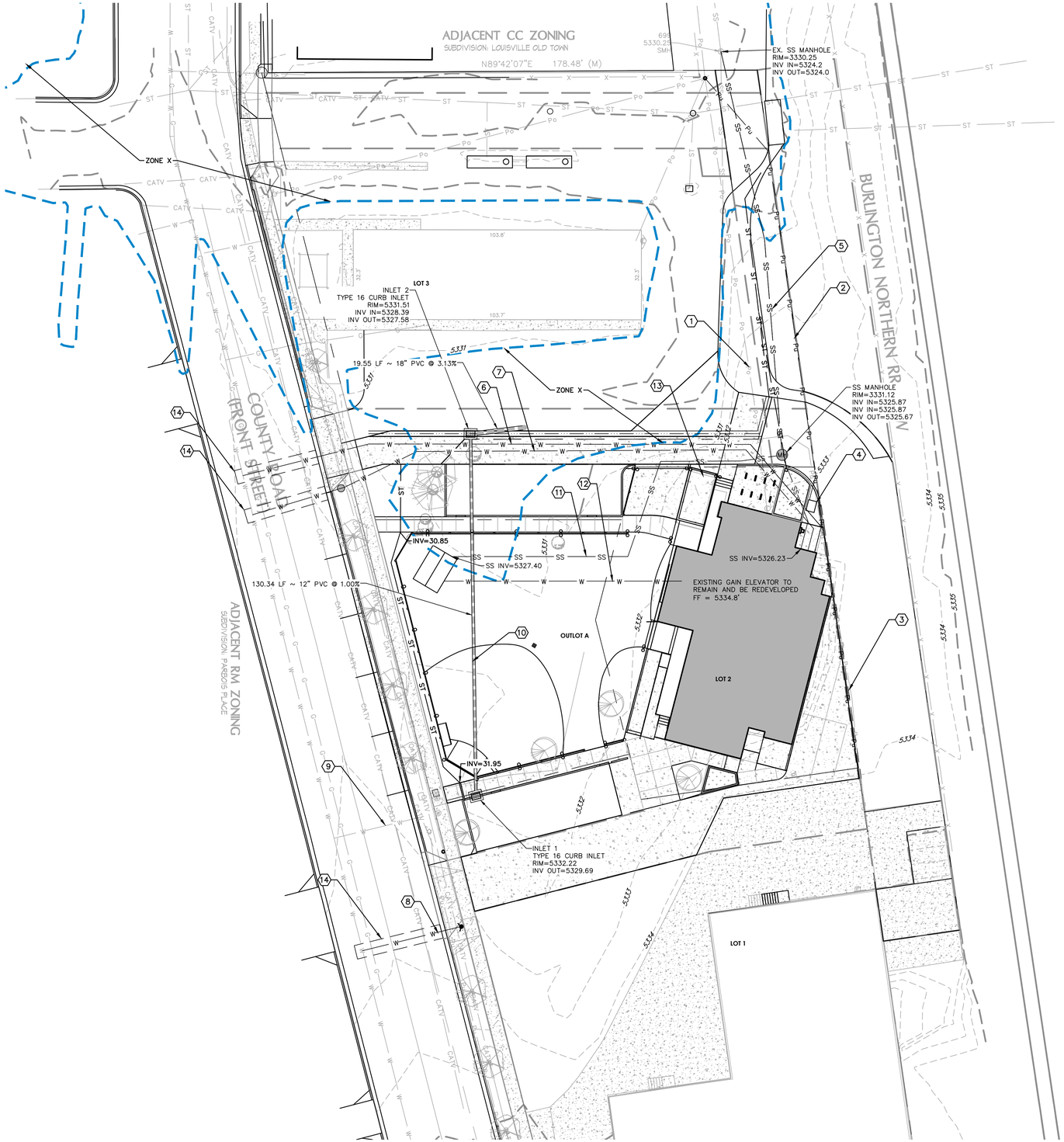


## LEGEND

- EXISTING CONTOUR
- EXISTING SEWER CLEANOUT
- EXISTING WATER METER
- EXISTING STORM MANHOLE
- EXISTING WATER VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- EXISTING FIRE HYDRANT
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING SANITARY SEWER W/MANHOLE
- EXISTING WATER W/FIRE HYDRANT
- EXISTING STORM SEWER W/MANHOLE
- PROPOSED WATER W/FIRE HYDRANT
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED GAS SERVICE
- PROPOSED WATER METER

## KEYED NOTES ①

1. EXISTING OVERHEAD ELECTRIC TO BE REMOVED.
2. PROPOSED UNDERGROUND ELECTRIC. TO CONNECT TO LOT 2 TRANSFORMER
3. PROVIDE 8" SCHEDULE 80 PVC SLEEVE ACROSS EAST SIDE OF LOT 2 FOR LOT 1 ELECTRICAL SERVICE.
4. PROPOSED TRANSFORMER.
5. PROPOSED 6" SANITARY SEWER SERVICE AT 1%.
6. PROPOSED 4" FIRE SERVICE.
7. PROPOSED 1" DOMESTIC SERVICE WITH METER PIT.
8. PROPOSED 6" FIRE HYDRANT LINE.
9. EXISTING 3/4" IRRIGATION SERVICE WITH METER PIT TO REMAIN.
10. PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPEMENT. STEEL COVER TO GO OVER SEWER INLETS TO PREVENT ANY DRAINAGE UNTIL FUTURE DEVELOPMENT. STUB FUTURE STORM PIPE PAST CONCRETE DRIVE LANE.
11. PROPOSED 6" SANITARY SEWER SERVICE TO CONNECT TO TAP HOUSE.
12. PROPOSED 1" DOMESTIC SERVICE TO CONNECT TO TAP HOUSE.
13. PROPOSED SUMP PUMP TO DAYLIGHT AND DRAIN INTO GRAVEL SWALE.
14. ASPHALT SAW CUT EDGE. 2.5' OFFSET FROM PROPOSED WATER SERVICE.

Scale: 1" = 20'
0 10 20 40


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UTILITY PLAN

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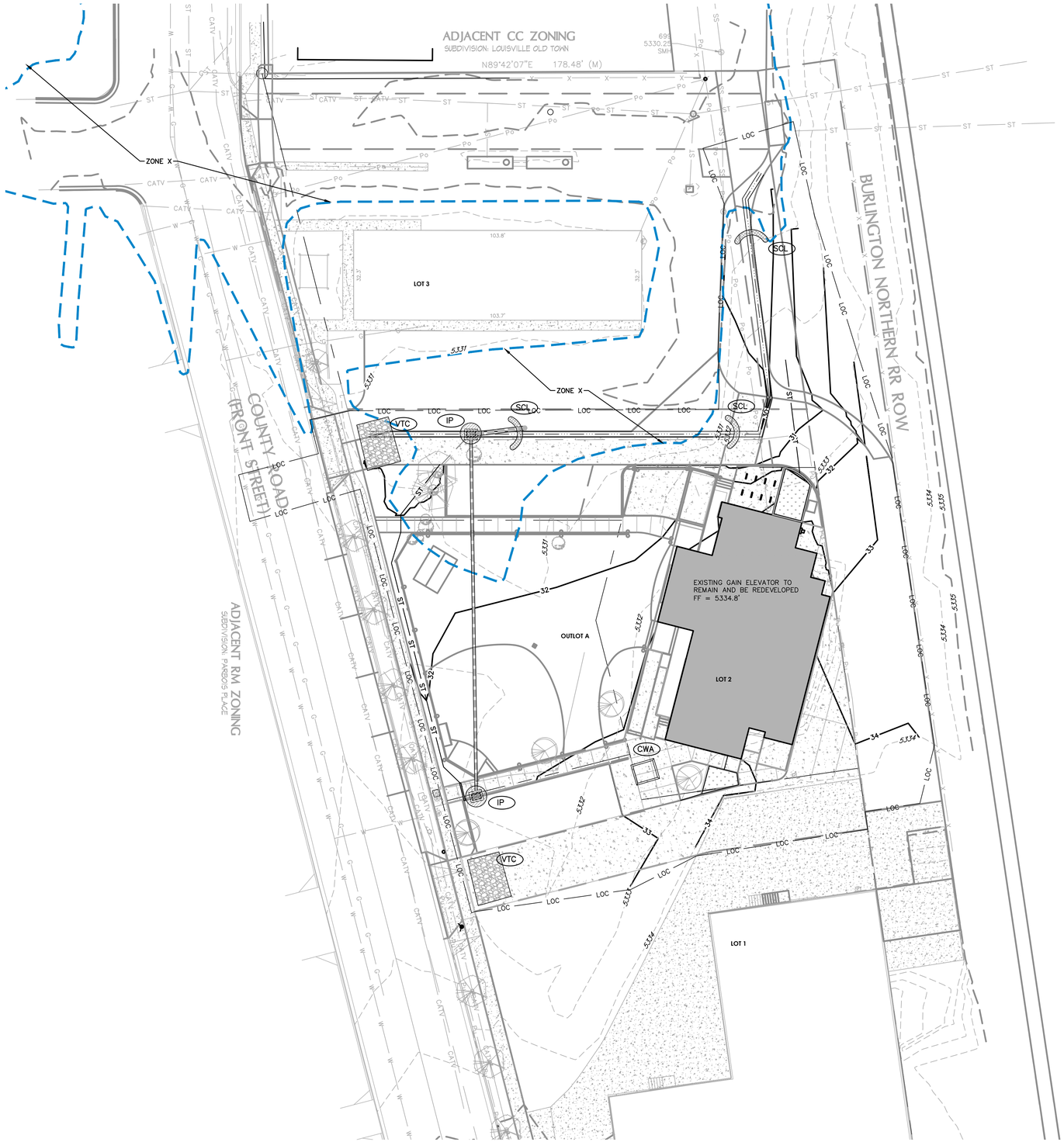


## LEGEND

- EXISTING CONTOUR (5325)
- PROPOSED CONTOUR (25)
- HISTORIC SHEET FLOW
- PROPOSED FLOW DIRECTION
- INLET PROTECTION (IP)
- CULVERT INLET PROTECTION (CIP)
- SEDIMENT CONTROL LOG (SCL)
- VEHICLE TRACKING CONTROL (VTC)
- LIMITS OF CONSTRUCTION (LOC)
- CONCRETE WASHOUT AREA (CWA)

Scale: 1" = 20'

0 10 20 40


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2 CM/ZBA ADDENDUM 2
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**STORMWATER MANAGEMENT PLAN**

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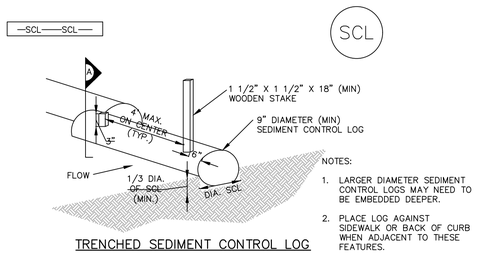
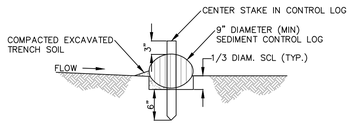
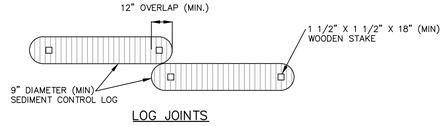



TRENCHED SEDIMENT CONTROL LOG




SECTION A
TRENCHED SEDIMENT CONTROL LOG




LOG JOINTS

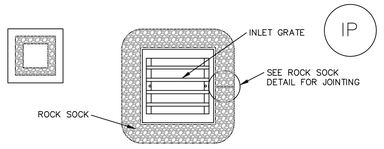
SCL–1. TRENCHED SEDIMENT CONTROL LOG

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND–DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

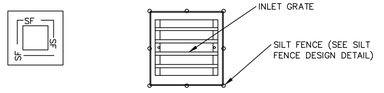
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.




IP–3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.




IP–4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF INLET PROTECTION.
   –TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)
2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

# STORM WATER QUALITY NOTES

(APPLIES TO CIVIL ENGINEERING SHEETS)

1. TEMPORARY EROSION CONTROLS: ALL TEMPORARY EROSION CONTROL MEASURES FOR EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED BEFORE ANY CONSTRUCTION ACTIVITIES TAKE PLACE.
2. SEDIMENT CONTROLS: CONTROL MEASURES FOR EROSION AND SEDIMENT CONTROL SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF SEDIMENT FROM CONSTRUCTION SITES. VEHICLE TRACKING OF SEDIMENT SHALL NOT BE ALLOWED TO ENTER THE STORMWATER UTILITY SYSTEM OR WATERS OF THE STATE. SEDIMENT SHALL NOT BE TRACKED ONTO PUBLIC STREETS AND, IF SO, SHALL BE IMMEDIATELY REMOVED.
3. WATER QUALITY IMPACTS: STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF WATERS OF THE STATE.
4. WASTE CONTROLS. SOLID WASTE, INDUSTRIAL WASTE, YARD WASTE, AND ANY OTHER POLLUTANTS OR WASTE ON ANY CONSTRUCTION SITE SHALL BE CONTROLLED USING CONTROL MEASURES. WASTE AND/OR RECYCLING CONTAINERS SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR ON CONSTRUCTION SITES WHERE THERE IS THE POTENTIAL FOR RELEASE OF WASTE. UNCONTAINED WASTE THAT MAY BLOW, WASH, OR OTHERWISE BE RELEASED FROM THE SITE IS PROHIBITED. SANITARY WASTE FACILITIES SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR.
5. CONCRETE WASTE: READY–MIXED CONCRETE, OR ANY MATERIALS RESULTING FROM THE CLEANING OF VEHICLES OR EQUIPMENT CONTAINING OR USED IN TRANSPORTING OR APPLYING IT, SHALL BE CONTAINED WITH APPROPRIATE CONTROL MEASURES AND ULTIMATELY REMOVED FOR PROPER DISPOSAL. RELEASE OF THESE MATERIALS IS PROHIBITED.
6. CHEMICAL STORAGE: BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING THE STORMWATER UTILITY SYSTEM OR WATERS OF THE STATE.
7. SURFACE COVER TIMING: COVER SHALL BE APPLIED WITHIN 14 DAYS TO INACTIVE SOIL STOCKPILES AND SHALL BE MAINTAINED FOR STOCKPILES THAT ARE PROPOSED TO REMAIN IN PLACE LONGER THAN 30 CALENDAR DAYS.
8. PROJECT PHASING: ALL EARTH DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED TO LIMIT THE EXPOSED AREA OF ANY DISTURBED LAND TO THE SHORTEST POSSIBLE PERIOD OF TIME.
9. DUST CONTROLS: TECHNIQUES SHALL BE USED TO PREVENT DUST, SEDIMENT, OR DEBRIS FROM BLOWING OFF THE SITE.
10. MAINTENANCE: ANY DAMAGE OR REQUIRED MAINTENANCE TO TEMPORARY AND PERMANENT CONTROLS MEASURES SHALL BE REPAIRED OR REPLACED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.
11. REMOVAL: ALL CONTROL MEASURES FOR EROSION AND SEDIMENT CONTROL SHALL BE REMOVED AND DISPOSED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, WHICHEVER OCCURS FIRST.
12. RESPONSIBILITY: THE EROSION CONTROL PERMITTEE SHALL BE RESPONSIBLE FOR CONTINUED COMPLIANCE WITH THE REQUIREMENTS OF SECTION 7.13 OF THE CITY'S DESIGN AND CONSTRUCTION STANDARDS DURING CONSTRUCTION ACTIVITY ON THE SITE.

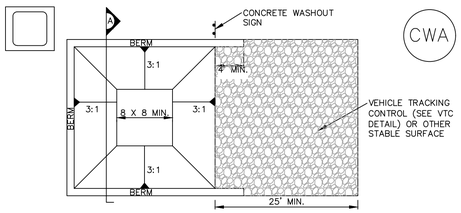
# EROSION CONTROL NOTES

1. ALL TOPSOIL, WHERE PHYSICALLY PRACTICABLE, SHALL BE SALVAGED AND NO TOPSOIL SHALL BE REMOVED FROM THE SITE. TOPSOIL AND OVERBURDEN SHALL BE SEGREGATED AND STOCKPILED SEPARATELY. TOPSOIL AND OVERBURDEN SHALL BE REDISTRIBUTED WITHIN THE GRADED AREA AFTER ROUGH GRADING TO PROVIDE A SUITABLE BASE FOR AREAS WHICH WILL BE SEEDED AND PLANTED. RUNOFF FROM STOCKPILED AREA SHALL BE CONTROLLED TO PREVENT EROSION AND RESULTANT SEDIMENTATION OF RECEIVING WATER.
2. PERMANENT SOIL STABILIZATION MEASURES SHALL BE APPLIED TO DISTURBED AREAS AND STOCKPILES WITHIN 14 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED WITHIN 14 DAYS TO DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE, BUT WILL BE LEFT DORMANT FOR LONGER THAN 60 DAYS.

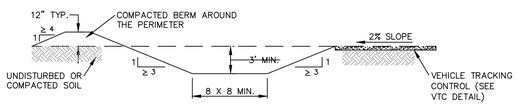
   TEMPORARY SOIL STABILIZATION SHALL CONSIST OF SEEDING WITH ANNUAL RYEGRASS AT 40 LBS PLS/ACRE AND SHALL BE HYDROMULCHED WITH A WOOD FIBER AND TACKIFIER AT 1 TON/ACRE.

   NATIVE SEED MIX FOR RAIN GARDENS PER LANDSCAPE PLAN.

   THE SEEDED AREA SHALL THEN BE LIGHTLY RAKED TO DEPOSIT THE SEEDS APPROXIMATELY 1/4" – 1/2" BELOW THE SURFACE. IMMEDIATELY FOLLOWING SEEDING, ALL SEEDED AREAS SHALL BE MULCHED WITH 1 – 1/2 TONS OF WEED–FREE STRAW PER ACRE, MECHANICALLY OR HAND CRIMPED INTO TOPSOIL.
3. ALL DISTURBED AREAS SHALL RECEIVE PERMANENT VEGETATIVE COVER AS DESCRIBED ABOVE. ALL CUT OR FILL SLOPES WITH 3 TO 1 OR GREATER SLOPE SHALL BE COVERED WITH EROSION CONTROL MATTING OR HYDROMULCHED WITH A WOOD FIBER AND TACKIFIER AT 1 TON/ACRE.
4. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED BY THE OWNER, OR OWNER APPROVED AGENT, AFTER ALL STORM EVENTS. ANY EROSION CONTROL MEASURES WHICH ARE DAMAGED PRIOR TO RE–ESTABLISHMENT OF VEGETATIVE COVER SHALL BE REPLACED IMMEDIATELY.




CONCRETE WASHOUT AREA PLAN

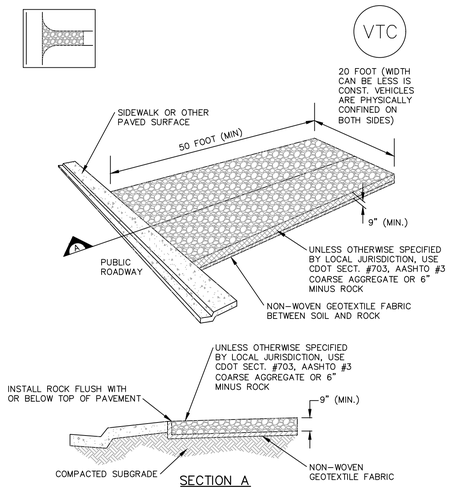



SECTION A

CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITH IN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE AREA SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.




SECTION A

VTC–1. AGGREGATE VEHICLE TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   – TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT–OF–WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON–WOVEN GEOIEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION. ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
DONALD F. ASH
01/26/26
36045
PROFESSIONAL ENGINEER

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: DRS
CHECKED BY: DFA
REVISIONS:
01/26/26 ADDENDUM 1
02/27/26 ADDENDUM 2
PERMIT SUBMITTAL

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CIVIL DETAILS

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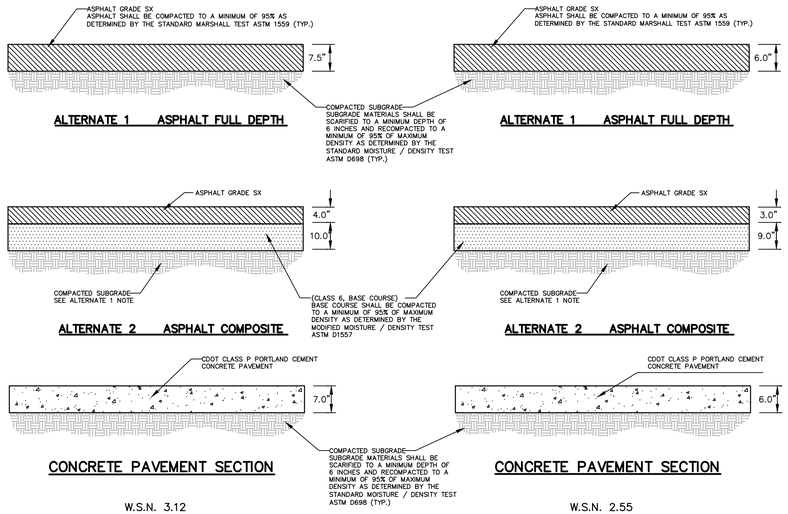
creativity for the built environment

## PAVEMENT DESIGN ALTERNATIVES

THE DESIGN PAVEMENT SECTIONS PROVIDED HEREIN ARE DESIGNED TO MEET A SPECIFIC WSN (WEIGHTED STRUCTURAL NUMBER). AS THE STRENGTH COEFFICIENTS OF THE ACTUAL MATERIALS TO BE USED IN THE CONSTRUCTION MAY BE DIFFERENT FROM THE ASSUMED STRENGTH COEFFICIENTS, ALTERNATE SECTIONS WHICH PROVIDE THE REQUIRED WSN WILL BE CONSIDERED. THE CONTRACTOR SHALL SUBMIT ALTERNATE DESIGN SECTIONS ALONG WITH DOCUMENTATION OF ACTUAL STRENGTH COEFFICIENTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

### NOTES:

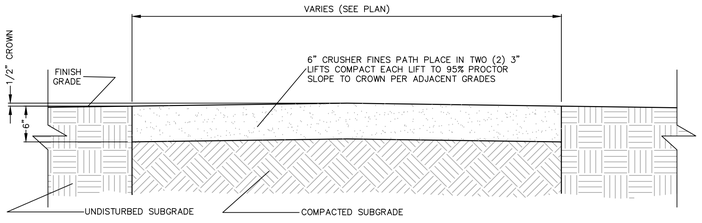
1. ALL WORK SHALL CONFORM TO THE CDOT "STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".
2. ASPHALT SHALL BE COMPACTED TO A MINIMUM OF 95% AS DETERMINED BY THE MARSHALL TEST ASTM D1559 (TYP.)
3. FIRST LIFT SHALL BE GRADE S OR SG. TOP LIFT SHALL BE GRADE SX.
4. ASPHALT BINDER SHALL BE PG 64-22.
5. MAX. ASPHALT LIFT THICKNESS = 4 INCHES
6. MIN. ASPHALT LIFT THICKNESS = 1 1/2 INCHES




HEAVY PAVEMENT SECTIONS
(TO BE USED IN TRAVELWAYS AND TRUCK ACCESS AREAS)
N.T.S.

LIGHT PAVEMENT SECTIONS
(TO BE USED IN PARKING STALL AREAS ONLY)
N.T.S.

## 1 PAVEMENT SECTIONS
SCALE: N.T.S.




## 2 CRUSHER FINES PARKING DETAIL
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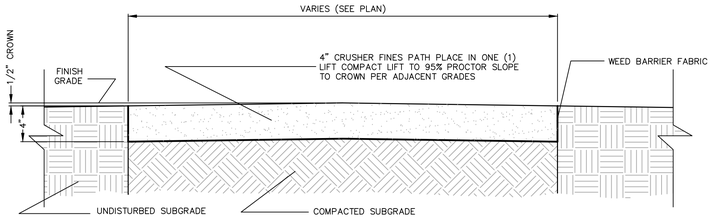


## 3 CRUSHER FINES DRIVE DETAIL
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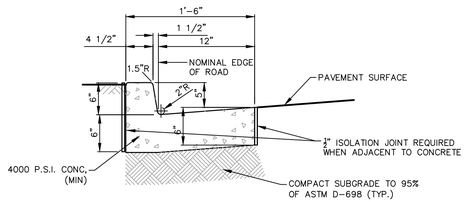
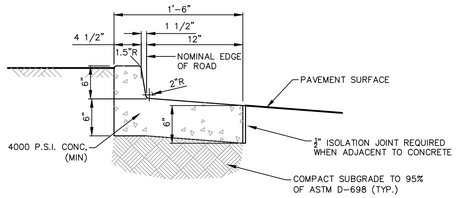


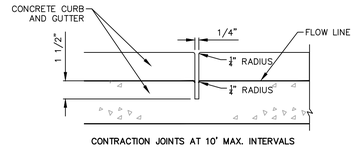

CATCH CURB & GUTTER DETAIL



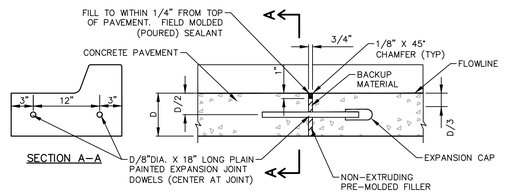

SPILL CURB & GUTTER DETAIL

NOTE:
1. ALL EXPOSED CONCRETE SHALL HAVE A BROOM FINISH
2. EXPANSION JOINTS AT EACH END OF ALL CURB RETURNS AND 500' MAX. INTERVALS – SEE CURB & GUTTER EXPANSION JOINT DETAIL.
3. CONTRACTION JOINTS AT 10' MAX. INTERVALS – SEE CURB & GUTTER CONTRACTION JOINT DETAIL

## 4 CURB AND GUTTER DETAIL
SCALE: N.T.S.

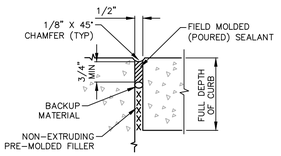



CONTRACTION JOINT



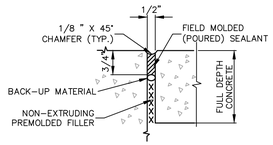

EXPANSION JOINTS AT EACH END OF ALL CURB RETURNS AND 500' MAX. INTERVALS

EXPANSION JOINT

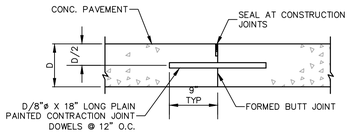



ISOLATION JOINTS WHERE CURB ABUTS STRUCTURES

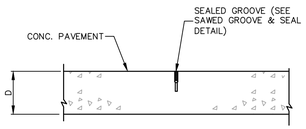
CURB ISOLATION JOINT



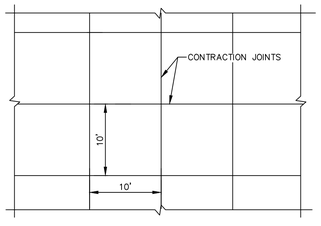

ISOLATION/EXPANSION JOINT




STANDARD CONSTRUCTION JOINT



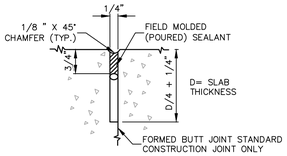

CONTRACTION JOINT



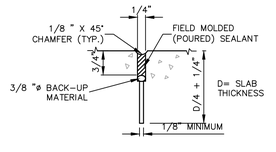

JOINT LAYOUT PLAN

NOTE:
1. JOINT LAYOUT PLAN REPRESENTS THE MAXIMUM JOINT SEPARATION. CONTRACTOR SHALL SUBMIT FINAL JOINT LAYOUT PLAN TO OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. PROVIDE ISOLATION JOINT WHERE CONCRETE ABUT STRUCTURES.

NOTE:
1. CONSTRUCTION JOINTS SHALL BE USED WHEN OPERATIONS ARE SUSPENDED FOR 30 MINUTES OR LONGER, JOINTS SHALL ALIGN WITH CONTRACTION JOINT LAYOUT.




SEAL AT CONSTRUCTION JOINTS




SAWED GROOVE & SEAL DETAIL

## 5 CONCRETE PAVEMENT JOINTS
SCALE: N.T.S.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Louisville Mill Site LLC / Louisville's Living Room LLC

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DONALD F. ASH
01/26/26
36045
PROFESSIONAL ENGINEER

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: DRS
CHECKED BY: DFA
REVISIONS:
01/26/26 ADDENDUM 1
01/27/26 ADDENDUM 2 FRONT CAPITAL


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CIVIL DETAILS

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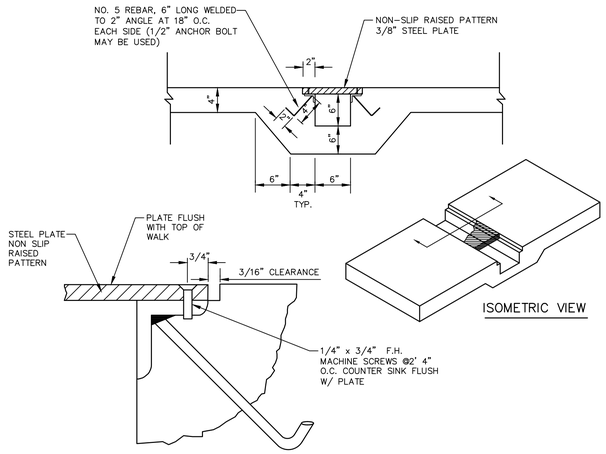
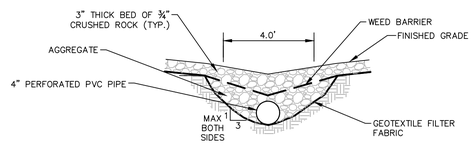
creativity for the built environment




## 1 SIDEWALK CHASE DETAIL

SCALE: N.T.S.




## 2 PERFORATED PIPE DETAIL

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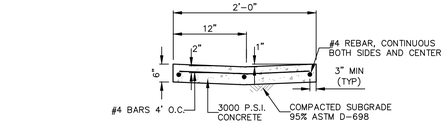
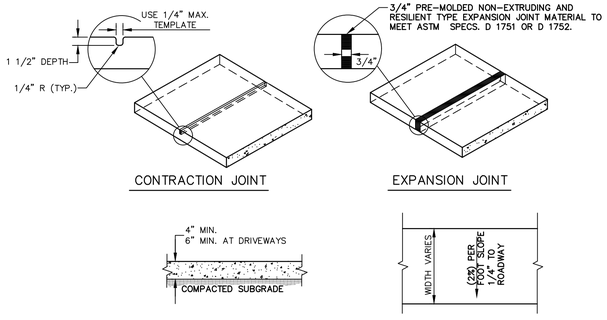



NOTE:
1. SEALED CONTRACTION JOINT REQUIRED EVERY 10 LINEAR FEET
2. SEALED EXPANSION JOINT REQUIRED EVERY 100 LINEAR FEET

## 2' DRAINAGE PAN

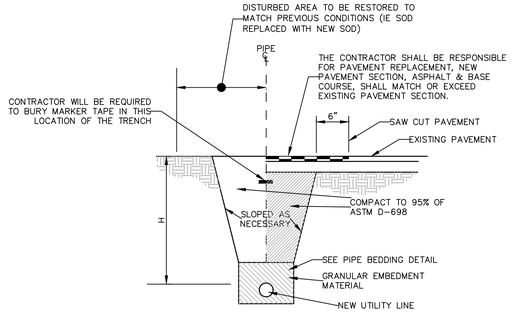
N.T.S.




NOTE: ALL EXPOSED CONCRETE SHALL HAVE A BROOM FINISH. EXPANSION JOINTS AT ALL INTERSECTIONS WITH EXISTING CURB AND GUTTER, CURBWALK, SIDEWALK, AT ALL RADIUS POINTS, AND AT 500 FT. MAX. INTERVALS. CONTRACTION JOINTS AT 5 FT. INTERVALS.

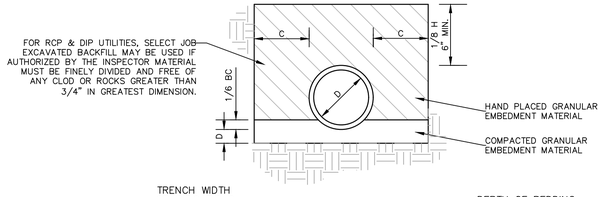
## 3 CONCRETE SIDEWALK DETAIL

SCALE: N.T.S.




## UTILITY TRENCH DETAIL

N.T.S.




TRENCH WIDTH SPECIFICATIONS

| D | C | |
|---|---|---|
| | MIN. | MAX. |
| 0 – 18" | 6" | 12" |
| 20 – 28" | 9" | 12" |
| 30" & LARGER | 12" | 18" |

LEGEND
Bc = OUTSIDE DIAMETER
H = BACKFILL COVER ABOVE TOP OF PIPE
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

DEPTH OF BEDDING MATERIAL BELOW PIPE

| D | IN SOIL d (MIN.) | IN ROCK d (MIN.) |
|---|---|---|
| 27" & SMALLER | 3" | 6" |
| 30" TO 60" | 4" | 9" |
| 66" & LARGER | 6" | 12" |

## PIPE BEDDING DETAIL

N.T.S.

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Interior Design
950 Spruce Street, #2C
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
DONALD P. ASH
01/26/26
36045
PROFESSIONAL ENGINEER

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: DRS
CHECKED BY: DPA
REVISIONS:
01/26/26 ADDENDUM 1
01/27/26 ADDENDUM 2 FINAL SUBMITTAL

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CIVIL DETAILS

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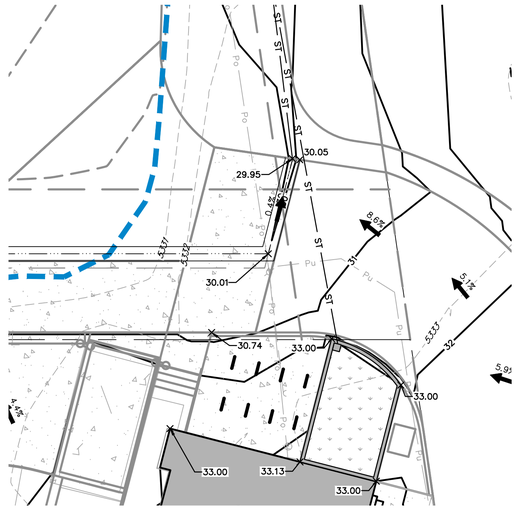
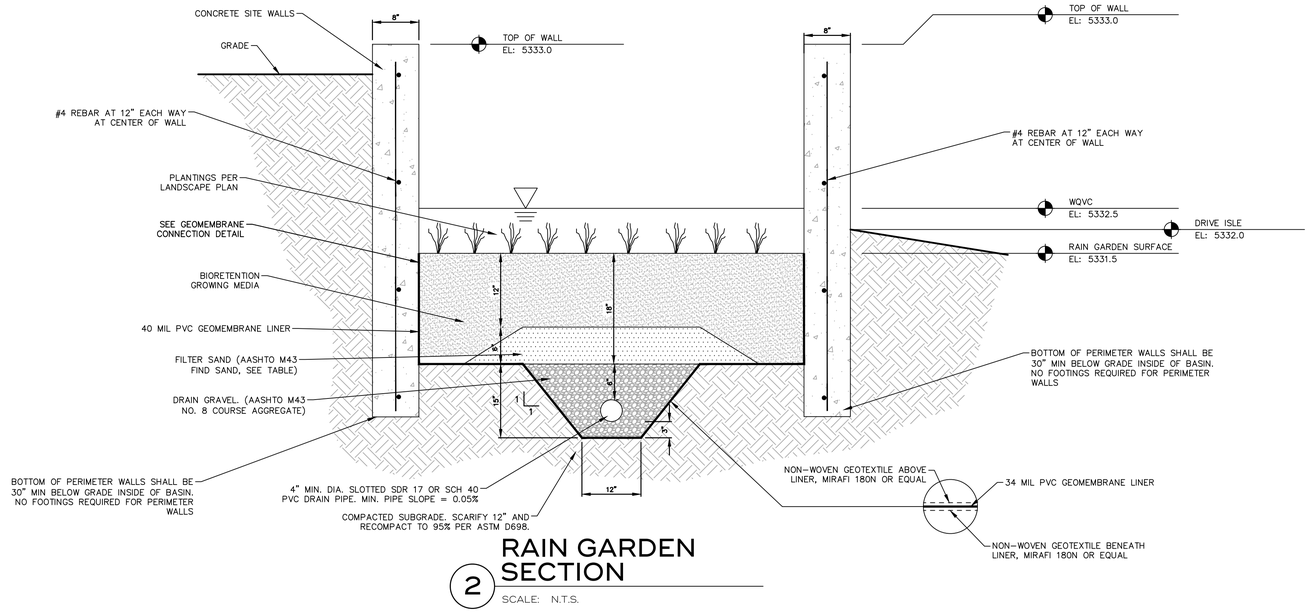



## 1 RAIN GARDEN "RG-1" DETAIL

SCALE: 1"=10'




## 2 RAIN GARDEN SECTION

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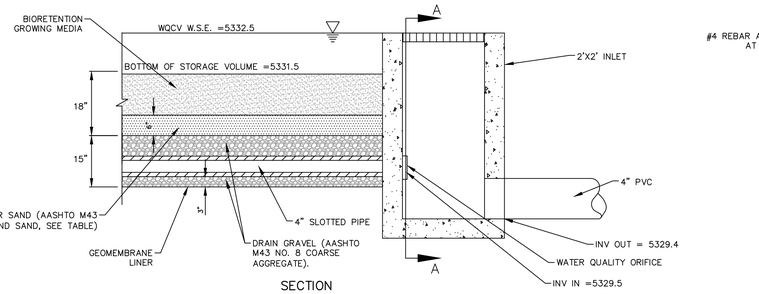
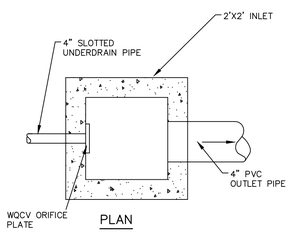
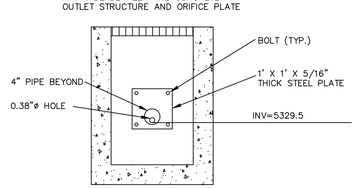



CONTRACTOR TO INSTALL A NEOPRENE CLOSED CELL MEDIUM GASKET MATERIAL W/ ADHESIVE ON ONE SIDE, 1/4" THICK X 1" WIDE BETWEEN THE CONCRETE OUTLET STRUCTURE AND ORIFICE PLATE




## 3 OUTLET STRUCTURE DETAIL

SCALE: N.T.S.




## 4 RAIN GARDEN SECTION

SCALE: N.T.S.

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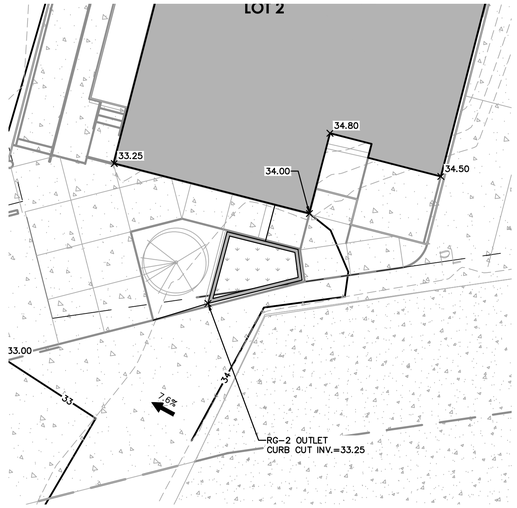
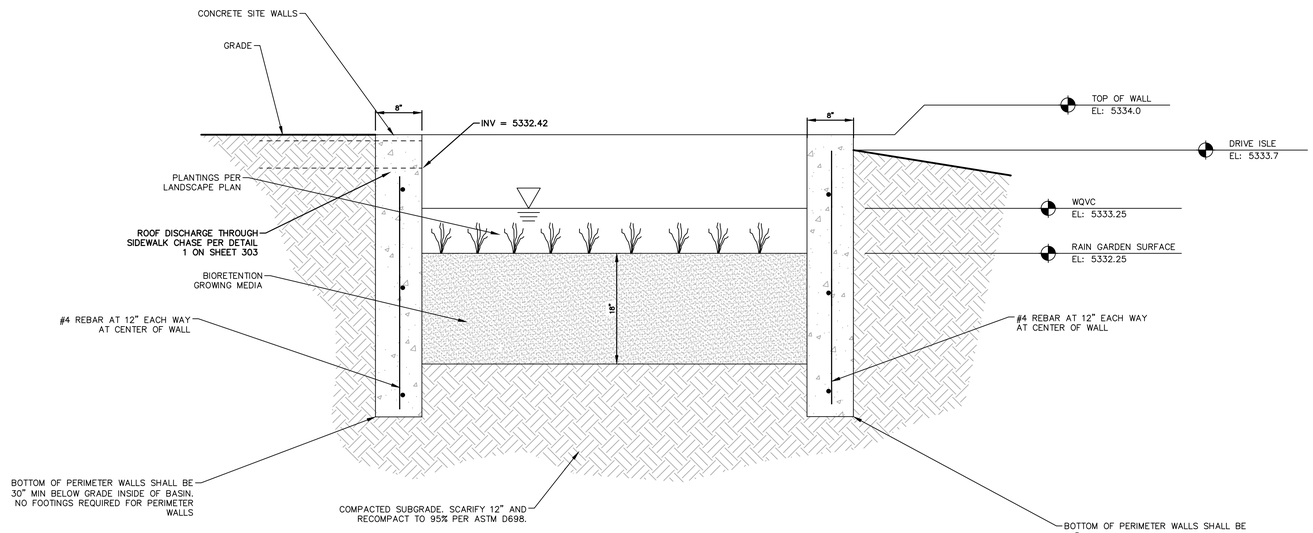


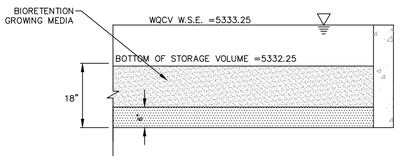

1 RAIN GARDEN "RG-2" DETAIL

SCALE: 1"=10'




2 RAIN GARDEN SECTION

SCALE: N.T.S.




3 OUTLET DETAIL

SCALE: N.T.S.

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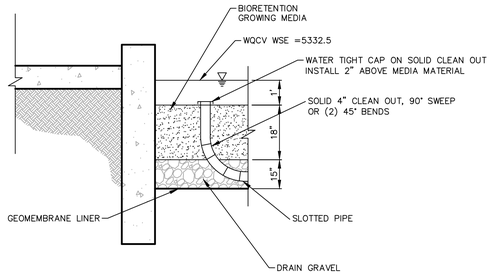
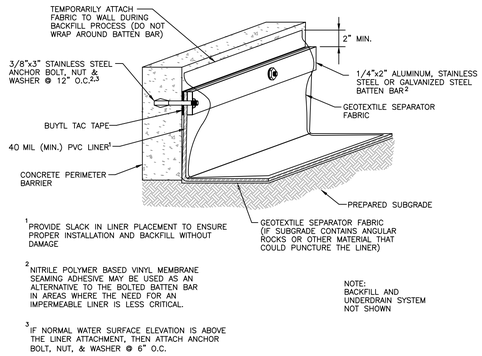



## 1 UNDERDRAIN DETAIL

SCALE: N.T.S.



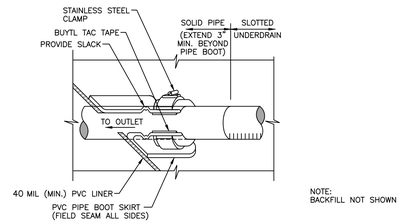

[1] PROVIDE SLACK IN LINER PLACEMENT TO ENSURE PROPER INSTALLATION AND BACKFILL WITHOUT DAMAGE

[2] NITRILE POLYMER BASED VINYL MEMBRANE SEAMING ADHESIVE MAY BE USED AS AN ALTERNATIVE TO THE BOLTED BATTEN BAR IN AREAS WHERE THE NEED FOR AN IMPERMEABLE LINER IS LESS CRITICAL.

[3] IF NORMAL WATER SURFACE ELEVATION IS ABOVE THE LINER ATTACHMENT, THEN ATTACH ANCHOR BOLT, NUT, & WASHER @ 6" O.C.

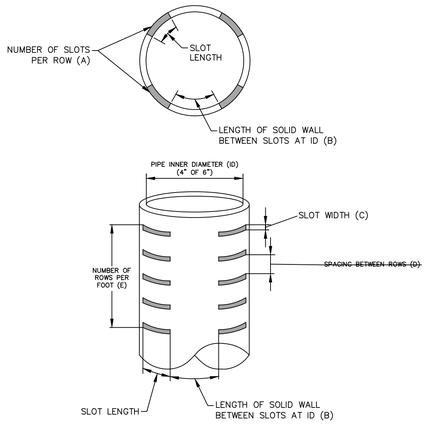
## 2 GEOMEMBRANE CONNECTION DETAIL

SCALE: N.T.S.



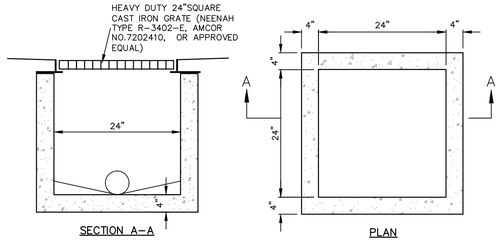

## 3 GEOMEMBRANE PENETRATION DETAIL

SCALE: N.T.S.




## 4 PVC SLOTTED PIPE UNDERDRAIN DETAIL

SCALE: N.T.S.




NOTE:
1. CONTRACTOR SHALL MAKE PIPE CONNECTION OPENINGS AS REQUIRED IN THE FIELD AND SHALL POUR NEW CONCRETE INVERTS IN THE INLET AFTER THE PIPE TIE-INS HAVE BEEN MADE. THE POURED INVERT SHALL HAVE A MIN. SIDE SLOPE OF 1" PER 12".

NOTE:
1. INLET SHALL BE MANUFACTURED BY AMCOR OR APPROVED EQUAL. CONTRACTOR MAY CONSTRUCT A CAST IN PLACE REINFORCED CONCRETE INLET STRUCTURE IN LIEU OF PRECAST INLET, IF DESIGN MATCHES THE SPECIFIED STRUCTURE AND IS APPROVED BY THE OWNER.
2. USE 6" WALL THICKNESS, 3000 P.S.I. MIN. FOR CAST IN PLACE OPTION.

## 5 2' X 2' INLET DETAIL

SCALE: N.T.S.

| SIEVE SIZE | MASS PERCENT PASSING SQUARE MESH SIEVES |
|---|---|
| 12.5 mm (1/2") | 100 |
| 9.5 mm (3/8") | 85 – 100 |
| 4.75 mm (No. 4) | 10 – 30 |
| 2.36 mm (No. 8) | 0 – 10 |
| 1.18 mm (No. 16) | 0 – 5 |

## 6 DRAIN GRAVEL GRADATION AASHTO NO. 8

SCALE: N.T.S.

| SIEVE SIZE | MASS PERCENT PASSING SQUARE MESH SIEVES |
|---|---|
| 9.5 mm (3/8") | 100 |
| 4.75 mm (No. 4) | 95 – 100 |
| 2.36 mm (No. 8) | 80-100 |
| 1.18 mm (No. 16) | 50-85 |
| 600 µm (No. 30) | 25-60 |
| 300 µm (No. 50) | 10-30 |
| 150 µm (No. 100)[1] | 0-10 |
| 75 µm (No. 200)[1] | 0-3 |

## 7 FILTER SAND GRADATION

SCALE: N.T.S.

| GEOMETRY | MINIMUM | MAXIMUM |
|---|---|---|
| Number of slots per row (A) | 4 | 6 |
| Length of solid wall between slots at ID (B), inches | 1.0 | 2.0 |
| Slot width (C), inches | 0.060 | 0.100 |
| Spacing between rows (D), inches | 0.25 | 1.0 |
| Rows per lineal foot (E) | 11 | 36 |
| Open area per lineal foot (square inches) | 6.0 | 20.0 |

## 8 PVC PIPE SLOT CONFIGURATION

SCALE: N.T.S.

| SOIL PARAMETERS | TEST NAME | BIORETENTION MEDIA PROPERTIES |
|---|---|---|
| Texture/Gradation | ASTM D7928 Sedimentation (Hydrometer) Method | Particle Size Distribution:<br>70-80% Sand (0.05-2.0 mm diameter)<br>5-25% Silt (0.002-0.05 mm diameter)<br>5-15% Clay (<0.002 mm diameter)<br>Notes:<br>Sand, silt and clay percentages are by dry weight.<br>Particle sizes are based on the USDA soil classifcation system.<br>Distribution is measured afer gravel > 2 mm is removed from sample. Media should have no more than 25% material > 2 mm.<br>Equivalent sieve sizes for the upper and lower limit of sand are #10 and #240, respectively. |
| Organic Matter | ASTM D2974 | 1-5% by dry weight |
| pH | ASA/AASHTO | 6.0 - 8.5 |
| Salinity/Salts (EC) dS/m or mmhos/cm | Saturated Paste | <3 |
| Nitrate Nitrogen (ppm) | ASA2 33-3 | <30 |
| Phosphorus (ppm) | Use Olsen when pH>6.2, otherwise use Mehlich-3 | Olsen: <20 or<br>Mehlich-3: <30 |

## 9 BIORETENTION GROWING MEDIA

SCALE: N.T.S.

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2 02/25/26 ADDENDUM 2 PERMIT SUBMITTAL

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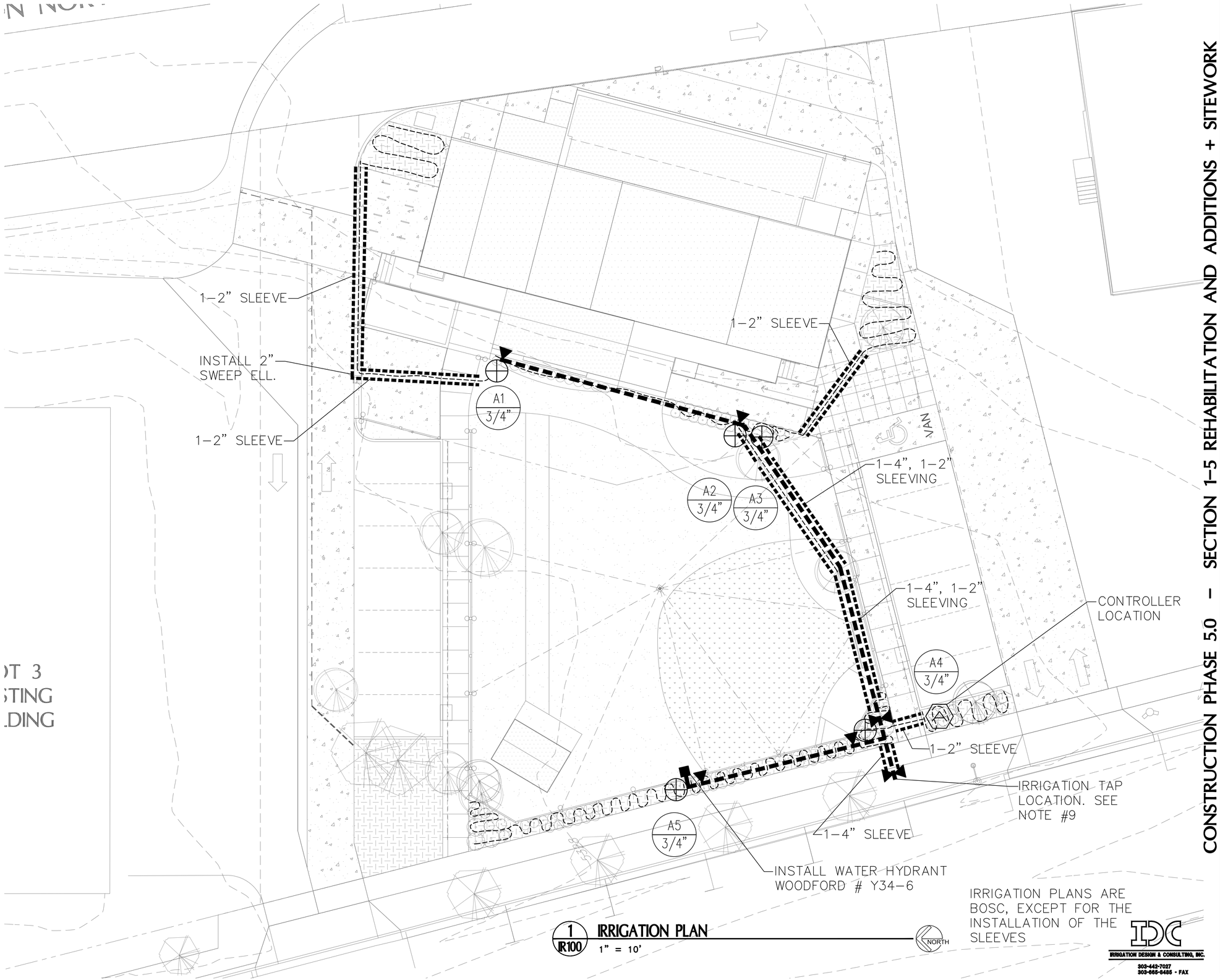


IRRIGATION PLANS ARE BOSC, EXCEPT FOR THE INSTALLATION OF THE SLEEVES

1 IR100 IRRIGATION PLAN
1" = 10'

NORTH

IDC
IRRIGATION DESIGN & CONSULTING, INC.
303-442-7027
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CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK


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CHECKED BY: JEH
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/25/26 ADDENDUM 2 PENNY SIGNITAL


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Irrigation Plan

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IR100
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## IRRIGATION SCHEDULE

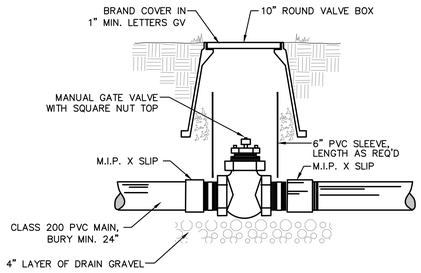
| SYMBOL | MODEL | DESCRIPTION | DETAIL |
|---|---|---|---|
| ⋈ | LINE SIZE | GATE VALVE | 3 |
| ⊕ | ¾" | DRIP VALVE | 4 |
| ▼ | 44LRC | RAINBIRD QUICK COUPLER | 5 |
| ⬡ | ESP–24–LXME SERIES | RAINBIRD CONTROLLER – PEDESTAL MOUNT | |
| ▪▪▪▪▪▪▪▪▪▪ | CL. 200 B.E. (1–1/4") | PVC MAINLINE | |
| ——— | CL. 200 B.E. (1") | PVC LATERALS – 1" UNLESS OTHERWISE NOTED | |
| ═══ | CL. 200 | PVC SLEEVING | |
| ∿∿∿ | ¾" | DRIP TUBING | |
| ⊜ | | CONTROLLER NUMBER<br>VALVE SIZE | |
| ● | 20930 SERIES – 3/4" | BUCKNER MASTER VALVE | |

## NOTES

1. REFER TO SPECIFICATIONS AND DETAILS FOR INSTALLATION INSTRUCTIONS.
2. ALL BASE PLAN INFORMATION HAS BEEN TAKEN FROM DRAWINGS PREPARED BY HARTRONFT ASSOCIATES, INC.
3. IRRIGATION SYSTEM IS DESIGNED FOR A STATIC WATER PRESSURE OF 70 PSI. CONTRACTOR IS TO VERIFY PRESSURE PRIOR TO INSTALLATION OF IRRIGATION SYSTEM AND NOTIFY LANDSCAPE ARCHITECT WITH VERIFICATION FIGURES. FAILURE TO NOTIFY LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR TAKING RESPONSIBILITY FOR ANY ALTERATIONS AT HIS/HER OWN COST.
4. INSTALL DRIP EMITTERS IN BED AREAS AS DESCRIBED BELOW:

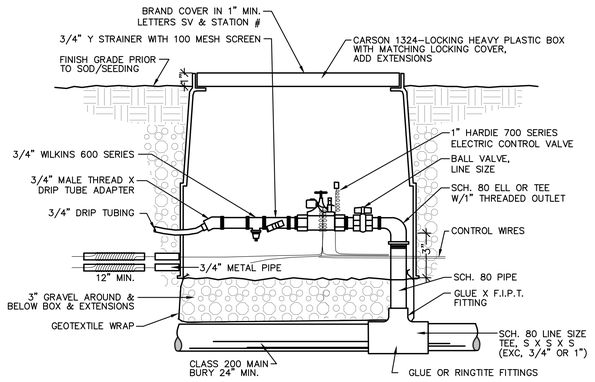
| | | |
|---|---|---|
| GROUND COVER | AGRIFIM IFT–5 | 1 EA. 12" RADIUS, 15" O.C. |
| 1 GALLON MAT'L. | AGRIFIM IFT–5 | 1 EA. |
| 5 GALLON MAT'L. | AGRIFIM IFT–5 | 2 EA. |
| DECIDUOUS TREES (1½" – 2" CAL.) | AGRIFIM IFT–10 | 3 EA. |
| DECIDUOUS TREES (3"–4" CAL.) | AGRIFIM IFT–10 | 4 EA. |
| PINE TREES (6'–10') | AGRIFIM IFT–10 | 2 EA. |
| PINE TREES (11'–14') | AGRIFIM IFT–10 | 3 EA. |

5. CONTRACTOR TO COORDINATE INSTALLATION OF SLEEVING WITH INSTALLATION OF PAVING AND SIDEWALKS.
6. USE RAINBIRD 12 SERIES NOZZLES FOR SPRAY HEADS SPACED LESS THAN 13'.
7. USE RAINBIRD 10 SERIES NOZZLES FOR SPRAY HEADS SPACED LESS THAN 11'.
8. ELECTRICAL POWER TO THE NEW CONTROLLER IS EXISTING.
9. TAP LOCATION:
   CONNECT TO EXISTING 3/4" WATER STUBOUT DOWNSTREAM OF EXISTING BACKFLOW PREVENTER AND INSTALL 3/4" MASTER VALVE AND EXTEND 1–1/4" MAINLINE AS SHOWN. INSTALL MASTER VALVE IN SEPARATE CARSON #1419–13B VALVE BOX.



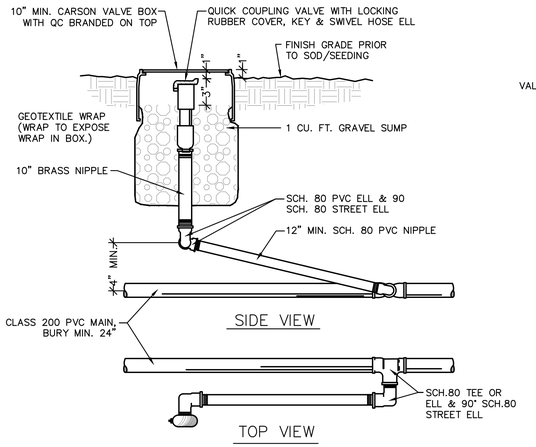

1. COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL
2. LOCKING BOLTS FOR VALVE COVERS TO BE STAINLESS STEEL.

### 1 ISOLATION GATE VALVE



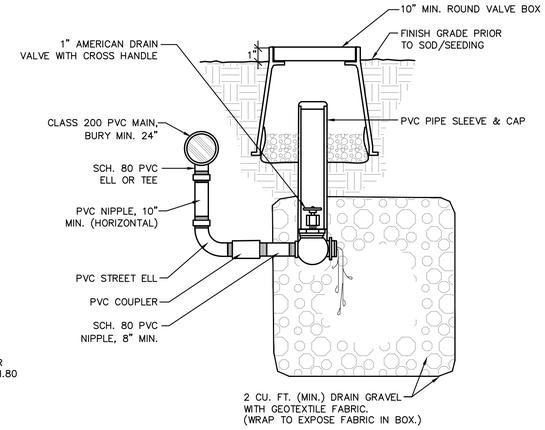

COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

### 2 DRIP VALVE



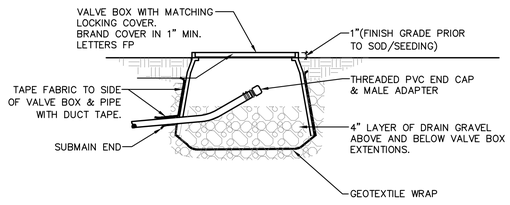

COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

### 3 QUICK COUPLER

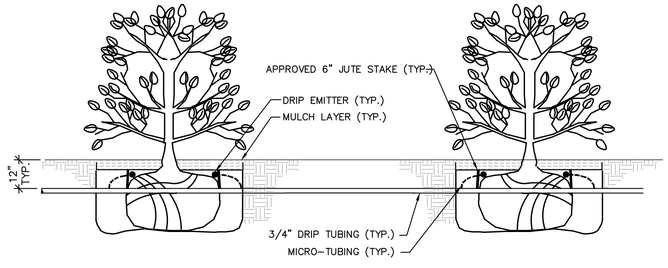



COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

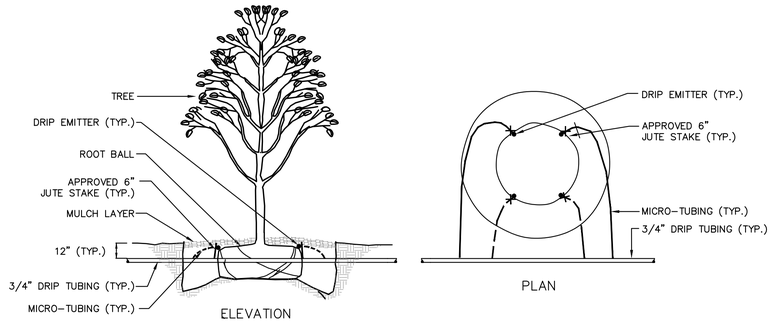
### 4 DRAIN VALVE




### 5 DRIP–BLOWOUT




### 6 DRIP–SHRUB




### 7 DRIP–TREE

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⚠ CVCPZB ADDENDUM 2
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Irrigation Details

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IR101
1 of Sheets

# GENERAL NOTES

1. Contractor shall be governed by the currently adopted edition of all codes and regulations having jurisdiction over aspects of this construction project.

2. Written dimensions and existing conditions shall be verified in the field by the Contractor and/or his Sub-Contractors. Do not scale drawings. If further clarification is required, contact Architect and provide him with field dimensions as required to assist him with his clarification.

3. Any discrepancy in dimensions and/or drawings and/or field measurements shall be brought to the attention of the Architect prior to the commencement of any work.

4. These drawings and specifications are the property and copyright of the Architect and shall not be used on any other work except by agreement with the Architect.

5. Duty of Cooperation: Release of these plans anticipates further cooperation among the Owner, Contractor, and Architect. Although the Architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Any ambiguity or discrepancy discovered shall be reported immediately to the Architect. Failure to cooperate by a simple notice to the Architect shall not relieve the Contractor from responsibility for all consequences. Changes made from the plans without the consent of the Architect are unauthorized, and shall relieve the Architect of responsibility for all consequences arriving out of such changes.

6. Plans reflect final building and site configuration. Demolition, site clearing, etc. is to be performed as required. No inference is made that all existing conditions are shown or all demolition noted. Contractor is to field confirm all existing conditions. Contractor is aware that this building is designated as an historic landmark. As such, it is imperative that existing historic materials are retained to the greatest extent possible. If any existing material or construction is to be removed, the disposition of the removed material or construction is to be confirmed with the Architect on site. Materials designated for salvage by the Architect shall be stored on site as directed for re-use. Only discard materials specifically indicated by the Architect to be discarded.

7. All products shall be installed per manufacturer's recommendations.

8. All work to be in accordance with "General Conditions of the Contract for Construction – A.I.A. Document A201" and other Contract Documents.

9. All Survey and Property information indicated herein is based upon the ALTA/ACSM Land Title Survey prepared by Sitesurveys LLC 08/26/25.

10. The Contractor shall include any work required to make the end result building meet the intent of the Construction Documents. If equipment, material and/or construction are not detailed in drawings or specifications but are obviously required as industry standard for operative conditions, this work shall be included in base bid. If the Owner does not accept the Contractor's selection, the additional cost (to the Contractor) of that equipment or materials chosen by the Owner or Architect will be offset by Change Order.

11. The term "provide" as used herein shall mean that Contractor shall furnish and install said item, construction, equipment, materials, etc., for a complete, finished installation.

12. Do not use cadmium or cadmium plated products or products containing cadmium for work in place.

13. Do not use asbestos or asbestos containing products for work in place. Contractor shall not cut, drill, remove, or otherwise disturb any material, equipment, construction, etc., if it is thought to contain any hazardous material. If material, equipment, construction, etc., is encountered which appears to, or is likely to contain hazardous materials, notify Owner immediately.

14. Electrical equipment shall be certified as containing no PCB's.

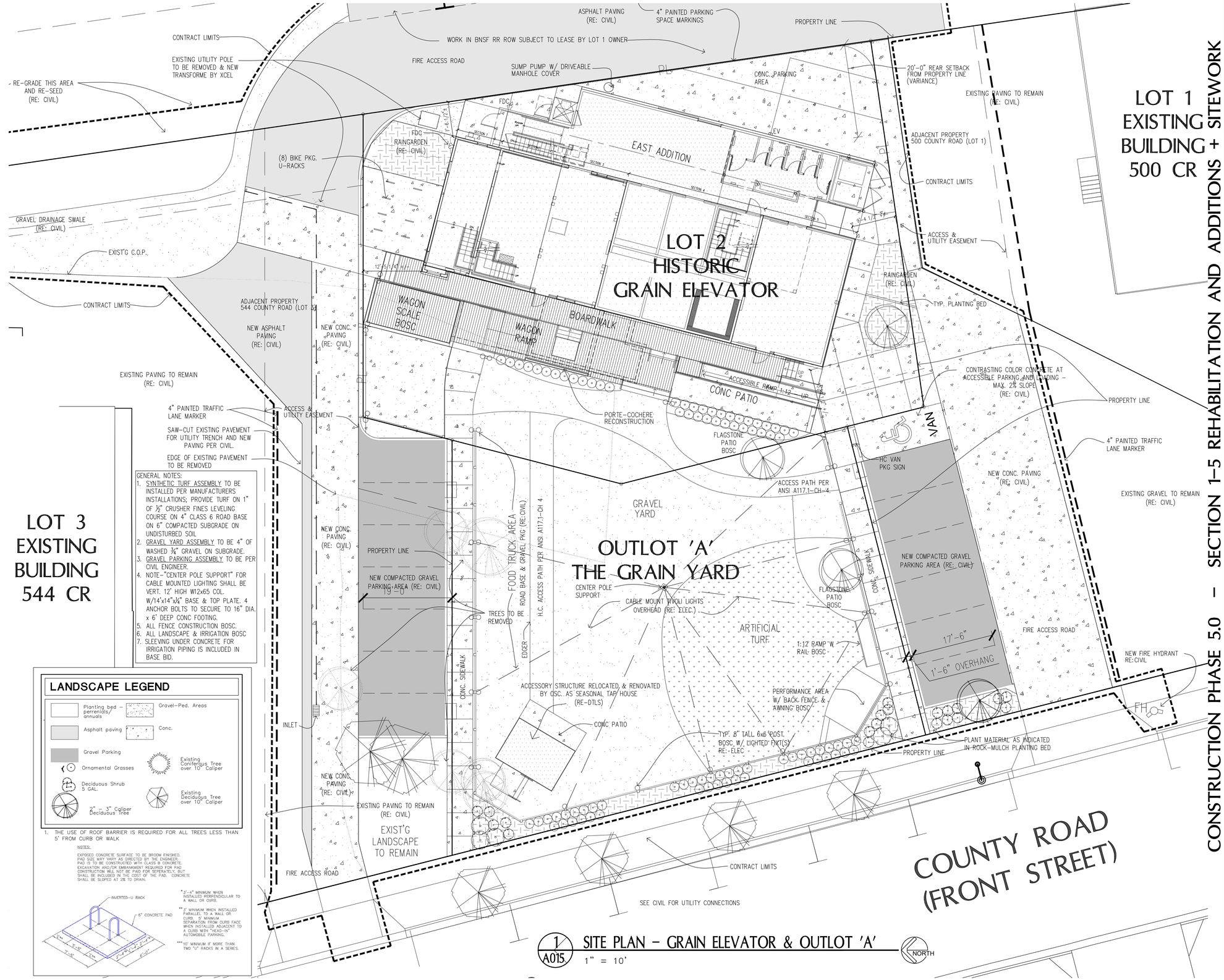
15. Typographical errors or errors of spelling shall be brought to the Architect's attention for clarification. Interpretation of the meaning of mistyped or misspelled words without clarification from the Architect will be done by the Contractor with acceptance of responsibility for that interpretation and all consequences arriving therefrom.

16. Note: All dimensions to face of concrete or masonry, center line of structural steel or face of stud, typ. u.o.n. – All masonry dimensions indicated are nominal dimensions.

17. General Contractor shall be responsible for coordination of all trades doing work and coordination with Owner and Owner's sub-contractors regarding installation and provision for all equipment, materials and constructions indicated "by Owner" or "by others" on these documents.
Note that the Owner intends to self-perform certain work indicated herein, and/or utilize separate contractors under direct contract with the Owner. All such work is indicated as being performed "By Owner", "By Others" or "B.O." or "By Owner's Separate Contractor(s)" or "BOSC" in these Construction Documents.

18. All existing areas outside of contract limits are not to be used for construction activities without express written consent of the Owner. Contractor shall take all precautions necessary to protect these areas from damage, debris, and any other deleterious effects caused by this construction. Any areas affected by this construction shall be restored to original condition as required at completion of project.

19. The Contractor is responsible for protecting all existing items, utilities, or structures. The Contractor shall contact utility Owners or make exploratory excavations as necessary or as noted on the plans to determine the location of underground utilities and structures and the limits and character of soil and/or rock. If any item requires relocation, the Contractor shall notify the Owner of item well in advance of approach to the item and shall be responsible for making all arrangements with the Owner of the item for relocation of the item.




GENERAL NOTES:
1. SYNTHETIC TURF ASSEMBLY TO BE INSTALLED PER MANUFACTURERS INSTALLATIONS; PROVIDE TURF ON 1" OF ½" CRUSHER FINES LEVELING COURSE ON 4" CLASS 6 ROAD BASE ON 6" COMPACTED SUBGRADE ON UNDISTURBED SOIL
2. GRAVEL YARD ASSEMBLY TO BE 4" OF WASHED ¾" GRAVEL ON SUBGRADE.
3. GRAVEL PARKING ASSEMBLY TO BE PER CIVIL ENGINEER.
4. NOTE- "CENTER POLE SUPPORT" FOR CABLE MOUNTED LIGHTING SHALL BE VERT. 12' HIGH W12x65 COL. W/14"x14"x¾" BASE & TOP PLATE. 4 ANCHOR BOLTS TO SECURE TO 16" DIA. x 6' DEEP CONC FOOTING.
5. ALL FENCE CONSTRUCTION BOSC.
6. ALL LANDSCAPE & IRRIGATION BOSC
7. SLEEVING UNDER CONCRETE FOR IRRIGATION PIPING IS INCLUDED IN BASE BID.

## LANDSCAPE LEGEND

- Planting bed – perennials/ annuals
- Gravel-Ped. Areas
- Asphalt paving
- Conc.
- Gravel Parking
- Ornamental Grasses
- Existing Coniferous Tree over 10" Caliper
- Deciduous Shrub 5 GAL.
- Existing Deciduous Tree over 10" Caliper
- 2" – 3" Caliper Deciduous Tree

1. THE USE OF ROOF BARRIER IS REQUIRED FOR ALL TREES LESS THAN 5' FROM CURB OR WALK

NOTES:
EXPOSED CONCRETE SURFACE TO BE BROOM FINISHED. PAD SIZE MAY VARY AS DIRECTED BY THE ENGINEER. PAD IS TO BE CONSTRUCTED WITH CLASS B CONCRETE. EXCAVATION AND/OR EMBANKMENT REQUIRED FOR PAD CONSTRUCTION WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAD. CONCRETE SHALL BE SLOPED AT 2% TO DRAIN.




*3"-4" MINIMUM WHEN INSTALLED PERPENDICULAR TO A WALL OR CURB.
**3' MINIMUM WHEN INSTALLED PARALLEL TO A WALL OR CURB. 5' MINIMUM SEPARATION FROM CURB FACE WHEN INSTALLED ADJACENT TO A CURB WITH "HEAD-IN" AUTOMOBILE PARKING.
***10' MINIMUM IF MORE THAN TWO "U" RACKS IN A SERIES.

1 / A015 SITE PLAN – GRAIN ELEVATOR & OUTLOT 'A'
1" = 10'

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC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Interior Design
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STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
PERMIT SUBMITTAL


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Site Plan

Sheet
A015
of Sheets

Louisville Grain Elevator
01.20.26
540 County Rd, Louisville, CO
Owner: Louisville Mill Site LLC
Architect: Hartronft Associates, p.c.

## 2024 IEBC Summary

### CHAPTER 3 – Administration

Section 301.1 General
The alteration or change of occupancy shall comply with Section 301.2, 301.3, or 301.4. The provisions of Sections 302-309 shall apply to all alterations, repairs, additions, relocation of structures and changes of occupancy regardless of compliance method.

Section 301.3.1 - This building will adhere to the Prescriptive compliance method per Chapter 5 except as described.

Section 302.3 - Existing Materials
Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the code official to be unsafe.
Refer to provisions outlined in Section 1202.2 regarding replacement of existing or missing features using original materials and Section 1203.5 regarding using interior finishes that are consistent with historic finishes.

Section 302.4 – New and Replacement materials
Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provide that unsafe conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purposed and location.
Refer to provisions outlined in section 1202.2 regarding replacement of existing or missing features using original materials and 1203.5 regarding using interior finishes that are consistent with historic finishes.

Section 306.1 – Scope
The provisions of Sections 306.1 through 306.7.16 apply to maintenance and repair, change of occupancy, additions and alterations to existing buildings, including those identified as historic buildings.

Section 306.2 – Design
Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and the alteration and existing building provisions in ICC A117.1, as applicable.

Section 306.5 – Change of occupancy
Existing buildings that undergo a change of group or occupancy shall comply with Section 306.7.

Section 306.6 – Additions
Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements of Section 306.7.1.
The addition will comply with requirements of the IBC for new construction.

Section 306.7 – Alterations
A facility that is altered shall comply with the applicable provisions in Chapter 11 of the IBC, ICC A117.1 and the provisions of Sections 306.7.1 through 306.7.16, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.
The addition will meet applicable provisions of Chapter 11 of the IBC for new construction.

Section 306.7.1 – Alterations affecting an area containing a primary function.
Where an alteration affects the accessibility to, or contains and area of primary function, the route to the primary function area shall be accessible. Toilet facilities and drinking fountains serving the area of primary function, including the route from the area of primary function to these facilities, shall be accessible.
An accessible route will be provided that includes toilet facilities. Refer to plumbing code notations related to drinking fountain requirements in restaurants. IPC 410.4 – Substitutions.

Section 306.7.2 – Accessible means of egress

Accessible means of egress required by Chapter 10 of the International Building Code are not required to be added in existing facilities.
An accessible route will be provided within the primary function space.

Section 306.7.5 – Entrances
Where an alteration includes alterations to an entrance that is not accessible, and the facility has an accessible entrance, the altered entrance is not required to be accessible unless required by Section 306.7.1. Signs complying with Section 1112 of the IBC shall be provided.
An accessible route will be provided at the primary entrances.

Section 306.7.6 – Accessible route
Exterior accessible routes, including curb ramps, shall be not less than 36 inches minimum in width.
Exterior accessible routes of 36" or larger will be provided.

Section 306.7.10 – Stairways and escalators in existing buildings
Where a stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route complying with Section 1104.4 of the IBC is required between levels served by such stairway.
An accessible route will be provided as required at new interior stairs except as indicated in IBC notations.

Section 306.7.18 – Historic structures
Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the historic structure, as determined by the authority having jurisdiction, the alternative requirements of Sections 306.7.16.1 through 306.7.16.5 for that element shall be permitted.
Exceptions:
1. Accessible means of egress required by Chapter 10 of the IBC are not required to be provided in historic structures.
2. The altered element or space is not required to be on an accessible route, unless required by Sections 306.7.16.1 or 306.7.16.2.

Requirements for accessible routes, entrances, and toilet rooms will be provided at the main level. Refer to notations regarding the feasibility of accessible routes at upper levels.

Section 306.7.18.1 – Site arrival points
Not fewer than one exterior accessible route, including curb ramps from a site arrival point to an accessible entrance, shall be provided and shall not be less than 36 inches minimum in width.
Exterior accessible routes of 36" or larger will be provided from the site arrival points to an accessible entrance.

Section 306.7.18.2 – Multiple-level buildings and facilities
An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.
Accessible routes will be provided throughout public spaces on the level of the accessible entrance.

Section 306.7.18.3 – Entrances
Where an entrance cannot be made accessible in accordance with Section 306.7.5, an accessible entrance that is unlocked while the building is occupied shall be provided; or, a locked accessible entrance with a notification system or remote monitoring shall be provided.
Signs complying with Section 1112 of the IBC shall be provided at the public entrances and the accessible entrance.
Accessible routes will be provided throughout public spaces on the level of the accessible entrance.

Section 306.7.18.4 – Toilet facilities
Where toilet rooms are provided, not fewer than one accessible single-user toilet room or one accessible family or assisted-use toilet room complying with Section 1110.2.1 of the IBC shall be provided.
Requirements for accessible routes, entrances, and toilet rooms will be provided at the main level.

Section 309– Additions and replacements of exterior wall coverings and exterior wall envelopes

Section 309.1– General
The provisions of Section 309 apply to all alterations, repairs, additions, relocations of structures and changes of occupancy regardless of compliance method.

Section 309.2 – Additions and replacements
Where an exterior wall covering or exterior wall envelope is added or replaced, the materials and methods used shall comply with the requirements for new construction in Chapter 14 and 26 of the IBC if the added or replaced exterior wall covering or exterior wall envelope involves two or more contiguous stories and comprises more than 15% of the total wall area on any side of the building.
Some exterior wall covering will be replaced or repaired, but the extent of these replacements will be less than 15% for any given side.

### CHAPTER 5 – Prescriptive Compliance Method

Section 501.2 Fire-Resistance Ratings
Where approved by the code official, in buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the IBC has been added, and the building is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code. The building is required to meet the other applicable requirements of the IBC.
An automatic sprinkler system will be added to all required areas of the existing building.

Section 506.1 Compliance
A change of occupancy shall not be made in any building unless that building is made to comply with the requirements of the IBC for the use or occupancy.
Refer to exceptions outlined in 2021 IEBC Chapter 12.

Section 506.1.1 Change in the character of use
A change of occupancy with no change of occupancy classifications shall not be made to any structure that will subject the structure to any special provisions of the applicable International Codes, without approval of the code official. Compliance shall be only as necessary to meet the specific provisions and is not intended to require the entire building be brought into compliance.
Only the areas intended to be occupiable to the public will be brought into full compliance with all applicable standards with some exceptions. The entire building will be fire sprinklered per NFPA 13. The upper floors of the building are not occupiable, are considered as "attic spaces" and will not be conditioned or brought up to full life safety compliance.

Section 507.1 – Historic Buildings
The provisions of this code that require improvements relative to a buildings existing condition or, in the case of repairs, that require improvements relative to buildings pre-damage condition, shall not be mandatory for historic buildings unless specifically required by this section.
Refer to exceptions outlined in 2021 IEBC Chapter 12.

Section 507.2 – Life safety hazards
The provisions of this code shall apply to historic buildings judged by the code official to constitute a distinct life safety hazard.
It is unfeasible nor desirable to alter upper-level floor spaces to meet current codes for stairs, railings, exiting distances, etc. Refer to exceptions outlined in 2021 IEBC Chapter 12.

### CHAPTER 6 – Classification of work

Section 601.1 – Scope
The provisions of this chapter shall be used in conjunction with Chapters 7 through 12 and shall apply to the alteration, addition and change of occupancy of existing structures, including historic and moved structures, as referenced in Section 301.3.2. The work performed on an existing building shall be classified in accordance with this chapter.

Section 604 – Alteration – Level 3
Section 601.1 – Scope
Level 3 alterations apply where the work area exceeds 50% of the building area.
The work area will exceed 50% of the building area and the building will undergo a change of occupancy.

Section 605 – Change of Occupancy

Section 605.2 – Application
Changes of occupancy shall comply with the provisions of Chapter 10.

Section 607 – Historic Buildings

Section 607.2 – Application
Except as specifically provided for in Chapter 12, historic buildings shall comply with applicable provisions of this code for the type of work being performed.
Refer to exceptions outlined in 2021 IEBC Chapter 12.

### CHAPTER 10 – Change of Occupancy Classification

Section 1001.2.1- Change of use
Any work undertaken in connection with a change in shall conform to the applicable requirements for the work as classified in Chapter 6 and to the requirements of Section 1002 through 1010.
Exception: As modified in Section 1204 for historic buildings.
Refer to exceptions outlined in 2021 IEBC Chapter 12.

Section 1002 – Special Use and occupancy

Section 1002.1 – Compliance with the building code
Where an existing building or part of an existing building undergoes a change of occupancy to one of the special use or occupancy categories as described in Chapter 4 on the IBC, the building shall comply with all of the requirements of Chapter 4 of the IBC applicable to the special use or occupancy.
Refer to exceptions outlined in 2021 IEBC Chapter 12.

Section 1010.1 – Light and ventilation
Light and ventilation shall comply with the requirements of the IBC for the new occupancy.
Refer to exceptions outlined in 2021 IEBC Chapter 12.

Section 1011 – Change of occupancy classification

Section 1011.1 - General
The provisions of this section shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group. The provisions of this section shall also apply where there is a change of occupancy within a building or portion thereof and there is a different fire protection system threshold requirement in Chapter 9 of the current IBC than exists in the current building or space. Such buildings shall also comply with Sections 1002 through 1010 of this code.
It is the intent to adhere to all of the requirements of Chapter 9 of the IBC related to Fire Sprinkler Systems.

Section 1011.2.1 – Automatic Sprinkler system
The installation of an automatic sprinkler system shall be required where there is a change of occupancy classification and Chapter 9 of the current IBC requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current IBC than exists in the current building or space. The installation of the automatic sprinkler system shall be required within the area of the change of occupancy and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partitions and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

1. Nonrated permanent partition and horizontal assemblies.
2. Fire partition
3. Smoke partition
4. Smoke barrier
5. Fire barrier
6. Fire wall

The building will be equipped throughout with a NFPA 13 fire protection system.

Section 1011.3 – Interior finish
In areas of the building undergoing the change of occupancy classification, the interior finish of the walls and ceiling shall comply with the requirement of the IBC for the new occupancy classification.
Refer to exceptions outlined in 2021 IEBC Chapter 12. The existing interior finishes and structure are all made of wood framing and wood paneling. It is the intent to repair and rebuild existing areas to maintain the historic character.

### Chapter 12 – Historic Buildings

Section 1201.1 - Scope
This chapter is intended to provide means for the preservation of historic buildings. Historic buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

Section 1201.2 - Report
A historic building undergoing alteration or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional where such a report is necessary in the opinion of the code official. Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this chapter and were compliance with other chapters of these provisions would be damaging to the contributing historic features. Additionally, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.
It is the intent to meet applicable IBC, IECC, and IEBC requirements for areas of the building to be altered to meet current codes. Some exceptions will be proposed to maintain the historical significance of the building.

Section 1201.3 – Special occupancy exceptions-museums
Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 sf, the code official is authorized to determine that the occupancy is Group B where life safety conditions can be demonstrated in accordance with Section 1201.2.
Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.
It is the intent to have assembly areas that will be open to the public year-round. Some areas will only be accessed seasonally. And, some select areas will be open to guided tours. Detailed descriptions and vertical/horizontal assemblies will be described that enclose each of these areas to address safety and energy requirements.

Section 1201.5 – Unsafe conditions
Conditions determined by the code official to be unsafe shall be remedied. Work shall not be required beyond what is required to remedy the unsafe conditions.
It is the intent to remediate unsafe conditions in all assembly areas. Some areas accessed through guided tours may not meet all IBC Chapter 10 requirements to ensure the integrity of the historic features.

Section 1202 – Repairs

Section 1202.1 – General
Repairs to any portion of a historic building or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.
Some repairs utilizing original methods of construction will be required. No asbestos or lead-based paint will be used.

Section 1202.2 – Replacement
Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height and size shall be permitted.
Replacement glazing in hazardous location shall comply with the safety glazing requirements of Chapter 24 of the IBC.
All new glazing will be safety glazing as required by Chapter 24 of the IBC.

Section 1203 – Fire Safety

Section 1203.1 – Scope
Historic buildings undergoing alterations, changes of occupancy or that are moved shall comply with Section 1203.

Section 1203.2 – General

Every historic building that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any facility.
An NFPA 13 fire-extinguishing dry system is proposed to minimize fire hazards for the entire structure. The required number of exits per the IBC will be met.

Section 1203.3 – Means of egress
Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. Where approved by the code official, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.
It is the intent that all new and existing means of egress within assembly areas will meet the requirements of the IBC.

Section 1203.5 – Interior finishes
The existing interior finishes shall be accepted where it is demonstrated that they are the historic finishes.
The entirety of the above grade existing structure is constructed with wood including beams, columns, and interior finishes. It is the intent to utilize wood structure and interior finishes in all repairs, alterations, and additions.

Section 1203.6 – Stairway enclosure
In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating.
Refer to notations in response to IBC Section 712.1.9 and 713.

Section 1203.7 – One-hour fire-resistant assemblies
Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.
All existing wall and ceilings are made of wood.

Section 1203.8 – Glazing in fire-resistance-rated systems
Historic glazing materials are permitted in interior walls required to have a 1-hour fire-resistance rating where the opening is provided with approved smoke seals and the area affected is provided with an automatic sprinkler system.
Refer to specific areas to receive glazing.

Section 1203.12 – Automatic fire-extinguishing systems
Every historic building that cannot be made to conform to the construction requirements specified in the IBC for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an approved automatic fire-extinguishing system.
An approved automatic fire-extinguishing system is proposed for this building.

Section 1204 – Change of Occupancy

Section 1204.4 – Occupancy separation
Required occupancy separations of 1 hour may be omitted where the building is provided with an approved automatic sprinkler system throughout.
No occupancy separations are proposed.

Section 1204.9 – Interior finishes
Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the IBC, existing nonconforming materials shall be permitted to be surfaced with an approved fire-retardant coating to achieve the required classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. Where the same material is not available, it shall be permitted to test on a similar material.
Exception: Existing nonconforming materials need not be resurfaced with an approved fire-retardant coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the IBC and the nonconforming materials can be substantiated as being historic in character.

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
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STATE OF COLORADO
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CODE ANALYSIS

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A016
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The existing wood finishes are intended to remain and an automatic sprinkler system installed in accordance with the IBC.

Section 1204.14 – Natural light
Where it is determined by the code official that compliance with the natural light requirements of Section 1010.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered to be acceptable.
Some natural lighting requirements required through IBC 1204.2 will not be met without affecting the historic character of the building.

## 2024 IECC Summary

### CHAPTER 5 – Existing Buildings

Section C501.1 Scope - The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing buildings and structures.

Section C501.1.1 - Except as specified in this Chapter, this code shall not be used to require the removal, alteration or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

Section C501.2 - Additions, alterations, repairs, and changes of occupancy to, or relocation of, existing buildings and structures shall comply with Sections C502, C503, C504, and C505 of this code.

Section C501.5 - Historic Buildings
Provisions of this code relating to the construction, repair, alteration, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings provided that a report has been submitted to the code official and signed by a registered design professional, demonstrating that compliance with that provision would threaten, degrade or destroy the historic form, fabric, or function of the building.
A report, if required, that describes specific construction that will not adhere to current energy requirements as these requirements will degrade or destroy the historic form, fabric, or function of the building.

Section C502 – Additions

Section C502.1 – General
Additions to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.
An addition to the existing structure is proposed. The addition is intended to meet the requirements for new construction per the IBC and IECC. Portions of the existing structure are intended to transform from unconditioned to conditioned space. A report will define what areas will be able to meet or not meet energy requirements without degrading or destroying the historic form or fabric.

Section C503.1 Alterations
Alterations to any building or structure shall comply with the requiremeents of Section C503. Alterations shall be such that the existing building or structure is not less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this cod as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall no create an unsafe or hazardous condition or overload existing building systems.
Alterations to the existing structure are proposed. The alterations are intended to meet the requirements for new construction per the IBC. However, a report will define what areas will be able to meet or not meet energy requirements without degrading or destroying the historic form or fabric.

Section C505 - Change of Occupancy or Use
Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code. Where the use in a space changes from on use in Table C405.3.2(1) or C405.3.2(2) to another use in Table C405.3.2(1) or C405.3.2(2), the installed lighting wattage shall comply with Section C405.3. Where the space undergoing a change in the occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided that there is not an increase in fenestration area.
This building will have a change of occupancy from the historic original grain storage to that of a tavern and museum. Refer to section C501.5 and associated report identifying conformance with energy code without destroying the historic form or fabric of the existing building.

## 2024 IBC Summary

### CHAPTER 3 – Use and Occupancy Classification

Group A-2 – Assembly (Tavern)

| OCCUPANCY & AREA SUMMARY | Building Code Area | Occupancy | Notes |
|---|---|---|---|
| Basement - Total | 1,216 sf | | |
| *Tavern* | *242 sf* | *A-2* | 14.5 occ |
| *Accessory storage* | *974 sf* | *A-2* | 2.88 occ |
| Ground Level - Total | 3,446 sf | | |
| *Tavern* | *3,446 sf* | *A-2* | 163.5 occ |
| Second Level - Total | 586 sf | | |
| *Tavern + mezzanine* | *586 sf* | *A-2* | 25.66 |
| Third Level – (attic) (not open to public) | 0 | | |
| **Total IBC Building Area** | **5,248 sf** | **Mixed Occ.** | *207 total occupants |

*All occupancy counts for assembly areas are based on net square footage

### CHAPTER 5 – General Building Heights and Areas

Note: The building shall be provided with Automatic Fire Sprinkler System throughout per 903.3.1.1 (NFPA 13)

Section 504 Building Height and Number of Stories:
Table 504.3 Allowable Height - Type V-B Construction (sprinklered):
A = 60 ft max allowable height
Actual height to top of tower = 48'-6"
Table 504.3 Allowable Stories above grade plane - Type V-B Construction (sprinklered):
A-2 2 story

Section 504.4 Number of stories
The maximum number of stories above grade plane of a building shall not exceed the limits specified in Table 504.4.
Per this section, the basement is not considered when calculating the number of stories.

Table 506.2 Allowable Area - Type V-B Construction (sprinklered):
A-2 18,000 sf

Section 508.2.1 Accessory Occupancy classification
Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.
The basement has spaces dedicated to storage and an employee office. This area is classified as B.

Section 506.2.4 Separation of occupancies.
No separation is required between accessory occupancies and the main occupancy.

### CHAPTER 6 – Types of Construction

Fire Resistance Ratings:

Table 601 Type V-B Building structural elements are non-rated.

### CHAPTER 7 – Fire Resistance Rated Construction

Table 705.2 Projections with a fire separation distance from 2'-3' are allowed up to a 24" projection.

Table 705.5 Fire Resistance of building elements based on fire separation distance.
In construction type V-B, building elements greater than 10' from property line or to the center of the street, an alley or public way measured at right angles from the face of wall do not require a fire resistance rating.
All existing walls exceed 10' to the property line or to center line of the railroad ROW.

Section 705.9.1 Exception #2 -
Unlimited unprotected openings are allowed for Type VB construction.

Section 712.1.9 Two-story openings
A vertical opening that is not used as one of the applications specified in this section shall be permitted if the opening complies with all of the following items:
1. Does not connect more than two stories.
2. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments
3. Is not concealed within the construction of a wall or a floor/ceiling assembly.
4. Is not open to a corridor in Group I and R occupancies.
5. Is not open to a corridor on nonsprinklered floors.
6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

One exit access stair is open and communicates between the second level and the ground level. Another exit access stair is provided between the basement and the first floor. Refer to Section 1019.3 for additional information.

Section 713.4 A 1 hour fire rated shaft enclosure is required for shafts connecting less than four stories.
Refer to IEBC Section 1203.7 regarding fire ratings of shaft enclosures and construction requirements.

Section 713.6 Exterior walls serving as part of a shaft enclosure need not comply with fire rated enclosure requirements.

### CHAPTER 8 – Interior Finishes

Table 803.13 Interior wall and ceiling finish requirements by occupancy in buildings equipped with an automatic sprinkler system:
A-2 – Interior exit stairways/corridors/exit access stairways = B
Rooms and enclosed spaces = C
Refer to IEBC 1204.9, the existing wood finishes are intended to remain and an automatic sprinkler system installed in accordance with the IBC.

### CHAPTER 9 – Fire Protection Systems

Section 903 The building will be provided throughout with a NFPA 13 automatic sprinkler system.

### CHAPTER 10 – Means of Egress

Each existing 1st Floor tenant space will remain as is. Each new residential unit, except those two located adjacent to the central exit access stair, will receive new individual exterior exit stairs.

Table 1004.5 Basement occupant load = 332/15 + 864/300 = 12.13 + 2.88 = 15.01
Ground floor occupant load = 2,617.5 net/15 = 174.5
2nd floor occupant load = 251/15 = 16.73
(occupant load based on net area)

Section 1006.3.4 Single Exits

Table 601 Type V-B Building structural elements are non-rated.

### CHAPTER 7 – Fire Resistance Rated Construction

Table 705.2 Projections with a fire separation distance from 2'-3' are allowed up to a 24" projection.

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1. Does not connect more than two stories.
2. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments
3. Is not concealed within the construction of a wall or a floor/ceiling assembly.
4. Is not open to a corridor in Group I and R occupancies.
5. Is not open to a corridor on nonsprinklered floors.
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2nd floor occupant load = 251/15 = 16.73
(occupant load based on net area)

Section 1006.3.4 Single Exits

A single exit or access to a single exit shall be permitted from any story or occupiable roof where one of the following conditions exist.
1. The occupant load and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

Table 1006.3.4(2) Stories with one exit or access to one exit for other occupancies
First story above or below grade plane – A occupancy – max occ. Load = 49 – max exit access travel distance = 75'
Spaces within the basement and the second floor both have single exit access stairways to the ground floor. Neither space exceeds the maximum occupancy count or exit access travel distance. Refer to the code plan for clarification.

Section 1009 Accessible Means of Egress:
Components of Accessible Means of Egress
1. Accessible Routes (1104)
2. Stairways complying with 1009.3 and 1023

Section 1009.2.1
The elevator is only required to be an accessible means of egress if an accessible floor is four or more stores above the level of exit discharge. An elevator is not required.

Section 1009.3.2 Exception #1
48" between handrails is not required with fire sprinklers.

Section 1009.3.3 Exception #2
Area of refuge not required in buildings with fire sprinklers.

Section 1011.2 44" width required except if greater than specified in Section 1005

Section 1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* shall be enclosed with a *shaft enclosure* constructed in accordance with Section 713.
Exception #1: Exit access stairways and ramps within a two-story opening complying with Section 712.1.9.
Exception #4: *Exit access stairways* and *ramps* in *buildings* equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
The exit access stairway from the second level will atmospherically communicate with the ground floor. This exit access stair opening will be provided with a draft curtain that complies with NFPA 13 Section 9.3.5.2. The draft curtain will be made of noncombustible material, hang from the ceiling 18", and be able to stay in place before and during sprinkler operation.

Section 1028 Exit Discharge
Section 1028.5 All exits on the first floor provide direct access to the public way.

### Chapter 11 – Accessibility

Section 1104.4 – Multistory buildings and facilities
At least one accessible route shall connect each accessible story, mezzanine, and occupied roofs in multilevel buildings and facilities.
Exceptions:
1. An accessible route is not required to stories, mezzanines and occupied roofs that have an aggregate area of not more than 3,000sf and are located above and below accessible levels.

The aggregate area of usable areas in the basement, on the second level, and on the mezzanine is less than 3,000sf and not required to be accessible.

Section 1109.2.9 – Dining and drinking areas
In dining and drinking areas, all interior and exterior floor areas shall be accessible and be on an accessible route.
Exceptions:
1. An accessible route between accessible levels and stories above or below is not required where permitted by Section 1104.4, Exception #1.

Section 1110.2.4 – Water closet compartment
Where the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least 5 percent of the total number of compartments shall be ambulator accessible, provided in addition to the wheelchair-accessible compartment.
One handicap accessible and one ambulator accessible toilet compartment will be provided.

Section 1110.2.5 – Lavatories
Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible.

## 2024 IPC Summary

### CHAPTER 4 – Fixtures, Faucets, and Fixture Fittings

Table 403.1 Minimum number of required plumbing fixtures
Bars/Taverns water closets - male = 1 per 40 / female = 1 per 40
228 occupants/40 = 5.7 water closets 3 male/3 female
(Refer to Section 424.3 to allow 2 urinals to substitute 2 water closets
Lavatories = 1 per 75
228 occupants/75 = 3 lavatories

Section 424.2 Substitution for water closets
In each bathroom or toilet room, urinals shall not be substituted for more than 67% of the required water closets in assembly and educational occupancies.

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
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REVISIONS:
01/16/26 ADDENDUM 1
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CODE ANALYSIS

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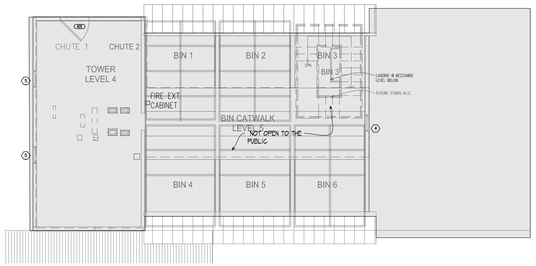
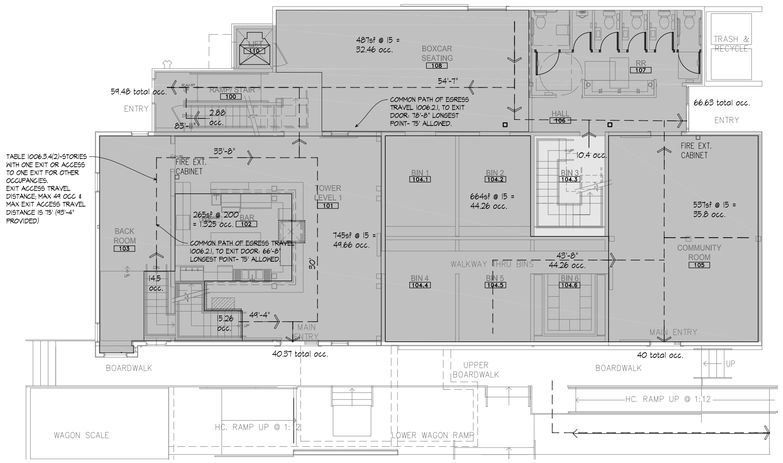



## B2 / A018 FLOOR PLAN – FOURTH/FIFTH FLOOR LEVELS (3RD STORY)

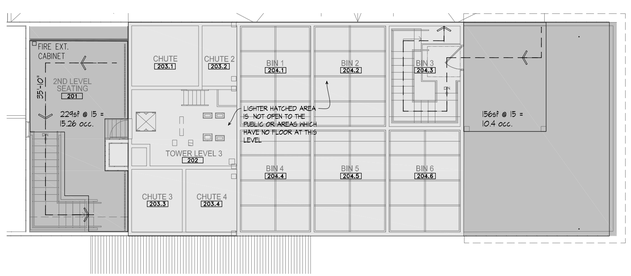
1" = 10' – 0"

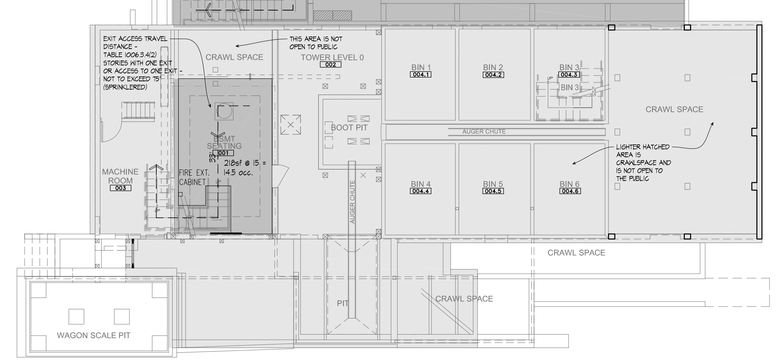
PLAN NORTH

## B1 / A018 FLOOR PLAN – FIRST FLOOR LEVEL (1ST STORY)

1" = 10' – 0"

PLAN NORTH




## A2 / A018 FLOOR PLAN – SECOND/THIRD FLOOR LEVELS (2ND STORY)

1" = 10' – 0"

PLAN NORTH

## A1 / A018 FLOOR PLAN – BASEMENT LEVEL / CRAWLSPACE

1" = 10' – 0"

PLAN NORTH

### HABITABLE SPACE GENERAL NOTES:

- DARKER HATCHED AREAS INDICATE CONDITIONED SPACE; LIGHTER HATCHED AREAS INDICATE UNCONDITIONED AND/OR NON-HABITABLE SPACE

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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**Basement, 1st 2nd & 3rd Story Code Plans**

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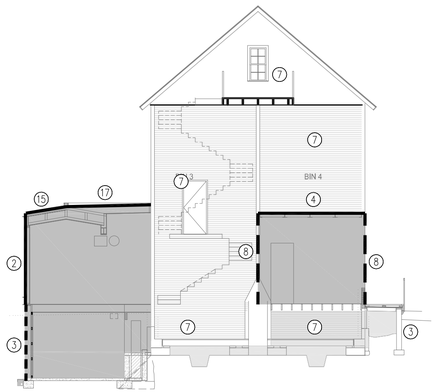
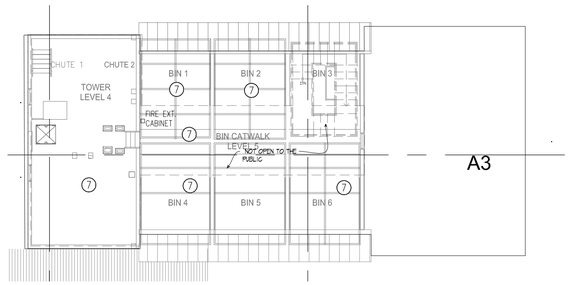
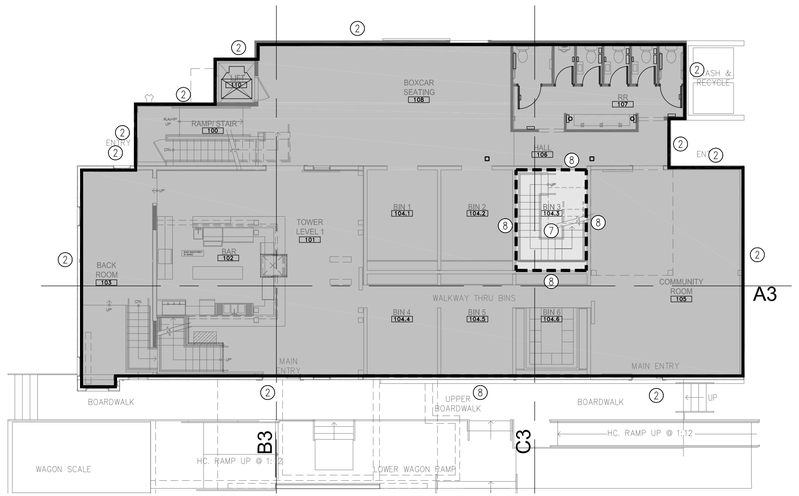



C3 A020 BUILDING SECTION

1" = 10' - 0"



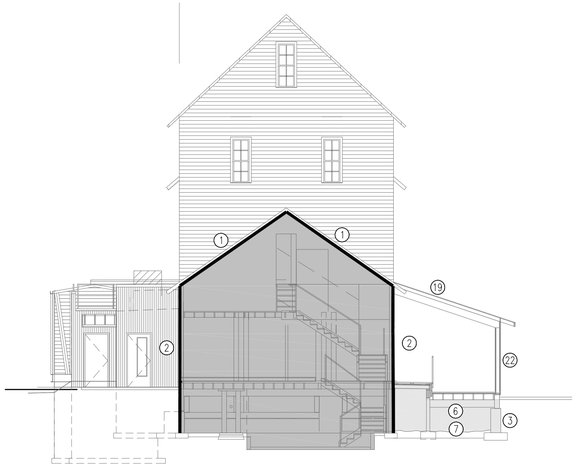




B2 A018 FLOOR PLAN - FOURTH/FIFTH FLOOR LEVELS (3RD STORY)

1" = 10' - 0"

B1 A018 FLOOR PLAN - FIRST FLOOR LEVEL (1ST STORY)

1" = 10' - 0"




B3 A020 BUILDING SECTION

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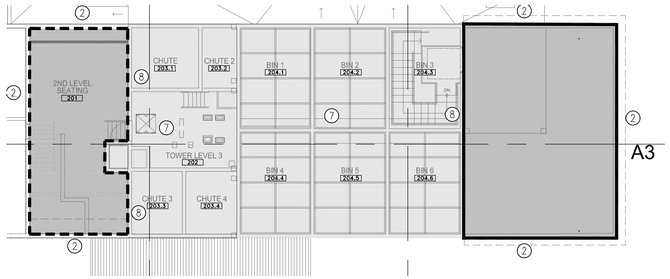


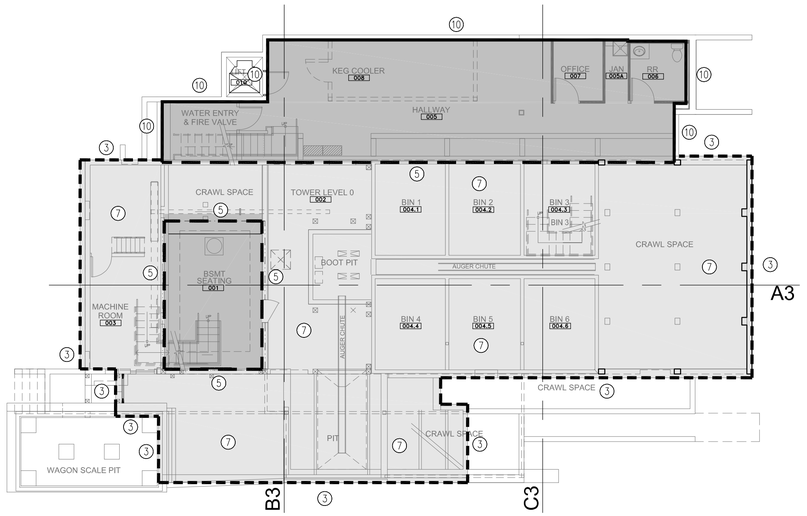


A2 A018 FLOOR PLAN - SECOND/THIRD FLOOR LEVELS (2ND STORY)

1" = 10' - 0"

A1 A018 FLOOR PLAN - BASEMENT LEVEL / CRAWLSPACE

1" = 10' - 0"

## THERMAL ENVELOPE GENERAL NOTES:

- DARKER HATCHED AREAS INDICATE CONDITIONED SPACE: LIGHTER HATCHED AREAS INDICATE UNCONDITIONED AND/OR NON-HABITABLE SPACE
- SPRAY FOAM INSULATION TO BE HUNTSMAN HEATLOK HFO HIGH LIFT W/ MIN. R-7 PER INCH
- PROVIDE ½" GWB TO COVER ALL SPRAY FOAM INSULATION UON

## THERMAL ENVELOPE NOTES:

1. R-49 SPRAY FOAM INSULATION BETWEEN ROOF JOISTS
2. R-24.5 SPRAY FOAM INSULATION BETWEEN WALL STUDS
3. R-10 CONTINUOUS XPS INSULATION AT OUTSIDE OF EXISTING FOUNDATION WALLS
4. R-30 REMOVABLE LAY-IN INSULATED PANELS
5. EXISTING WALL - OPEN TO UNCONDITIONED BASEMENT AREAS
6. R-49 ROOF / CEILING
7. CRAWLSPACE AREAS MECHANICALLY CONDITIONED
8. R-3.5 UNINSULATED STACK PLANK 3.5" SOLID WOOD
9. R-5.5 UNINSULATED STACK PLANK 5.5" SOLID WOOD
10. R-10 CONTINUOUS FOUNDATION WALLS
11. R-49 XPS RIGID INSUL. BETWEEN JOISTS
12. R-3.5 SOLID WOOD WALL
13. EXISTING WOOD WALL
14. R-21 EXISTING SPRAY FOAM WALLS
15. R-77 ROOF - 4" SPRAY FOAM + 14" BLOW-IN FIBERGLASS INSUL.
16. R-21 WALL - 5.5" BATT INSUL
17. R-75 ROOF - 4" SPRAY FOAM + 7.25"-22" OF BLOW-IN FIBERGLASS INSUL.
18. R-0 EXTERIOR ROOF
19. R-0 EXTERIOR ROOF
20. R-0 CRAWLSPACE
21. R-0 FLOOR SLAB
22. R-0 EXTERIOR WALL

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JON ERIK HARTRONFT B-2238 12.05.25 STATE OF COLORADO LICENSED ARCHITECT

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Basement, 1st 2nd & 3rd Story Envelope Plans

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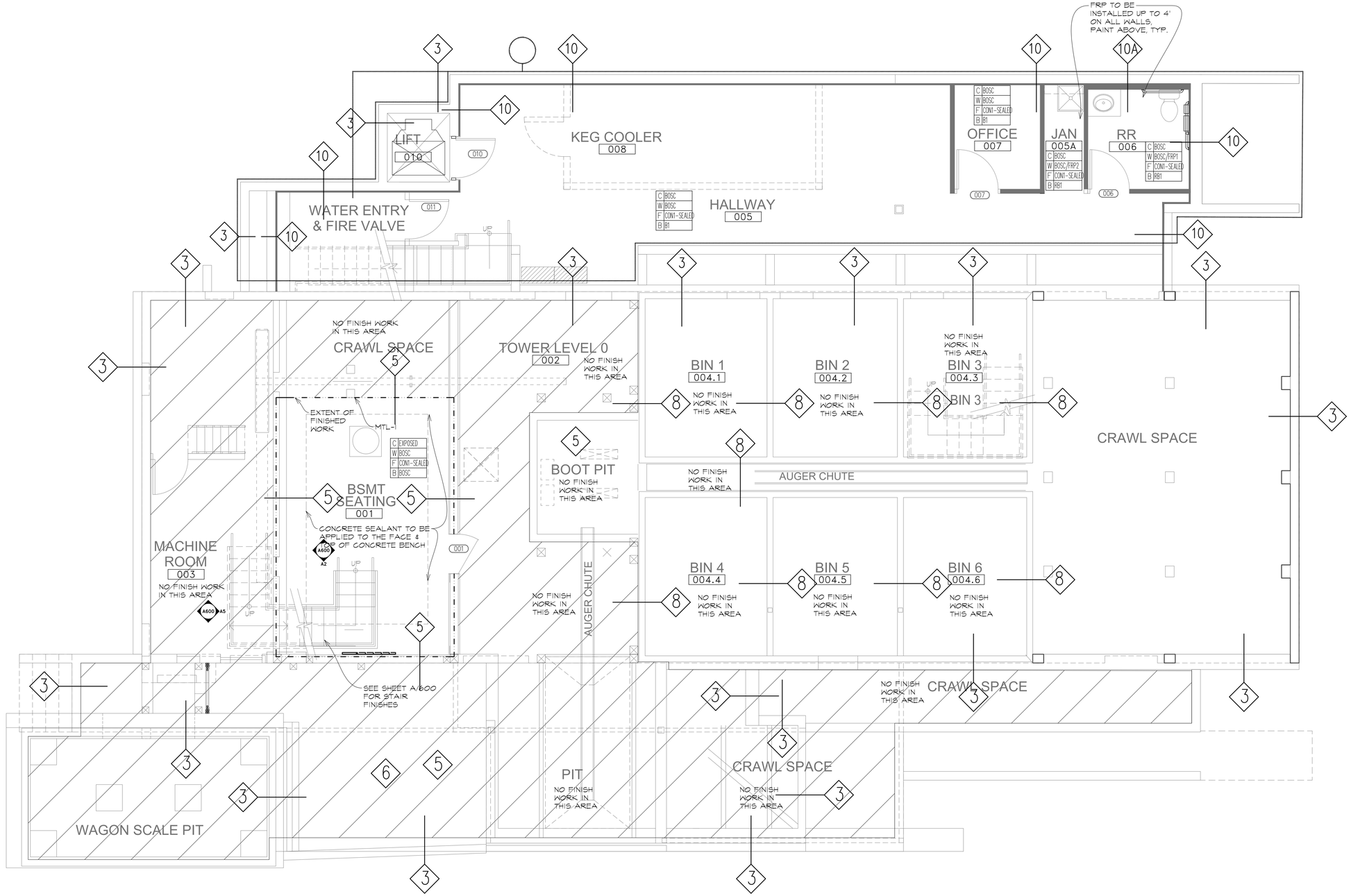


A1/A030 FLOOR PLAN - BASEMENT LEVEL / CRAWLSPACE

1/4"= 1'-0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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WALL TYPES & FINISH TAGS

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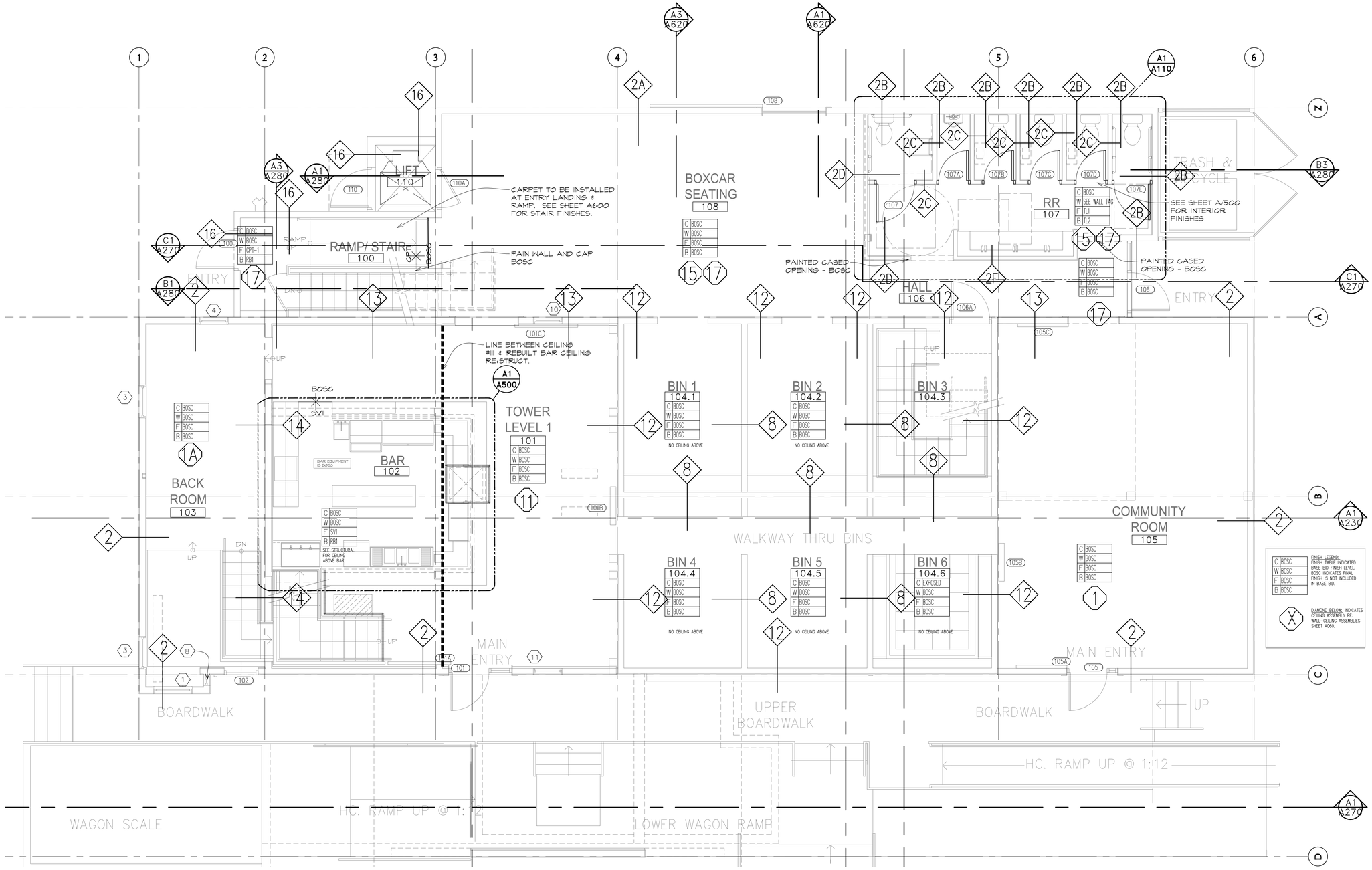


A1 / A040 WALL TYPES - FIRST FLOOR LEVEL (1ST STORY)

1/4"=1'-0"

PLAN NORTH

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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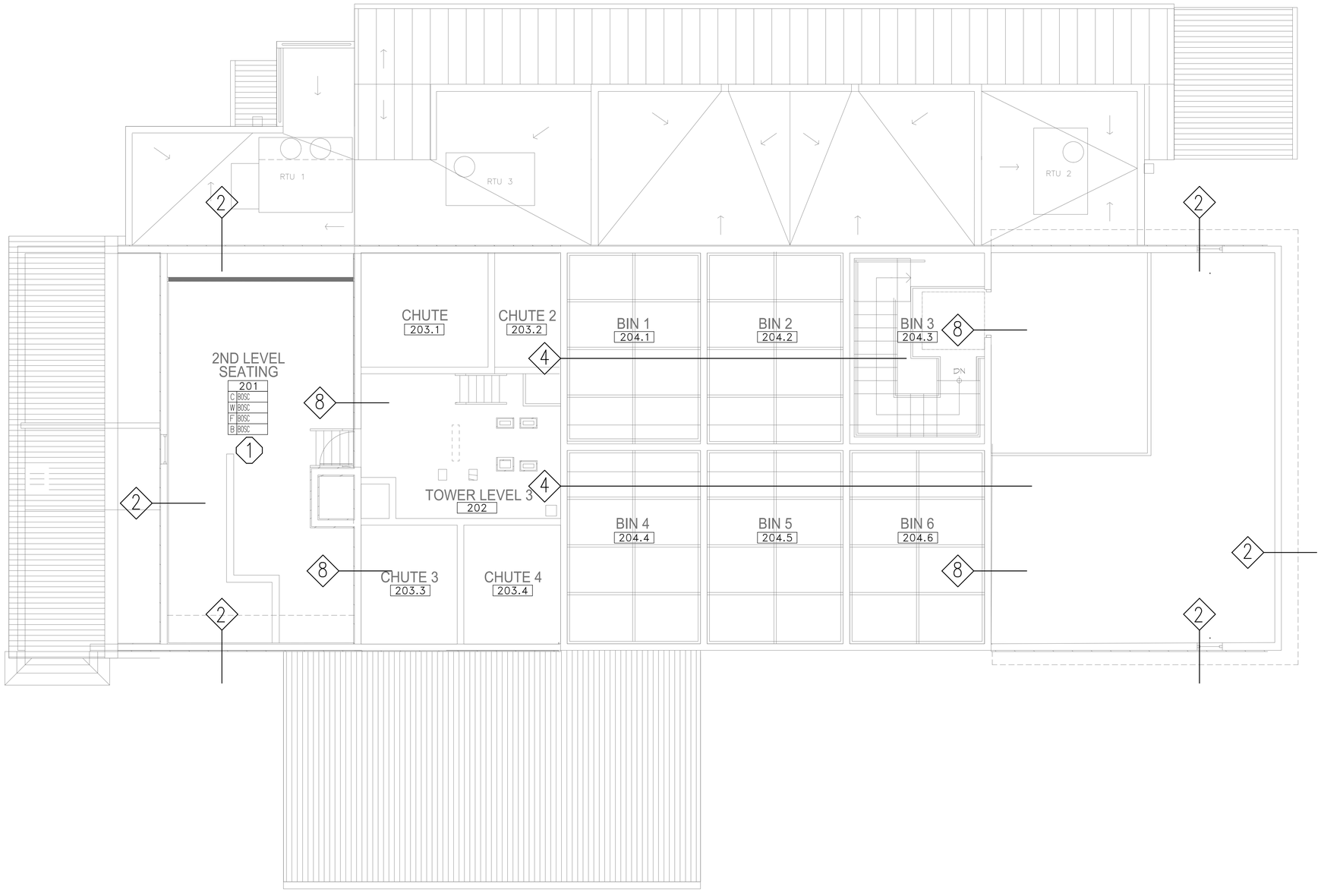


A1/A050 FLOOR PLAN - SECOND/THIRD FLOOR LEVELS (2ND STORY)

1/4"=1'-0"

PLAN NORTH

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK


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WALL TYPES & FINISH TAGS

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# WALL, ROOFS & FLOOR TYPES LEGEND:

GENERAL FINISH NOTES : INTERIOR
1. ALL INTERIOR SURFACES TO RECEIVE CLEANING U.O.N.
2. CLEANING LEVELS FOR INTERIOR SURFACES: CLEAN DUST & DEBRIS - BOSC
3. BOSC - "BY OWNER'S SEPARATE CONTRACTOR". THIS WORK WILL BE N.I.C. FOR CORE AND SHELL. CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS. TYP.
4. GWB FINISH INFORMATION:

Finish Level 2 specification for this project - GWB covered by addition finish materials - This level of finish requires all joints and interior angles to have tape embedded in the joint compound. Some tool marks are acceptable. Follow these steps:
- Wipe joints with a joint knife, leaving a thin layer of compound over all the joints and interior angles.
- Cover fastener heads and accessories with one layer of joint compound.
- Surface is to be free of excess joint compound.

Finish Level 4 specification for this project - GWB to be a final, visible finish - This includes GWB to be painted.- This level of finish requires all joints and interior angles to have tape embedded in the joint compound.
- After wiping joints with a joint knife, leave a thin layer of compound over all joints, and add two coats of joint compound over all flat joints.
- After wiping interior angles with a joint knife leave a thin layer of compound , add one separate coat of joint compound over interior angles.
- Cover fastener heads and accessories with three layers of joint compound.
- Confirm the surface is smooth and free of tool marks.

Location of finish levels Level 4-
- Level 4 finishes to be provided in entire boxcar basement-all walls and ceilings of rooms including but not limited to Office #007, Janitor #005A, Restroom #006, Hallway #005, Water Entry and Fire Valve & Stairs.
- Level 4 finishes to be provided in main level Rest Room #107 including stalls, walls and ceilings.

Location of finish levels Level 2-
- Where Level 4 is not indicated.

GENERAL FINISH NOTES : EXTERIOR
1. EXISTING SIDING & STACKED PLANK WALLS, TO BE REPAIRED OR REPLACED TO MATCH ORIGINAL AS REQUIRED. PAINT TO MATCH ORIGINAL COLOR AS CLOSELY AS POSSIBLE. SUBMITS SAMPLE TO ARCHITECT FOR APPROVAL PRIOR TO START OF WORK. PROVIDE ON-SITE SAMPLE OF SIDING FOR ARCHITECT APPROVAL.
2. REFER TO STRUCT. FOR SHEER WALL LOCATIONS AND ADDITIONAL OSB SHEATHING REQUIREMENTS. PLACE OSB UNDER GWB WHERE APPLICABLE

| TYPE | DETAIL | DESCRIPTION | COMMENTS |
|---|---|---|---|
| 1 | EXTERIOR / INTERIOR | - EXISTING METAL ROOFING<br>- EXISTING 1/2" OSB SHEATHING<br>- EXISTING 3/4" SKIP SHEATHING<br>- EXISTING 2x8 RAFTERS<br>- PROVIDE NEW R-49 SPRAY FOAM INSULATION<br>- 1/2" GYP BD.<br>- PROVIDE NEW ⅞" INTERIOR WOOD SIDING - FINISH - BOSC | BOSC - "BY OWNER'S SEPARATE CONTRACTOR"<br>THIS WORK WILL BE N.I.C. FOR CORE AND SHELL.<br>CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS. TYP. |
| 1A | EXTERIOR / INTERIOR | - EXISTING METAL ROOFING<br>- EXISTING 1/2" OSB SHEATHING<br>- EXISTING 3/4" SKIP SHEATHING<br>- EXISTING 2x6 RAFTERS<br>- PROVIDE NEW R-49 SPRAY FOAM INSULATION<br>- 1/2" GYP BD. AT UNDERSIDE OF ROOF FRAMING<br>- REPAIR EXISTING WOOD CEILING - BOSC | BOSC - "BY OWNER'S SEPARATE CONTRACTOR"<br>THIS WORK WILL BE N.I.C. FOR CORE AND SHELL.<br>CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS. TYP. |
| 2 | EXTERIOR / INTERIOR | - EXISTING 1x WOOD SIDING -REPAIR/ PAINT- SEE COMMENTS<br>- EXISTING 2x6 WOOD STUD WALLS<br>- PROVIDE NEW SPRAY FOAM INSULATION INFILL MIN R-27.<br>- 1/2" GPB BD.<br>- PROVIDE NEW ½" INTERIOR WOOD LAP SIDING - BOSC | BOSC - "BY OWNER'S SEPARATE CONTRACTOR"<br>THIS WORK WILL BE N.I.C. FOR CORE AND SHELL.<br>CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS. TYP. ALL OTHER ITEMS OF ASSEMBLY ARE INCLUDED IN CORE & SHELL WORK SCOPE.<br><br>EXIST'G SIDING TO BE REPAIRED OR REPLACED TO MATCH ORIGINAL AS REQUIRED. PAINT TO MATCH ORIGINAL COLOR AS CLOSELY AS POSSIBLE. TYP. |
| 2A | EXTERIOR / INTERIOR | - PROVIDE ⅜" WOOD LAP SIDING -ZERO JOINT- PAINTED FINISH- COLOR BY ARCHITECT.<br>- TYVEK WRAP D.<br>- 1" RIGID INSUL R-5<br>- ½" OSB SHEATHING<br>- WOOD 2x6 STUDS<br>- FULL DEPTH KRAFT FACED BATT INSULATION MIN R-21<br>-3/4" WOOD SIDING INTERIOR BOSC. | BOSC - "BY OWNER'S SEPARATE CONTRACTOR"<br>THIS WORK WILL BE N.I.C. FOR CORE AND SHELL.<br>CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS. TYP. ALL OTHER ITEMS OF ASSEMBLY ARE INCLUDED IN CORE & SHELL WORK SCOPE. |
| 2B | EXTERIOR / INTERIOR | - PROVIDE ⅜" WOOD LAP SIDING -ZERO JOINT- PAINTED FINISH- COLOR BY ARCHITECT.<br>- TYVEK WRAP D.<br>- 1" RIGID INSUL R-5<br>- ½" OSB SHEATHING<br>- WOOD 2x6 STUDS<br>- FULL DEPTH KRAFT FACED BATT INSULATION MIN R-21<br>- ½" CEMENT BOARD TO HEIGHT OF COVE AND WALL TILE, SEE A/500 FOR DIMS & LOCATIONS, ½" DRYWALL ABOVE<br>- 20 GA PATINA STEEL SHEET METAL PANELS SCREWED AT EDGES. CLEAR WASHABLE TOP COAT. | -INTERIOR WALL FINISHES IN RESTROOMS ARE NOT BOSC.<br>-PROVIDE CEMENT BD UNDER ALL TILE INSTALLATIONS TYP.<br>INTERIOR RESTROOM WALLS HAVE MULTIPLE FINISHES PER WALL. VERIFY LOCATIONS AND EXTENT OF FINISHES ON ELEVATIONS ON SHEET A500. |
| 2C | INTERIOR / INTERIOR | - 20 GA PATINA STEEL SHEET METAL PANELS SCREWED AT EDGES. CLEAR WASHABLE TOP COAT<br>- ½" CEMENT BOARD TO HEIGHT OF COVE AND WALL TILE, SEE A/500 FOR DIMS & LOCATIONS, ½" DRYWALL ABOVE<br>- WOOD 2x4 STUDS<br>- FULL DEPTH SOUND BATT INSULATION<br>- ½" OSB SHEATHING<br>- 20 GA PATINA STEEL SHEET METAL PANELS SCREWED AT EDGES. CLEAR WASHABLE TOP COAT | -INTERIOR WALL FINISHES IN RESTROOMS ARE NOT BOSC.<br>-PROVIDE CEMENT BD UNDER ALL TILE INSTALLATIONS TYP.<br>INTERIOR RESTROOM WALLS HAVE MULTIPLE FINISHES PER WALL. VERIFY LOCATIONS AND EXTENT OF FINISHES ON ELEVATIONS ON SHEET A500. |
| 2D | INTERIOR (RESTROOM) / INTERIOR (DINING) | - 20 GA PATINA STEEL SHEET METAL PANELS SCREWED AT EDGES. CLEAR WASHABLE TOP COAT<br>- ½" CEMENT BOARD TO HEIGHT OF COVE AND WALL TILE, SEE A/500 FOR DIMS & LOCATIONS, ½" DRYWALL ABOVE<br>- WOOD 2x4 STUDS<br>- FULL DEPTH SOUND BATT INSULATION<br>- PROVIDE ⅜" WOOD LAP SIDING -ZERO JOINT- PAINTED FINISH- COLOR BY ARCHITECT - BOSC. | -INTERIOR WALL FINISHES IN RESTROOMS ARE NOT BOSC.<br>-PROVIDE CEMENT BD UNDER ALL TILE INSTALLATIONS TYP.<br>INTERIOR RESTROOM WALLS HAVE MULTIPLE FINISHES PER WALL. VERIFY LOCATIONS AND EXTENT OF FINISHES ON ELEVATIONS ON SHEET A500.<br><br>-WALL FINISHES ON DINING RM SIDE ARE BOSC. |
| | NOT USED | | |
| 2F | INTERIOR (RESTROOM) / INTERIOR | - 20 GA PATINA STEEL SHEET METAL PANELS SCREWED AT EDGES. CLEAR WASHABLE TOP COAT<br>-MIRROR FULL WIDTH & HEIGHT - SEE RESTROOM ELEVATIONS-PAINTED GYP BD ABOVE MIRROR.<br>- ⅝" CEMENT BOARD TO HEIGHT OF COVE AND WALL TILE, SEE A/500 FOR DIMS & LOCATIONS, ⅝" DRYWALL ABOVE<br>- WOOD 2x4 STUDS<br>- FULL DEPTH SOUND BATT INSULATION<br>- PROVIDE ⅜" WOOD LAP SIDING -ZERO JOINT- PAINTED FINISH- COLOR BY ARCHITECT- BOSC. | -INTERIOR WALL FINISHES IN RESTROOMS ARE NOT BOSC.<br>-PROVIDE CEMENT BD UNDER ALL TILE INSTALLATIONS TYP.<br>INTERIOR RESTROOM WALLS HAVE MULTIPLE FINISHES PER WALL. VERIFY LOCATIONS AND EXTENT OF FINISHES ON ELEVATIONS ON SHEET A500.<br><br>-WALL FINISHES ON HALL SIDE ARE BOSC. |
| 3 | EXTERIOR / INTERIOR | - 2" XPS RIGID INSULATION - MIN R-10 (BELOW GRADE WALLS)<br>- PROVIDE DECO 20 DAMPPROOF COATING @ BELOW GRADE<br>- CONCRETE FOUNDATION | ON EXIST'G CONC WALLS PROVIDE SPRAY APPLIED DAMPROOFING - DECO 20 |
| 4 | INTERIOR (BIN) | - STEEL ANGLE FRAME ATTACHED TO SIDES OF EXISTING BINS - SEE PLANS FOR LOCATIONS. PAINT, COLOR BY ARCHITECT.<br>- REMOVABLE PANEL - ½" OSB ON TOP & BOTTOM W/ 2x WD SIDE FRAME ALL AROUND W/ 6" XPS RIGID INSULATION. PROVIDE ½" GYP BD ON BOTTOM BETWEEN OSB & RIGID INSUL. PANEL IS BOSC. STEEL IS IN BASE BUILDING CONTRACT. PAINT STL COLOR BY ARCHITECT. | CONFIRM ATTACHMENT OF STEEL ANGLE FRAME W/ STRUCTURAL ENGINEER. STEEL FRAME IS BASE BUILDING. |
| 5 | - SEE LOCATION ON SECTION SHEET A030, & A060 | - EXISTING WALL - NO CONSTRUCTION- ONLY CLEANING. | |
| 6 | | -1 ½" REDWOOD DECKING<br>-2X WOOD SLEEPERS (WRAP TOP OF SLEEPERS IN VYCOR DECK PROTECTOR TAPE)<br>-60 MIL GRAY TPO ADHERED<br>-1/4" DENSDECK COVERBOARD<br>-MIN. 5/8" OSB SHEATHING (RE: STRUCT<br>-SLOPED 2X JOISTS (RE: STRUCT) SLOPED MIN. 1/4"/FT.<br>-PROVIDE 4" OF SPRAY FOAM INSULATION (R-28) HUNTSMAN HEATLOK HFO<br>-5 1/2" OF KRAFT FACED BATT INSUL (R-21)<br>-COVER INSUL. WITH MIN. 1/2" GYPSUM BOARD | |
| 7 | - SEE LOCATION ON SECTION SHEET A060 | - UNCONDITIONED SPACE - NO MODIFICATIONS. | |
| 8 | - SEE LOCATION ON SECTION SHEET A030, A040, A050 & A060 | - UNINSULATED STACK PLANK 3.5" SOLID WOOD. NO MODIFICATIONS. | - EQUIVALENT TO R-3.5 SOLID WOOD. |
| 9 | - SEE LOCATION ON SECTION SHEET A030, A040, A050 & A060 | - UNINSULATED STACK PLANK 5.5" SOLID WOOD. NO MODIFICATIONS. | - EQUIVALENT TO R-5.5 SOLID WOOD. |

# WALL, ROOFS & FLOOR TYPES LEGEND CONTINUED:

| TYPE | DETAIL | DESCRIPTION | COMMENTS |
|---|---|---|---|
| 10 | EXTERIOR / INTERIOR | - 2" XPS RIGID INSULATION - MIN R-10 (BELOW GRADE WALLS)<br>- PROVIDE DECO 20 DAMPPROOF COATING @ BELOW GRADE FOUNDATION WALLS AN FOOTINGS.<br>- CONCRETE FOUNDATION WALL<br>- PROVIDE 2x FLAT FRAMING @ 16" O.C.<br>- ⅝" GYP BOARD - FINISH. PAINT. | GYP. BD FINISH TO BE LEVEL 2 WITH ORANGE PEEL TEXTURE U.O.N. |
| 10A | EXTERIOR / INTERIOR | - 2" XPS RIGID INSULATION - MIN R-10 (BELOW GRADE WALLS)<br>- PROVIDE DECO 20 DAMPPROOF COATING @ BELOW GRADE FOUNDATION WALLS AN FOOTINGS.<br>- CONCRETE FOUNDATION WALL<br>- PROVIDE 2x6 @ 16"O.C. FRAMING FOR PLUMBING WALL<br>-FILL WALL CAVITY W/ SOUND BATT INSULATION<br>- ⅝" GYP BOARD - FINISH. PAINT. | GYP. BD FINISH TO BE LEVEL 2 WITH ORANGE PEEL TEXTURE U.O.N. |
| 11 | SECOND FLOOR / MAIN LEVEL | - EXISTING FLOOR/ ROOF STRUCTURE - EXIST'G BLACKENDED & SISTERED NEW JOISTS. PROVIDE MINIMUM R- 49 POLY ISO INSULATION - DUPONT RUFF-R (R- 6.8/INCH)<br>-PROVIDE ½" GYP BD ON UNDERSIDE TO ENCAPSULATE INSULATION. PAINT - COLOR BY ARCHITECT. PROVIDE 2x2 TRIM AROUND EACH SECTION OF INSUL TO SECURE GYP BD. | |
| 12 | BIN EXTERIOR LEVEL 2 CLEANING / BIN INTERIOR LEVEL 2 CLEANING | - UNINSULATED STACK PLANK SOLID WOOD. NO MODIFICATIONS. | |
| 13 | ORIGINAL EXTERIOR SIDE OF WALL LEVEL 2 CLEANING / INTERIOR LEVEL 1 CLEANING | - EXISTING 1x WOOD SIDING - CLEANING LEVEL 2<br>- EXISTING 2x6 WOOD STUD WALLS | |
| 14 | SOUTH / NORTH | - EXISTING 1x WOOD SIDING<br>- EXISTING 2x6 WOOD STUD WALLS<br>- EXISTING SPRAY INSUL<br>- EXISTING 1x WOOD SIDING<br>- EXISTING 1x PLASTER COAT<br>-NO MODIFICATIONS THIS WALL EXCEPT CLEANING LEVEL 1 | |
| 15 | EXTERIOR / INTERIOR | - METAL ROOFING<br>- TPO ROOFING SYSTEM<br>- ⅝" OSB ROOF SHEATHING<br>- TRUSS AND/OR STICK FRAMING<br>- 4" SPRAY INSUL<br>- MIN 5 ½" BATT INSULATION.<br>- 5/8" GWB AT BOTTOM OF JOISTS<br>- PROVIDE NEW ¾" INTERIOR WOOD SIDING - FINISH - BOSC | BOSC - "BY OWNER'S SEPARATE CONTRACTOR"<br>THIS WORK WILL BE N.I.C. FOR CORE AND SHELL.<br>CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS. TYP. |
| 16 | EXTERIOR / INTERIOR | - CORTEN CORRUGATED SIDING ON FURRING STRIPS w/ " EVERBRIGHT COATING" TO CONTROL RUSTING OR EQ.<br>- TYVEK COMMERCIAL WRAP D.<br>- 1" RIGID INSUL R-5<br>- ½" OSB SHEATHING<br>- WOOD 2x6 STUDS<br>- FULL DEPTH KRAFT FACED BATT INSULATION MIN R-21<br>- ½" OSB SHEATHING<br>- ⅝" GYPUM BOARD - PAINT -COLOR BY ARCHITECT. | PROVIDE SUBMITTAL FOR CORTEN SIDING PRIOR TO INSTALLATION. |
| 17 | | - 60 MIL GRAY TPO MECH. FASTENED OR ADHERED<br>- (TPO WALKWAY PADS TO RTU ACCESS PANELS)<br>- 1/4" DENSDECK COVERBOARD<br>- MIN. 1/4"/FT. SLOPED POLYISO. RIGID INSUL<br>- 3/4" OSB ON ROOF FRAMING<br>- 4" SPRAY FOAM INSUL (HUNTSMAN HEATLOK HFO - R-7/IN. R-28)<br>- R-21 BATT INSUL IN CAVITY (MIN. R-21)<br>- 5/8" GWB AT BOTTOM OF JOISTS<br>- PROVIDE NEW ¾" INTERIOR WOOD SIDING - FINISH - BOSC | |
| 18 | | - CORRUGATED METAL ROOFING<br>- STEEL TUBE ROOF FRAMING<br>- INTERMEDIATE ANGLES BETWEEN TUBES TO FASTEN CORRUGATED METAL ROOFING<br>- STEEL TUBE POSTS<br>- REFER TO STRUCT. FOR ADDITIONAL INFORMATON | |
| 19 | | - CORTEN STEEL CORRUGATED METAL ROOFING (MATCH EXISTING)<br>- OWENS CORNING PROARMOR SYNTHETIC UNDERLAYMENT<br>- MIN. ⅞" OSB SUBROOF<br>- 2X ROOF JOISTS<br>- 1X TOUNGUE AND GROOF AT UNDERSIDE OF JOISTS<br>- REFER TO STRUCT. FOR ADDITIONAL INFORMATON | |
| 20 | | - 4" OF 3" RIVER ROCK<br>- 15-MIL STEGOCRAWL WRAP<br>- NATIVE SOIL | |
| 21 | | - CONCRETE SLAB - TROWEL FINISH<br>- 15-MIL STEGOWRAP VAPOR RETARDER<br>- 6" OF ¾" FREE-DRAINING GRAVEL<br>- UNDER-SLAB 4" PERIMETER DRAINAGE SYSTEM EMBEDDED INTO GRAVEL LAYER<br>- SOIL PER SOILS REPORT<br>- REFER TO STRUCT. FOR ADDITIONAL INFORMATON | |
| 21 | | - WOOD SIDING (MATCH EXISTING)<br>- TYVEK COMMERCIAL WRAP D<br>- 2X WOOD FRAMING<br>- TYVEK COMMERCIAL WRAP D<br>- WOOD SIDING (MATCH EXISTING)<br>- REFER TO STRUCT. FOR ADDITIONAL INFORMATON | |
| 22 | MECH DUCTING / INTERIOR | - 1/2" OSB SHEATHING<br>- 2x4 FRAMING<br>- SOUND BATT IN CAVITY<br>- 1/2" OSB SHEATHING<br>- PROVIDE NEW ¾" INTERIOR WOOD SIDING - FINISH - BOSC | |

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC


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FAX: 303.673.9319


STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
01/16/26 ADDENDUM 1
01/23/26 ADDENDUM 2
PERMIT SUBMITTAL


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WALL TYPES

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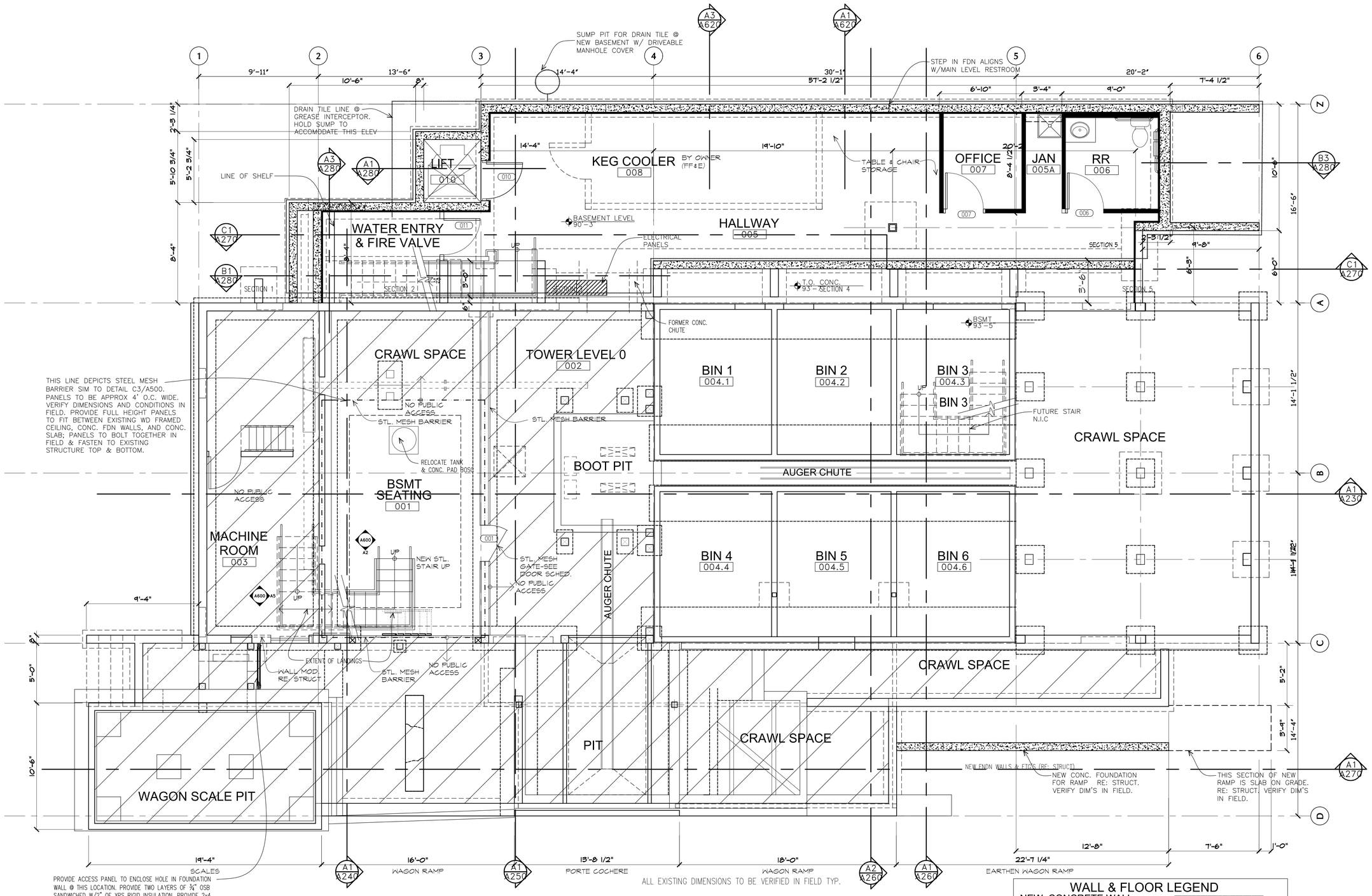


## A1 / A100 FLOOR PLAN - BASEMENT / CRAWLSPACE

1/4" = 1' - 0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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Basement & Crawlspace Plan

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A100
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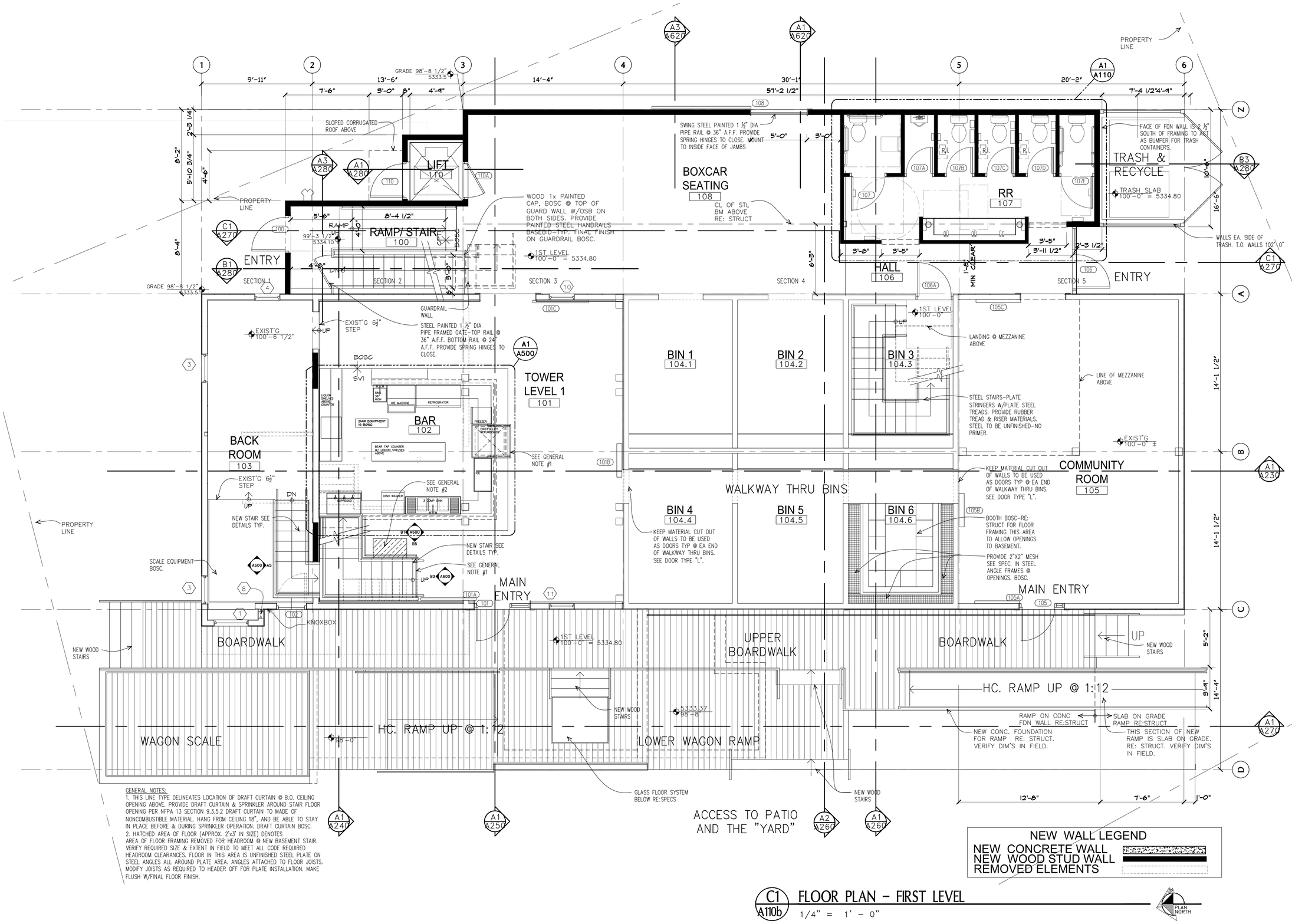


GENERAL NOTES:
1. THIS LINE TYPE DELINEATES LOCATION OF DRAFT CURTAIN @ B.O. CEILING OPENING ABOVE. PROVIDE DRAFT CURTAIN & SPRINKLER AROUND STAIR FLOOR OPENING PER NFPA 13 SECTION 9.3.5.2 DRAFT CURTAIN TO MADE OF NONCOMBUSTIBLE MATERIAL. HANG FROM CEILING 18", AND BE ABLE TO STAY IN PLACE BEFORE & DURING SPRINKLER OPERATION. DRAFT CURTAIN BOSC.
2. HATCHED AREA OF FLOOR (APPROX. 2'x3' IN SIZE) DENOTES AREA OF FLOOR FRAMING REMOVED FOR HEADROOM @ NEW BASEMENT STAIR. VERIFY REQUIRED SIZE & EXTENT IN FIELD TO MEET ALL CODE REQUIRED HEADROOM CLEARANCES. FLOOR IN THIS AREA IS UNFINISHED STEEL PLATE ON STEEL ANGLES ALL AROUND PLATE AREA. ANGLES ATTACHED TO FLOOR JOISTS. MODIFY JOISTS AS REQUIRED TO HEADER OFF FOR PLATE INSTALLATION. MAKE FLUSH W/FINAL FLOOR FINISH.

NEW WALL LEGEND
NEW CONCRETE WALL
NEW WOOD STUD WALL
REMOVED ELEMENTS

C1 / A110b FLOOR PLAN - FIRST LEVEL
1/4" = 1' - 0"

PLAN NORTH

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First Level Plan

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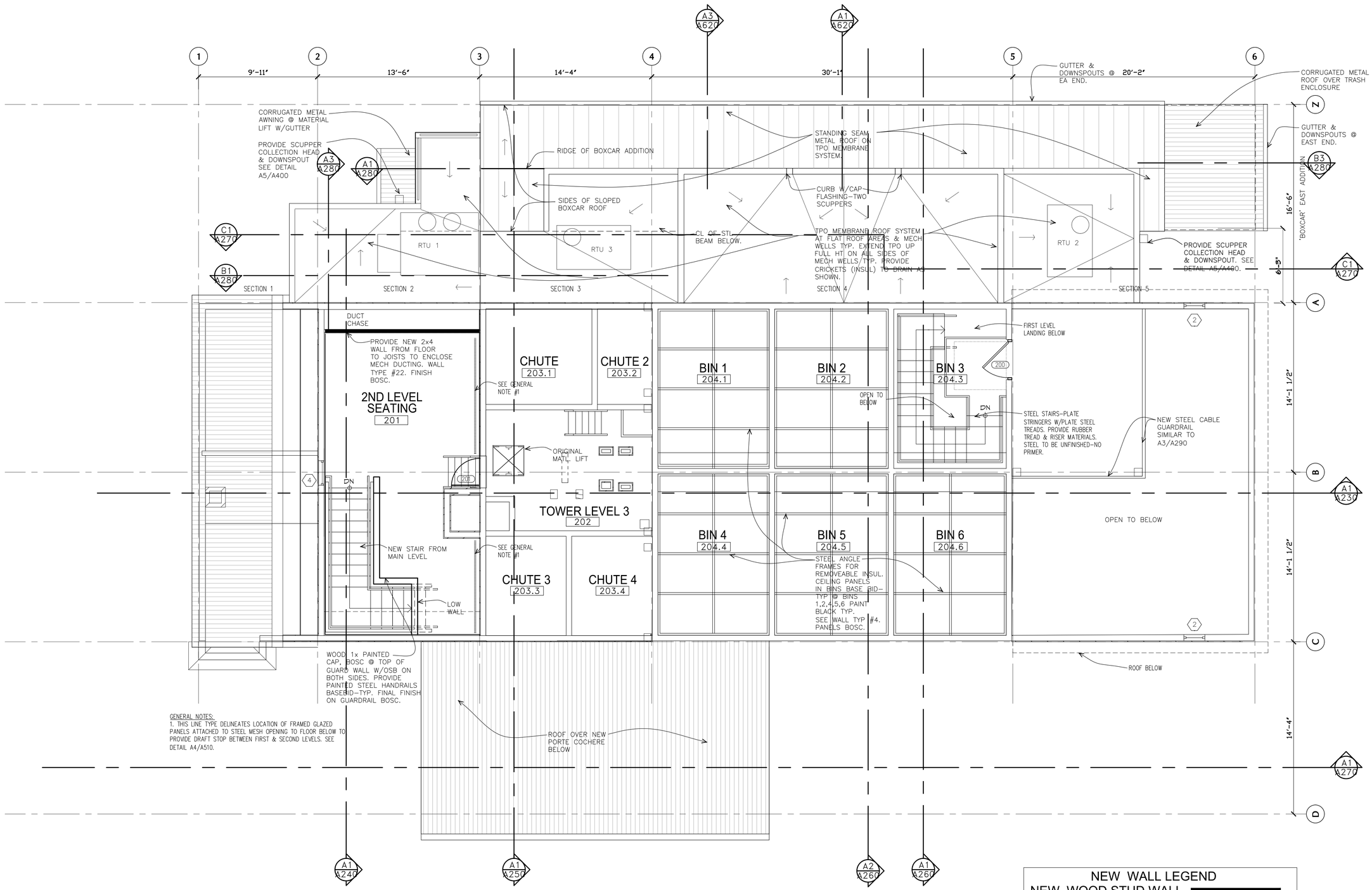


GENERAL NOTES:
1. THIS LINE TYPE DELINEATES LOCATION OF FRAMED GLAZED PANELS ATTACHED TO STEEL MESH OPENING TO FLOOR BELOW TO PROVIDE DRAFT STOP BETWEEN FIRST & SECOND LEVELS. SEE DETAIL A4/A510.

NEW WALL LEGEND
NEW WOOD STUD WALL

A1 A120 FLOOR PLAN - SECOND/THIRD LEVEL
1/4" = 1' - 0"

PLAN NORTH

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Second & Third Level Plan

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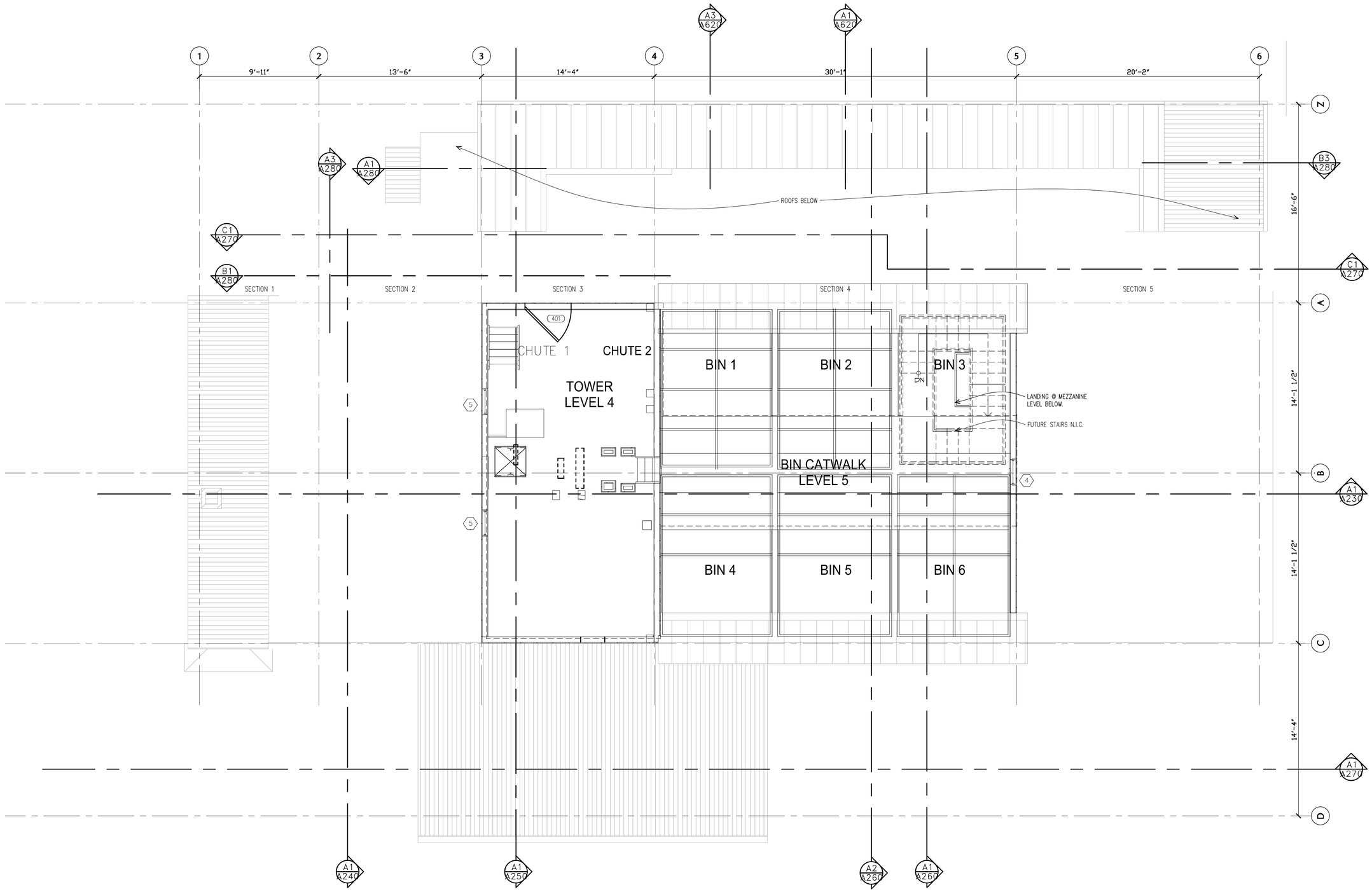


C1 A140 FLOOR PLAN - FOURTH/FIFTH LEVEL

1/4" = 1' - 0"

PLAN NORTH

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FLOOR PLAN FOURTH/FIFTH LEVEL

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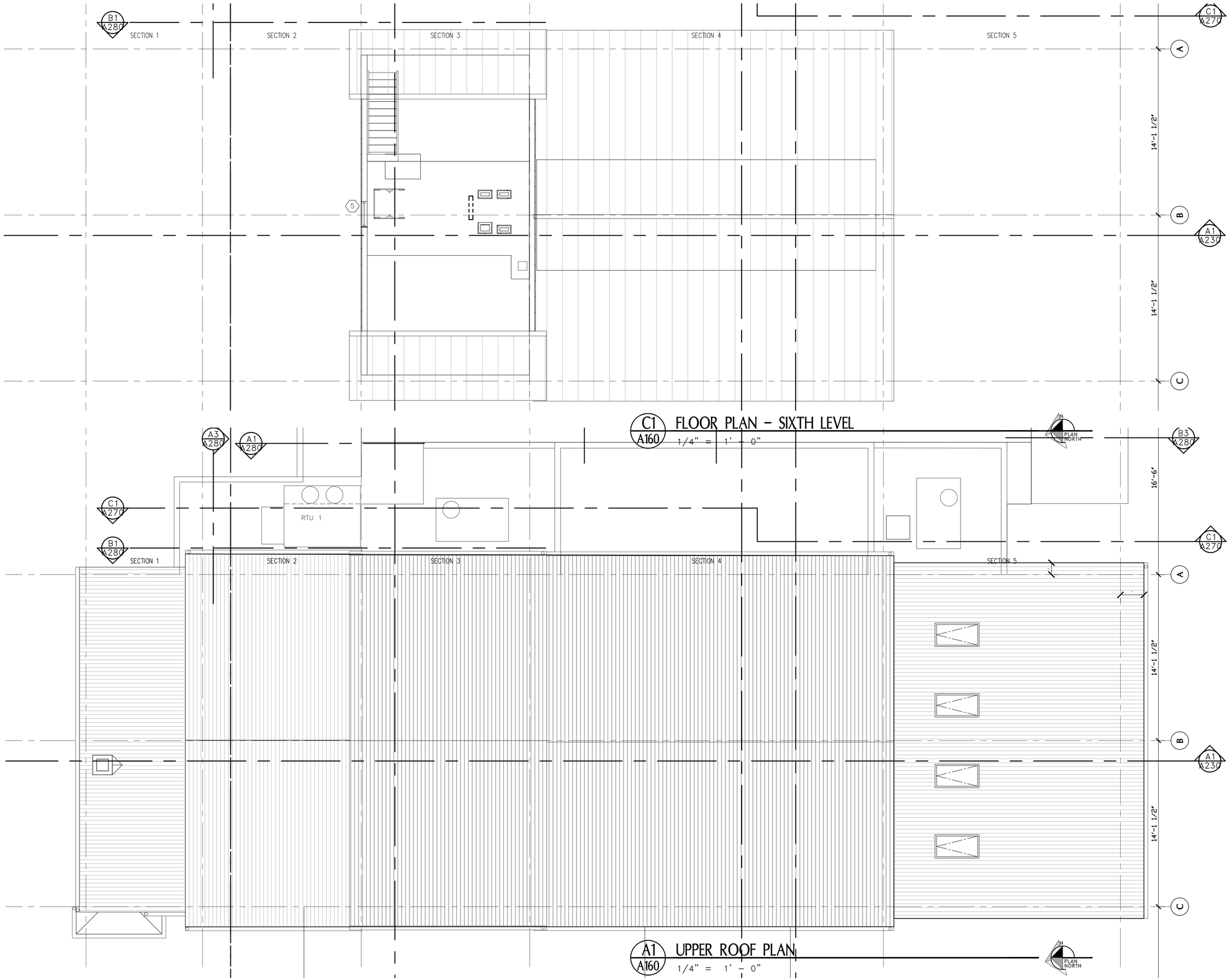


C1 A160 FLOOR PLAN - SIXTH LEVEL
1/4" = 1' - 0"

A1 A160 UPPER ROOF PLAN
1/4" = 1' - 0"

PLAN NORTH

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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UPPER ROOF PLAN

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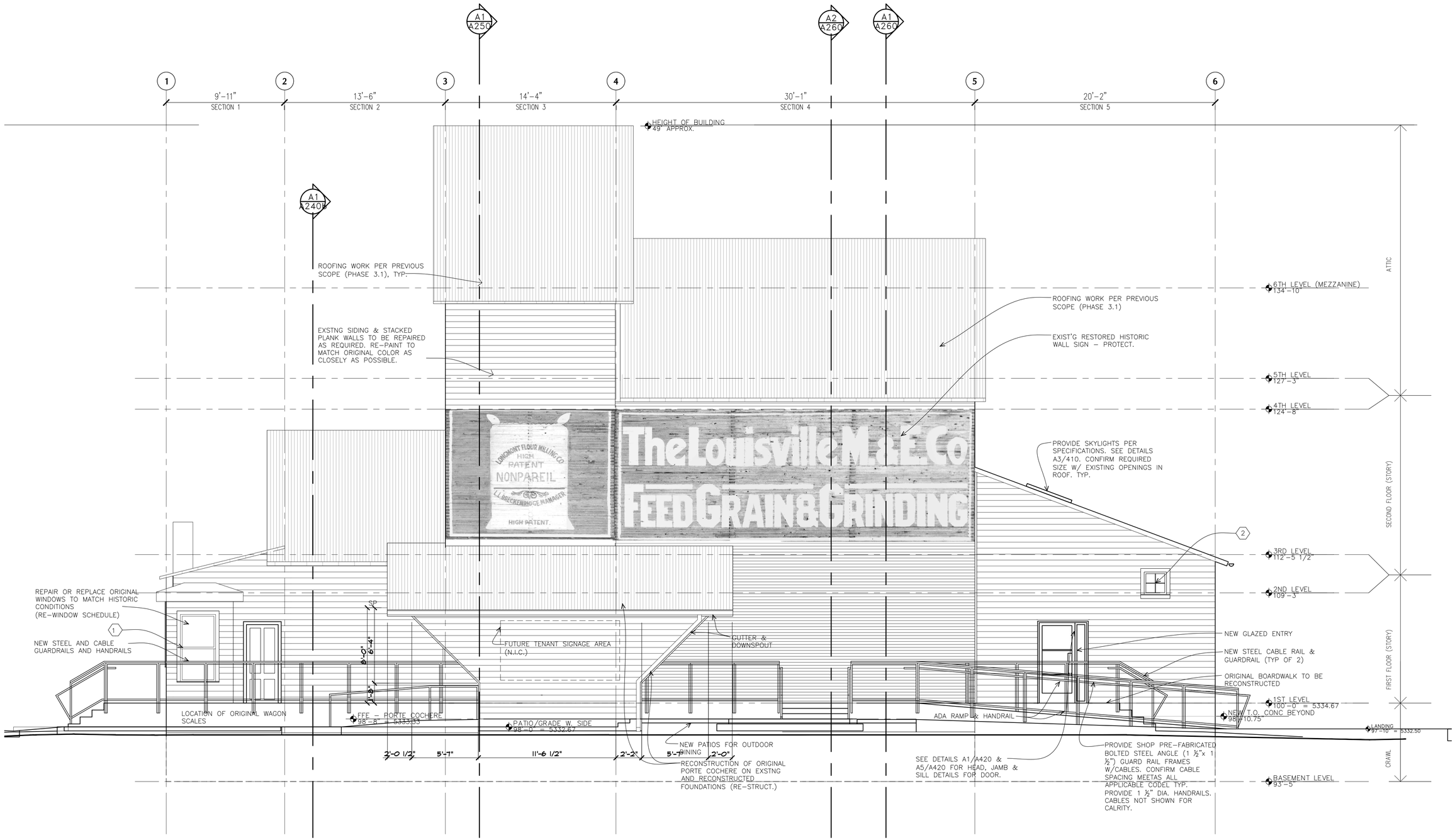


A1 / A200 WEST ELEVATION

1/4" = 1' - 0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC


HARTRONFT ASSOCIATES
A Professional Corporation
Planning
Architecture
Interior Design
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Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319


STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
01/16/26 ADDENDUM 1
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West Elevation

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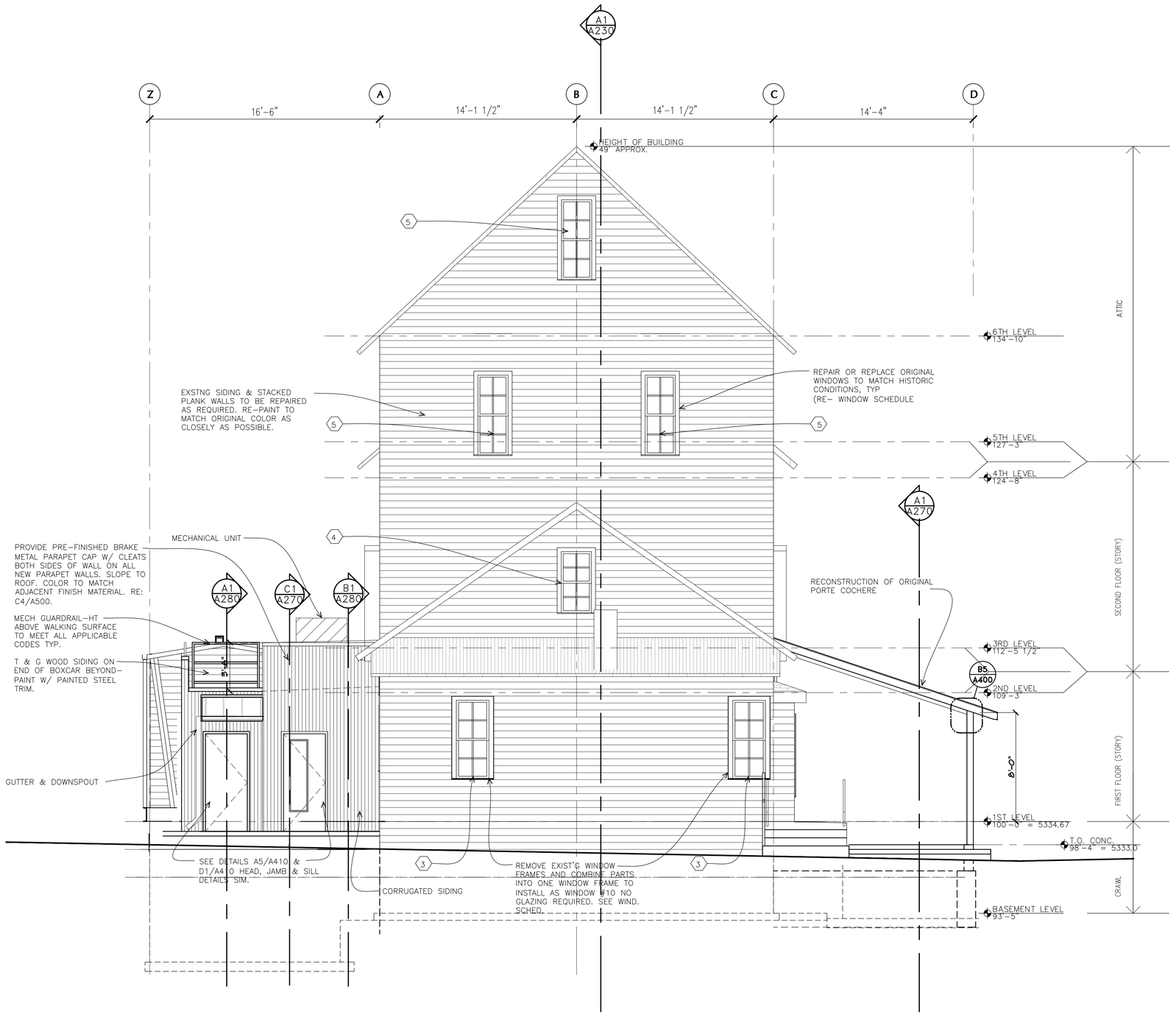


A3 / A205 NORTH ELEVATION

1/4" = 1' - 0"

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North Elevation

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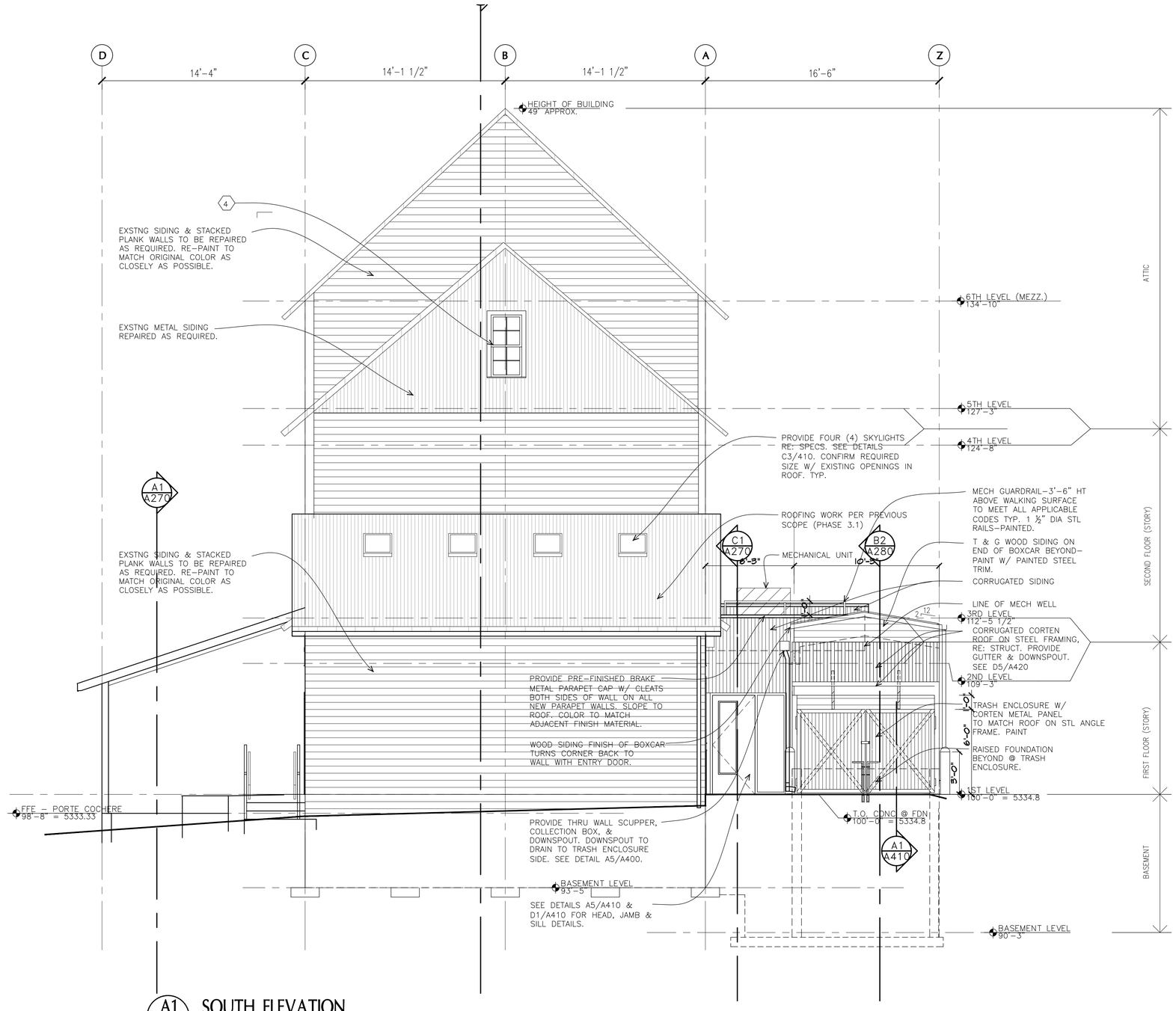


A1 / A210 SOUTH ELEVATION

1/4" = 1' - 0"

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South Elevation

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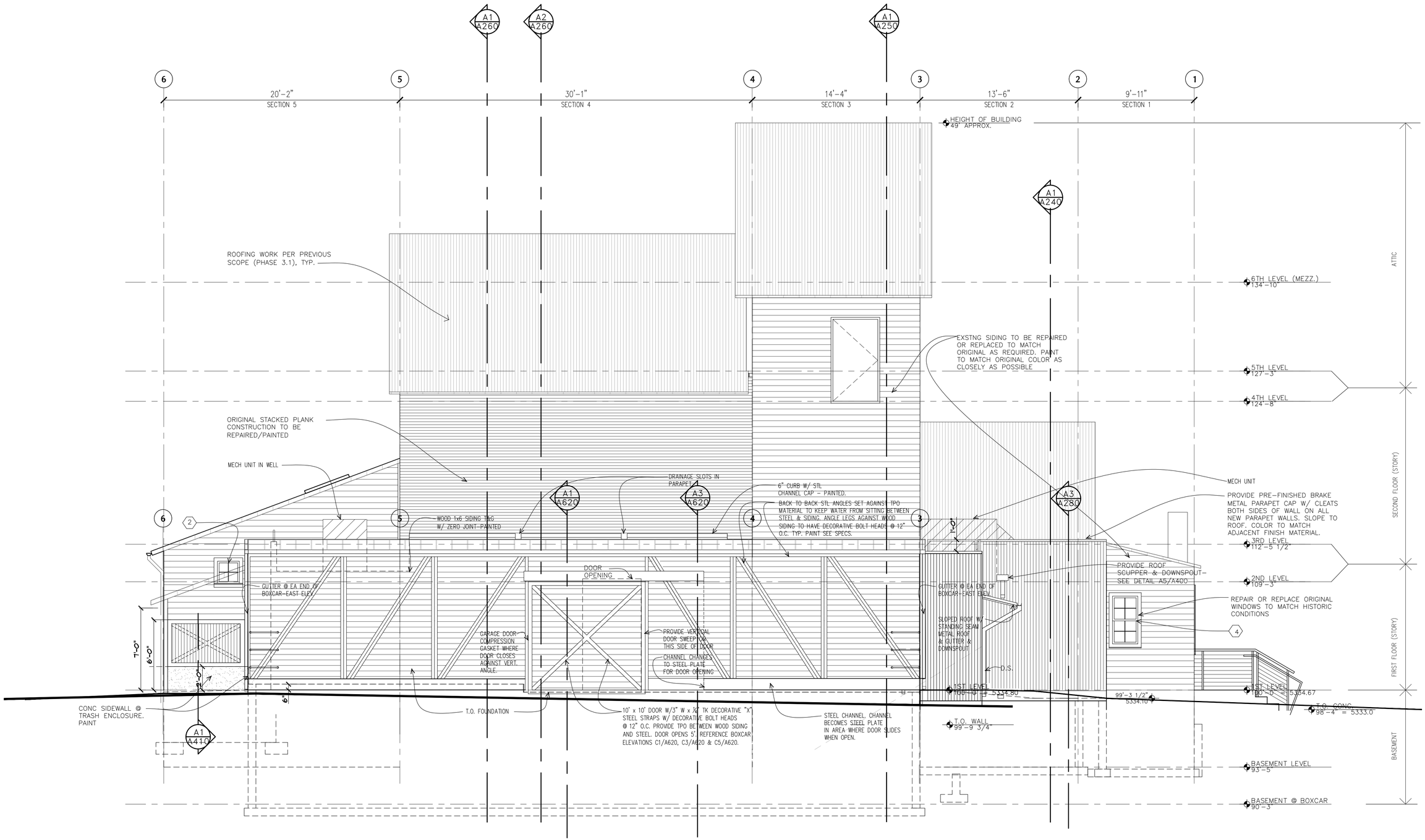


A1 / A220 EAST ELEVATION

1/4" = 1' - 0"

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East Elevation

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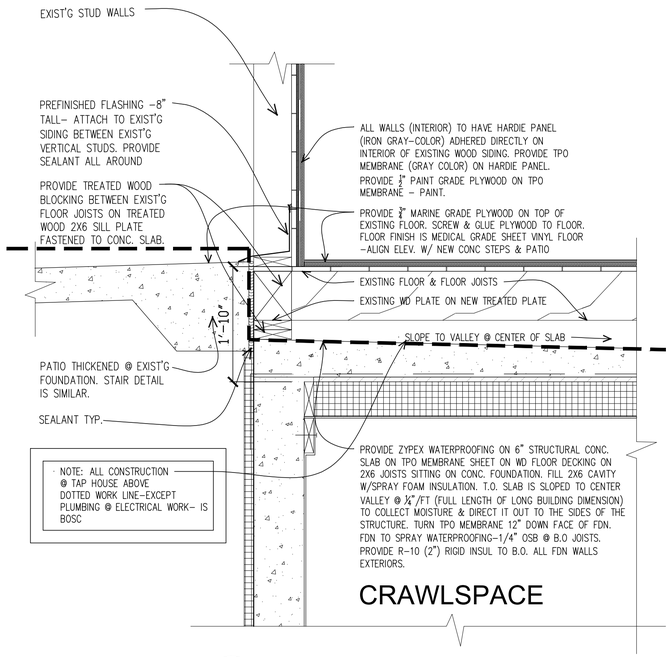
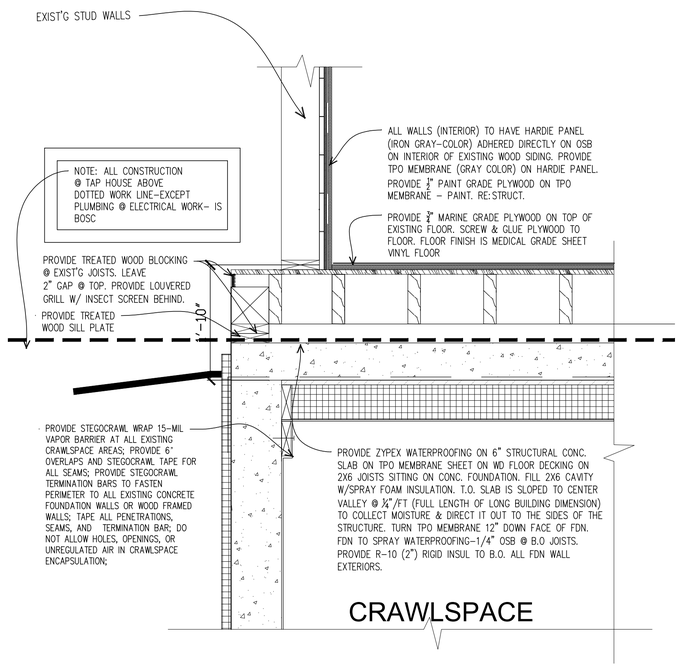


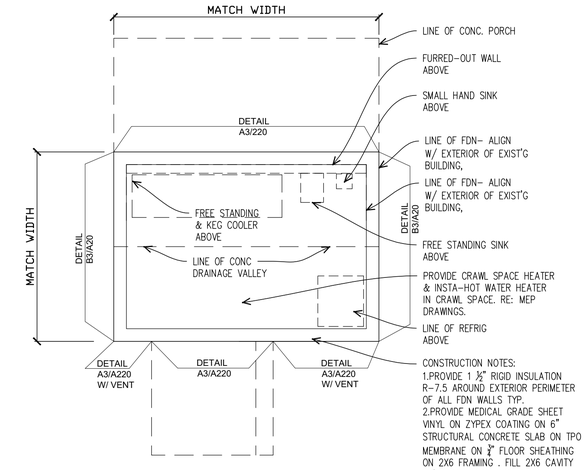

C5 / A225 DETAIL A

1"=1'–0"



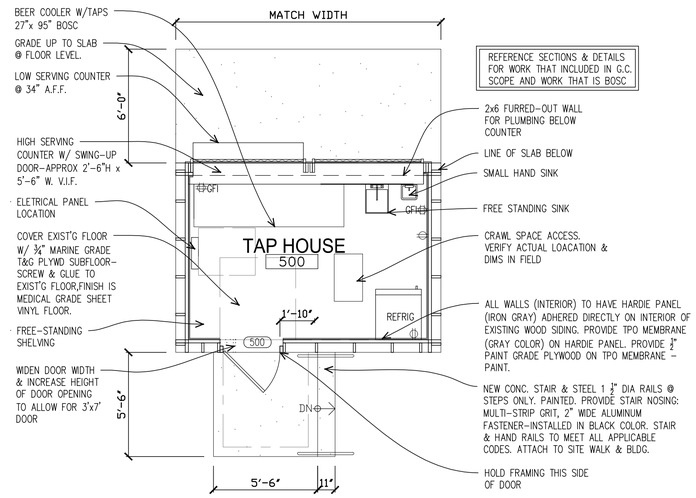

A5 / A225 DETAIL B

1"=1'–0"



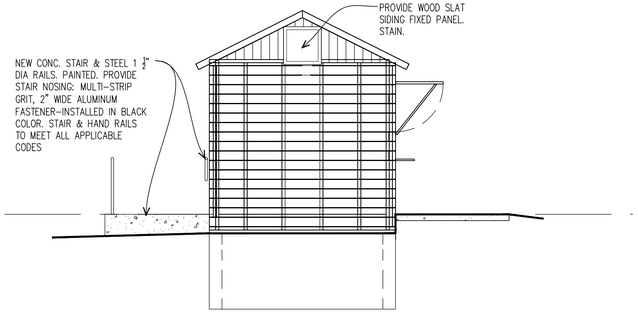

C3 / A225 CRAWIL SPACE – PLAN

1/4" = 1'–0"



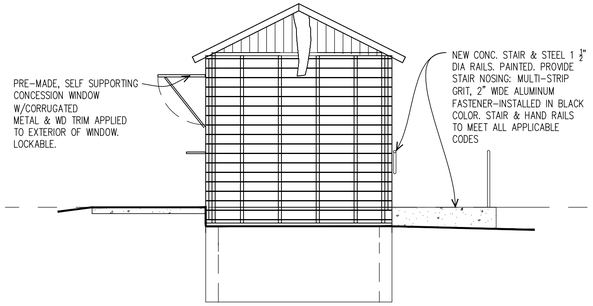

C1 / A225 WAREMBOURG TAP HOUSE – PLAN

1/4" = 1'–0"



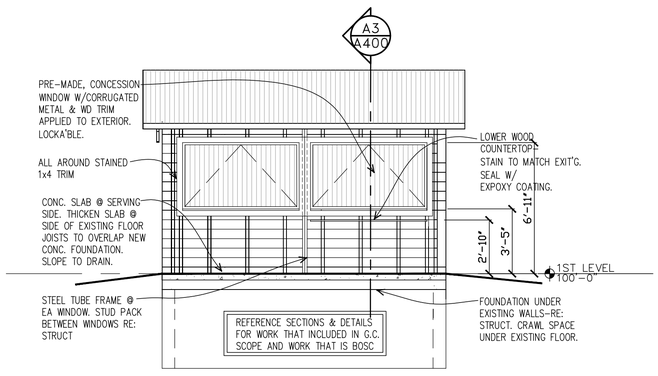

B3 / A225 SOUTH ELEVATION

1/4" = 1'–0"



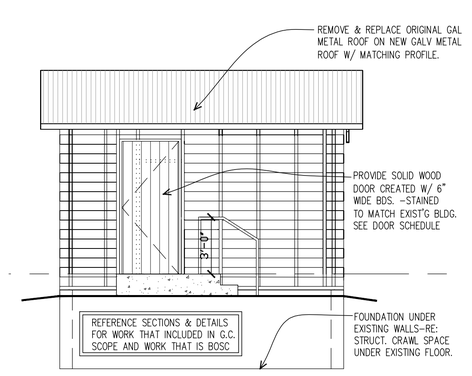

B1 / A225 NORTH ELEVATION

1/4" = 1'–0"




A3 / A225 EAST ELEVATION

1/4" = 1'–0"




A1 / A225 WEST ELEVATON – FRONT

1/4" = 1'–0"

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Warembourg Tap House Plan Elevations

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A225
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**KEY NOTES (REFER TO SHEET A060 FOR ADDITIONAL INFORMATION):**

1- EXISTING CORRUGATED METAL ROOFING ON EXISTING OSB SHEATHING ON SKIP SHEATHING ON EXISTING 2X8 RAFTER FRAMING; PROVIDE R-49 SPRAY FOAM INSULATION WITH 5/8" GYPSUM WALL BOARD; 1X WOOD CEILING FINISH BOSC.

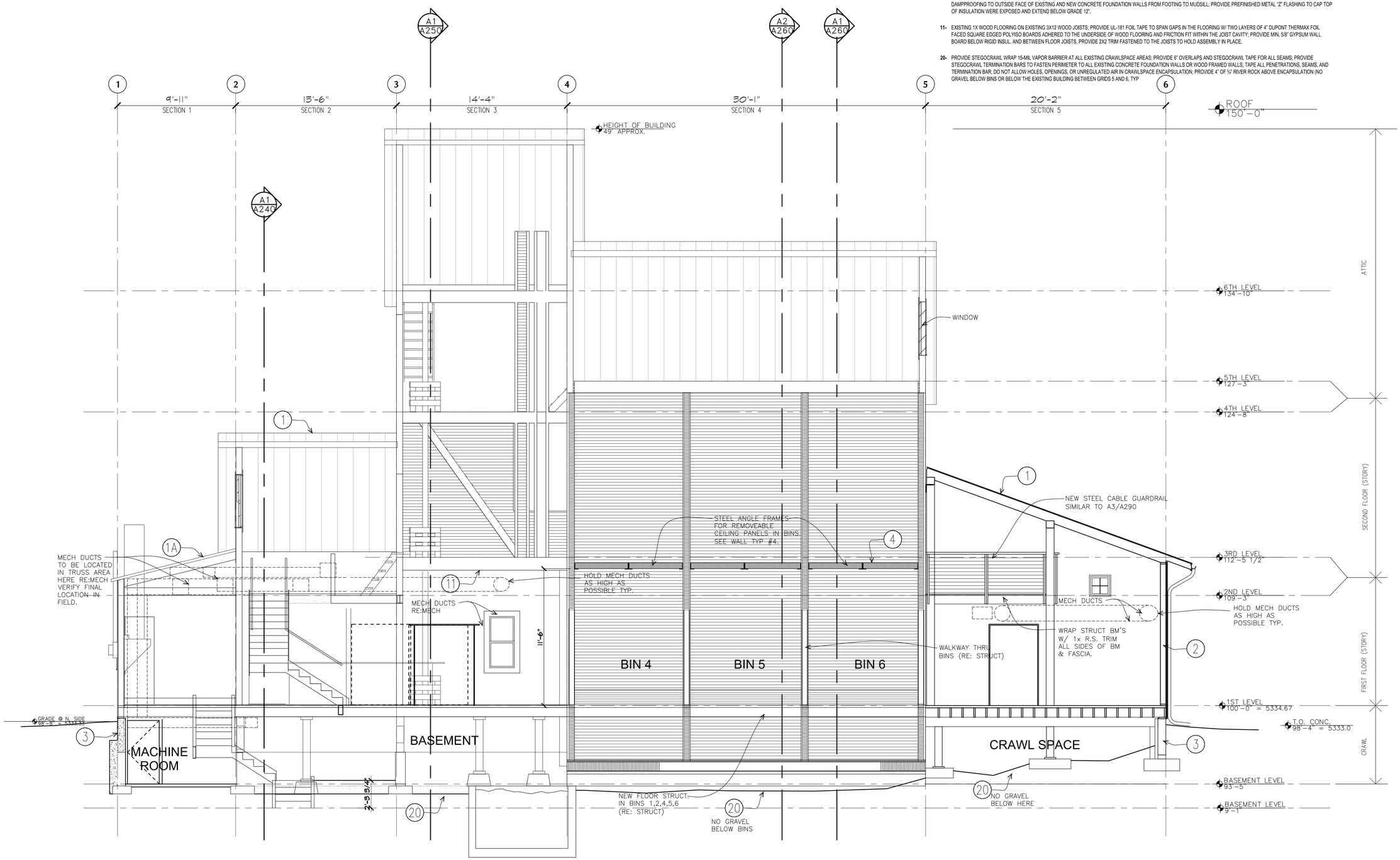
1A- EXISTING CORRUGATED METAL ROOFING ON EXISTING SHEATHING ON EXISTING SKIP SHEATHING ON EXISTING 2X8 RAFTER FRAMING; PROVIDE NEW R-49 SPRAY FOAM INSULATION WITH EXISTING 1X WOOD CEILING TO REMAIN; SCRAPE, CLEAN, AND PREPARE EXISTING WOOD CEILING FOR NEW PAINT

2- EXISTING WOOD SIDING ON WEATHER BARRIER ON EXISTING OSB SHEATHING ON EXISTING 2X6 WOOD FRAMING WITH EXISTING R-35 SPRAY FOAM INSULATION (PROVIDE ADDITIONAL SPRAY FOAM WHERE REMOVED) WITH 5/8" GYPSUM WALL BOARD AT INSIDE FACE OF WALL; 1X WOOD WALL FINISH BOSC.

3- PROVIDE R-10; 2" XPS RIGID INSULATION (DUPONT STYROFOAM BRAND HIGHLOAD 40 XPS) ADHERED TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS; PROVIDE DECO 20 DAMPPROOFING TO OUTSIDE FACE OF EXISTING AND NEW CONCRETE FOUNDATION WALLS FROM FOOTING TO MUDSILL; PROVIDE PREFINISHED METAL "Z" FLASHING TO CAP TOP OF INSULATION WERE EXPOSED AND EXTEND BELOW GRADE 12".

11- EXISTING 1X WOOD FLOORING ON EXISTING 3X12 WOOD JOISTS; PROVIDE UL-181 FOIL TAPE TO SPAN GAPS IN THE FLOORING W/ TWO LAYERS OF 4" DUPONT THERMAX FOIL FACED SQUARE EDGED POLYISO BOARDS ADHERED TO THE UNDERSIDE OF WOOD FLOORING AND FRICTION FIT WITHIN THE JOIST CAVITY; PROVIDE MIN. 5/8" GYPSUM WALL BOARD BELOW RIGID INSUL. AND BETWEEN FLOOR JOISTS, PROVIDE 2X2 TRIM FASTENED TO THE JOISTS TO HOLD ASSEMBLY IN PLACE.

20- PROVIDE STEGOCRAWL WRAP 15-MIL VAPOR BARRIER AT ALL EXISTING CRAWLSPACE AREAS; PROVIDE 6" OVERLAPS AND STEGOCRAWL TAPE FOR ALL SEAMS; PROVIDE STEGOCRAWL TERMINATION BARS TO FASTEN PERIMETER TO ALL EXISTING CONCRETE FOUNDATION WALLS OR WOOD FRAMED WALLS; TAPE ALL PENETRATIONS, SEAMS, AND TERMINATION BAR; DO NOT ALLOW HOLES, OPENINGS, OR UNREGULATED AIR IN CRAWLSPACE ENCAPSULATION; PROVIDE 4" OF ¾" RIVER ROCK ABOVE ENCAPSULATION (NO GRAVEL BELOW BINS OR BELOW THE EXISTING BUILDING BETWEEN GRIDS 5 AND 6, TYP




A1/A230 LONGITUDINAL SECTION

1/4" = 1' - 0"

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Building Sections

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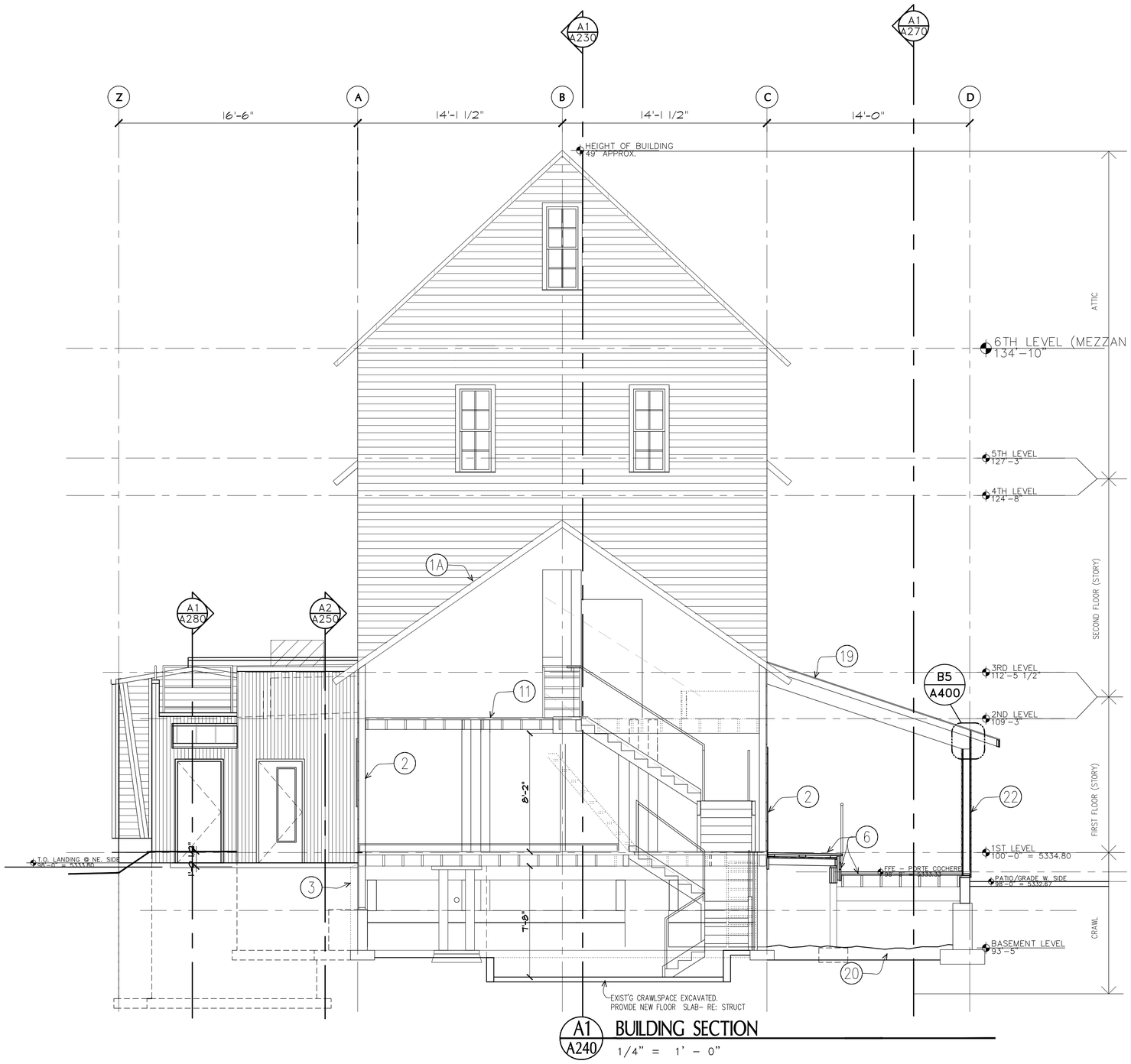


A1 / A240 BUILDING SECTION

1/4" = 1' - 0"

**KEY NOTES (REFER TO SHEET A060 FOR ADDITIONAL INFORMATION):**

**1A-** EXISTING CORRUGATED METAL ROOFING ON EXISTING SHEATHING ON EXISTING SKIP SHEATHING ON EXISTING 2X8 RAFTER FRAMING; PROVIDE NEW R-49 SPRAY FOAM INSULATION WITH EXISTING 1X WOOD CEILING TO REMAIN; SCRAPE, CLEAN, AND PREPARE EXISTING WOOD CEILING FOR NEW PAINT

**2-** EXISTING WOOD SIDING ON WEATHER BARRIER ON EXISTING OSB SHEATHING ON EXISTING 2X6 WOOD FRAMING WITH EXISTING R-35 SPRAY FOAM INSULATION (PROVIDE ADDITIONAL SPRAY FOAM WHERE REMOVED) WITH 5/8" GYPSUM WALL BOARD AT INSIDE FACE OF WALL; 1X WOOD WALL FINISH BOSC.

**3-** PROVIDE R-10: 2" XPS RIGID INSULULATION (DUPONT STYROFOAM BRAND HIGHLOAD 40 XPS) ADHERED TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS; PROVIDE DECO 20 DAMPPROOFING TO OUTSIDE FACE OF EXISTING AND NEW CONCRETE FOUNDATION WALLS FROM FOOTING TO MUDSILL; PROVIDE PREFINISHED METAL "Z" FLASHING TO CAP TOP OF INSULATION WERE EXPOSED AND EXTEND BELOW GRADE 12".

**6-** PROVIDE WOOD DECKING ON 2X WOOD SLEEPERS (WRAP TOP OF SLEEPERS IN VYCOR DECK PROTECTOR TAPE); ON 60 MIL GRAY TPO ADHERED TO 1/4" DENSDECK COVERBOARD ON MIN. 5/8" OSB SHEATHING ON SLOPED 2X JOISTS, SLOPED MIN. 1/4"/FT.; PROVIDE 4" OF SPRAY FOAM INSULATION (R-28) WITH 5 1/2" OF KRAFT FACED BATT INSUL (R-21), COVER INSUL. WITH MIN. 1/2" GYPSUM BOARD; WHEN 2X JOIST ARE LESS THAN 2X10 JOISTS, PROVIDE 7" OF SPRAY FOAM INSULATION IN LIEU OF BATT INSULATION, TYP. EXTEND TPO UP WALL SHEATHING BEHIND EXISTING SIDING MIN. 8"; EXTEND TPO, DENSDECK, AND OSB SHEATHING DOWN VERTICAL FACE OF DECK STEP AND ACROSS SECOND LEVEL OF BOARDWALK AND UP PORTE COCHERE SUPPORT WALL; TPO TO BE CONTINUOUSLY ADHERED, THE ENTIRE SYSTEM TO BE CLASS A ROOFING ASSEMBLY, TYP.

**11-** EXISTING 1X WOOD FLOORING ON EXISTING 3X12 WOOD JOISTS; PROVIDE UL-181 FOIL TAPE TO SPAN GAPS IN THE FLOORING W/ TWO LAYERS OF 4' DUPONT THERMAX FOIL FACED SQUARE EDGED POLYISO BOARDS ADHERED TO THE UNDERSIDE OF WOOD FLOORING AND FRICTION FIT WITHIN THE JOIST CAVITY; PROVIDE MIN. 5/8' GYPSUM WALL BOARD BELOW RIGID INSUL. AND BETWEEN FLOOR JOISTS, PROVIDE 2X2 TRIM FASTENED TO THE JOISTS TO HOLD ASSEMBLY IN PLACE.

**19-** PROVIDE CORTEN STEEL CORROGUATED METAL ROOFING (MATCH EXISTING) ON OWENS CORNING PROARMOR SYNTHETIC ROOF UNDERLAYMENT ON 5/8" OSB ON ROOF FRAMING WITH 1X TOUNGUE AND GROOVE AT UNDERSIDE OF ROOF; TYP

**20-** PROVIDE STEGOCRAWL WRAP 15-MIL VAPOR BARRIER AT ALL EXISTING CRAWLSPACE AREAS; PROVIDE 6' OVERLAPS AND STEGOCRAWL TAPE FOR ALL SEAMS; PROVIDE STEGOCRAWL TERMINATION BARS TO FASTEN PERIMETER TO ALL EXISTING CONCRETE FOUNDATION WALLS OR WOOD FRAMED WALLS; TAPE ALL PENETRATIONS, SEAMS, AND TERMINATION BAR; DO NOT ALLOW HOLES, OPENINGS, OR UNREGULATED AIR IN CRAWLSPACE ENCAPSULATION; PROVIDE 4" OF ¾" RIVER ROCK ABOVE ENCAPSULATION (NO GRAVEL BELOW BINS OR BELOW THE EXISTING BUILDING BETWEEN GRIDS 5 AND 6, TYP

**22-** PROVIDE 1X SHIPLAP SIDING ON ½" OSB ON TYVEK COMMERCIAL WRAP D ON WOOD FRAMING

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK


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**Building Sections**

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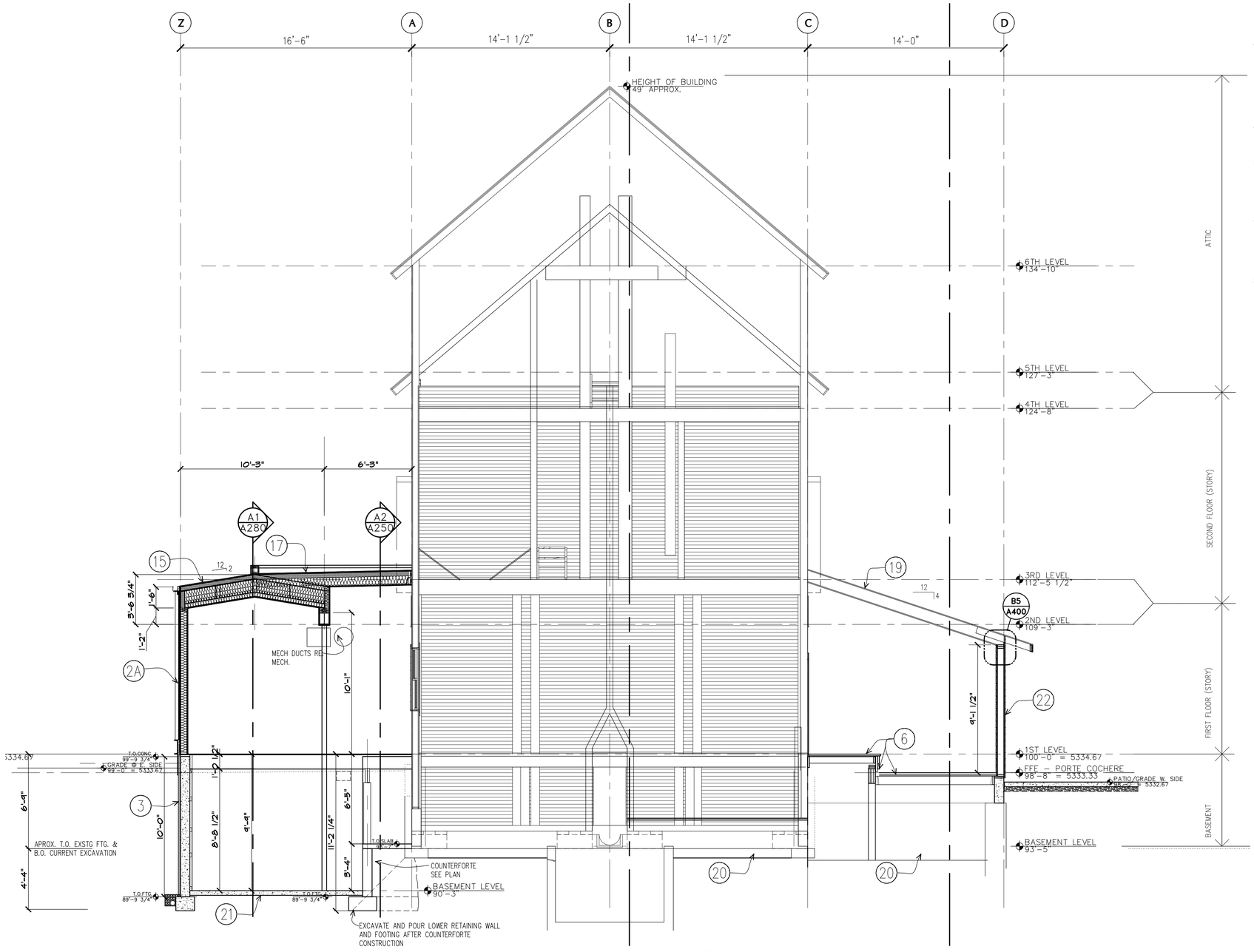


A1 / A250 BUILDING SECTION

1/4" = 1' - 0"

**KEY NOTES (REFER TO SHEET A060 FOR ADDITIONAL INFORMATION):**

**2A-** PROVIDE 1X LAP SIDING ON TYVEK COMMERCIAL WRAP D ON 1" RIGID INSUL R-5, ON ½" OSB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH R-21 KRAFT FACED BATT INSULATION WITH INTERIOR FINISH PER BOSC

**3-** PROVIDE R-10; 2" XPS RIGID INSULULATION (DUPONT STYROFOAM BRAND HIGHLOAD 40 XPS) ADHERED TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS; PROVIDE DECO 20 DAMPPROOFING TO OUTSIDE FACE OF EXISTING AND NEW CONCRETE FOUNDATION WALLS FROM FOOTING TO MUDSILL; PROVIDE PREFINISHED METAL "Z" FLASHING TO CAP TOP OF INSULATION WERE EXPOSED AND EXTEND BELOW GRADE 12",

**6-** PROVIDE WOOD DECKING ON 2X WOOD SLEEPERS (WRAP TOP OF SLEEPERS IN VYCOR DECK PROTECTOR TAPE); ON 60 MIL GRAY TPO ADHERED TO 1/4" DENSDECK COVERBOARD ON MIN. 5/8" OSB SHEATHING ON SLOPED 2X JOISTS, SLOPED MIN. 1/4"/FT.; PROVIDE 4" OF SPRAY FOAM INSULATION (R-28) WITH 5 1/2" OF KRAFT FACED BATT INSUL (R-21), COVER INSUL. WITH MIN. 1/2" GYPSUM BOARD; WHEN 2X JOIST ARE LESS THAN 2X10 JOISTS, PROVIDE 7" OF SPRAY FOAM INSULATION IN LIEU OF BATT INSULATION, TYP; EXTEND TPO UP WALL SHEATHING BEHIND EXISTING SIDING MIN. 8"; EXTEND TPO, DENSDECK, AND OSB SHEATHING DOWN VERTICAL FACE OF DECK STEP AND ACROSS SECOND LEVEL OF BOARDWALK AND UP PORTE COCHERE SUPPORT WALL; TPO TO BE CONTINUOUSLY ADHERED; THE ENTIRE SYSTEM TO BE CLASS A ROOFING ASSEMBLY, TYP.

**15-** PROVIDE PREFINISHED BERRIDGE TEE-PANEL STANDING SEAM METAL ROOFING ON OWENS CORNING PROARMOR SYNTHETIC ROOF UNDERLAYMENT ON 5/8" OSB ON PARALLEL CHORD TRUSS W/ 4" SPRAY FOAM INSUL AND UNFACED OR BLOW-IN BATT INSUL TO FILL THE ENTIRE TRUSS OR FRAMING CAVITY AND APPLY MEMBRAIN VAPOR BARRIER BELOW JOISTS AND LAYER OF 5/8" GWB AT BOTTOM OF JOISTS; PROVIDE ICE AND WATER SHIELD WHERE ROOF TURNS DOWN WALL AND AT RIDGELINE; (DO NOT ALLOW TPO AND ICE AND WATER SHIELD TO TOUCH), CONFIRM EXTENT OF METAL ROOFING ON PLAN C1/A140, INSULATION IS THE SAME IN BOTH LOCATIONS.

**17-** PROVIDE 60 MIL GRAY TPO MECH. FASTENED OR ADHERED ON 1/4" DENSDECK COVERBOARD ON 3/4" OSB ON ROOF FRAMING OR WOOD TRUSS W/ 4" SPRAY FOAM INSUL AND UNFACED OR BLOW-IN BATT INSUL TO FILL THE ENTIRE TRUSS OR FRAMING CAVITY AND LAYER OF 5/8" GWB AT BOTTOM OF JOISTS; PROVIDE 5/8" OSB FIREBLOCKING APPLIED TO EVERY THIRD ROOF TRUSS, CUT TO PROFILE OF THE TRUSS; PROVIDE MANUF. PREFAB. CURB FOR ALL RTUS; EXTEND ADHERED TPO UP PARAPET WALLS AND UNDER PREFAB. CLEATED PREFIN. SLOPED METAL PARAPET CAP W/ 1/2" HEMMED DRIP EDGE; PROVIDE MIN. 5/8" OSB AND ½" DENSDECK COVERBOARD AT INSIDE FACE OF PARAPET WALLS; EXTEND TPO UP FACE OF EXISTING WALL 24"; CAP W/ PRESSURE BAR PER MANUF. STANDARD DETAILS; PROVIDE STANDARD TPO BOOTS FOR ALL PLUMBING PENETRATIONS AND TPO COATED METAL FLASHING FOR ALL STANDOFFS, TYP.

**19-** PROVIDE CORTEN STEEL CORROGUATED METAL ROOFING (MATCH EXISTING) ON OWENS CORNING PROARMOR SYNTHETIC ROOF UNDERLAYMENT ON 5/8" OSB ON ROOF FRAMING WITH 1X TOUNGUE AND GROOVE AT UNDERSIDE OF ROOF; TYP

**20-** PROVIDE STEGOCRAWL WRAP 15-MIL VAPOR BARRIER AT ALL EXISTING CRAWLSPACE AREAS; PROVIDE 6" OVERLAPS AND STEGOCRAWL TAPE FOR ALL SEAMS; PROVIDE STEGOCRAWL TERMINATION BARS TO FASTEN PERIMETER TO ALL EXISTING CONCRETE FOUNDATION WALLS OR WOOD FRAMED WALLS; TAPE ALL PENETRATIONS, SEAMS, AND TERMINATION BAR; DO NOT ALLOW HOLES, OPENINGS, OR UNREGULATED AIR IN CRAWLSPACE ENCAPSULATION; PROVIDE 4" OF ¾" RIVER ROCK ABOVE ENCAPSULATION (NO GRAVEL BELOW BINS OR BELOW THE EXISTING BUILDING BETWEEN GRIDS 5 AND 6, TYP

**21-** PROVIDE CONCRETE SLAB ON MIN. 6" OF ¾" FREE DRAINING GRAVEL ON EXISTING SOILS; PROVIDE 4" PERFORATED PVC PERIMETER DRAIN PIPE SLOPED A MIN. 1/8"/FT SET AT INSIDE FACE OF FOOTINGS; WRAP DRAINAGE PIPE IN FILTER FABRIC; REFER TO SOILS REPORT FOR ADDITIONAL INFORMATION; PROVIDE SUMP PIT WHERE SHOWN ON SITE PLAN AND ASSOCIATED DISCHARGE PIPE FROM SUMP PIT TO WATER QUALITY AREA TO NORTHEAST OF WATER ENTRY ROOM; PROVIDE TRAFFIC RATED SUMP PIT COVER; PROVIDE MEASURING DEVICE WITHIN SUMP PIT TO GAUGE WATER LEVEL RELATIVE TO BASEMENT SLAB

**22-** PROVIDE 1X SHIPLAP SIDING ON ½" OSB ON TYVEK COMMERCIAL WRAP D ON WOOD FRAMING

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK


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*Architecture*
*Interior Design*

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STATE OF COLORADO
JON ERIK HARTRONFT
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12.05.25
LICENSED ARCHITECT

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1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
PERMIT SUBMITTAL


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**Building Sections**

Sheet
A250
- of - Sheets

**KEY NOTES (REFER TO SHEET A060 FOR ADDITIONAL INFORMATION):**

**2A-** PROVIDE 1X LAP SIDING ON TYVEK COMMERCIAL WRAP D ON 1" RIGID INSUL R-5, ON ½" OSB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH R-21 KRAFT FACED BATT INSULATION WITH INTERIOR FINISH PER BOSC

**6-** PROVIDE WOOD DECKING ON 2X WOOD SLEEPERS (WRAP TOP OF SLEEPERS IN VYCOR DECK PROTECTOR TAPE); ON 60 MIL GRAY TPO ADHERED TO 1/4" DENSDECK COVERBOARD ON MIN. 5/8" OSB SHEATHING ON SLOPED 2X JOISTS, SLOPED MIN. 1/4"/FT.; PROVIDE 4" OF SPRAY FOAM INSULATION (R-28) WITH 5 1/2" OF KRAFT FACED BATT INSUL (R-21), COVER INSUL. WITH MIN. 1/2" GYPSUM BOARD; WHEN 2X JOIST ARE LESS THAN 2X10 JOISTS, PROVIDE 7" OF SPRAY FOAM INSULATION IN LIEU OF BATT INSULATION, TYP; EXTEND TPO UP WALL SHEATHING BEHIND EXISTING SIDING MIN. 8"; EXTEND TPO, DENSDECK, AND OSB SHEATHING DOWN VERTICAL FACE OF DECK STEP AND ACROSS SECOND LEVEL OF BOARDWALK AND UP PORTE COCHERE SUPPORT WALL; TPO TO BE CONTINUOUSLY ADHERED; THE ENTIRE SYSTEM TO BE CLASS A ROOFING ASSEMBLY, TYP.

**10-** PROVIDE R-10, 2" XPS RIGID INSULATION (DUPONT STYROFOAM BRAND HIGHLOAD 40 XPS) ADHERED TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS; PROVIDE DECO 20 DAMPPROOFING TO OUTSIDE FACE OF EXISTING AND NEW CONCRETE FOUNDATION WALLS FROM FOOTING TO MUDSILL; PROVIDE PREFINISHED METAL "Z" FLASHING TO CAP TOP OF INSULATION WERE EXPOSED AND EXTEND BELOW GRADE 12", (EAST OF GRID A, PROVIDE SELF ADHERED BITUTHANE FLASHING FROM OVER MUDSILL OR UNDER THRESHOLD TO FACE OF CONC.). PROVIDE 2X FLAT FRAMING AND 5/8" GYPSUM WALL BOARD AT INSIDE FACE OF BASEMENT WALL, PAINT.

**15-** PROVIDE PREFINISHED BERRIDGE TEE-PANEL STANDING SEAM METAL ROOFING ON OWENS CORNING PROARMOR SYNTHETIC ROOF UNDERLAYMENT ON 5/8" OSB ON PARALLEL CHORD TRUSS W/ 4" SPRAY FOAM INSUL AND UNFACED OR BLOW-IN BATT INSUL TO FILL THE ENTIRE TRUSS OR FRAMING CAVITY AND APPLY MEMBRAIN VAPOR BARRIER BELOW JOISTS AND LAYER OF 5/8" GWB AT BOTTOM OF JOISTS; PROVIDE ICE AND WATER SHIELD WHERE ROOF TURNS DOWN WALL AND AT RIDGELINE; (DO NOT ALLOW TPO AND ICE AND WATER SHIELD TO TOUCH). CONFIRM EXTENT OF METAL ROOFING ON PLAN C1/A140. INSULATION IS THE SAME IN BOTH LOCATIONS.

**17-** PROVIDE 60 MIL GRAY TPO MECH. FASTENED OR ADHERED ON 1/4" DENSDECK COVERBOARD ON 3/4" OSB ON ROOF FRAMING OR WOOD TRUSS W/ 4" SPRAY FOAM INSUL AND UNFACED OR BLOW-IN BATT INSUL TO FILL THE ENTIRE TRUSS OR FRAMING CAVITY AND LAYER OF 5/8" GWB AT BOTTOM OF JOISTS; PROVIDE 5/8" OSB FIREBLOCKING APPLIED TO EVERY THIRD ROOF TRUSS, CUT TO PROFILE OF THE TRUSS; PROVIDE MANUF. PREFAB. CURB FOR ALL RTUS; EXTEND ADHERED TPO UP PARAPET WALLS AND UNDER PREFAB. CLEATED PREFIN. SLOPED METAL PARAPET CAP W/ 1/2" HEMMED DRIP EDGE; PROVIDE MIN. 5/8" OSB AND ¼" DENSDECK COVERBOARD AT INSIDE FACE OF PARAPET WALLS; EXTEND TPO UP FACE OF EXISTING WALL 24"; CAP W/ PRESSURE BAR PER MANUF. STANDARD DETAILS; PROVIDE STANDARD TPO BOOTS FOR ALL PLUMBING PENETRATIONS AND TPO COATED METAL FLASHING FOR ALL STANDOFFS, TYP.

**20-** PROVIDE STEGOCRAWL WRAP 15-MIL VAPOR BARRIER AT ALL EXISTING CRAWLSPACE AREAS; PROVIDE 6" OVERLAPS AND STEGOCRAWL TAPE FOR ALL SEAMS; PROVIDE STEGOCRAWL TERMINATION BARS TO FASTEN PERIMETER TO ALL EXISTING CONCRETE FOUNDATION WALLS OR WOOD FRAMED WALLS; TAPE ALL PENETRATIONS, SEAMS, AND TERMINATION BAR; DO NOT ALLOW HOLES, OPENINGS, OR UNREGULATED AIR IN CRAWLSPACE ENCAPSULATION; PROVIDE 4" OF ½" RIVER ROCK ABOVE ENCAPSULATION (NO GRAVEL BELOW BINS OR BELOW THE EXISTING BUILDING BETWEEN GRIDS 5 AND 6, TYP

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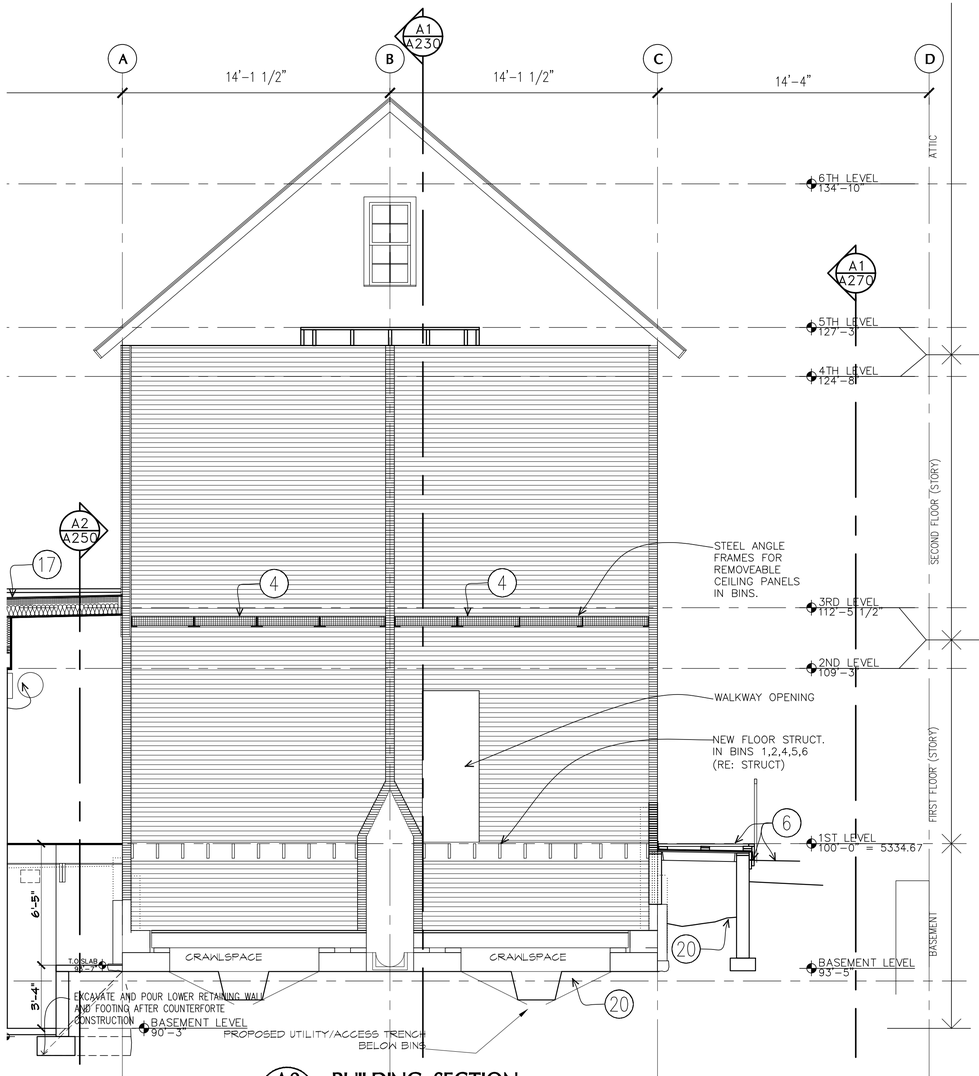
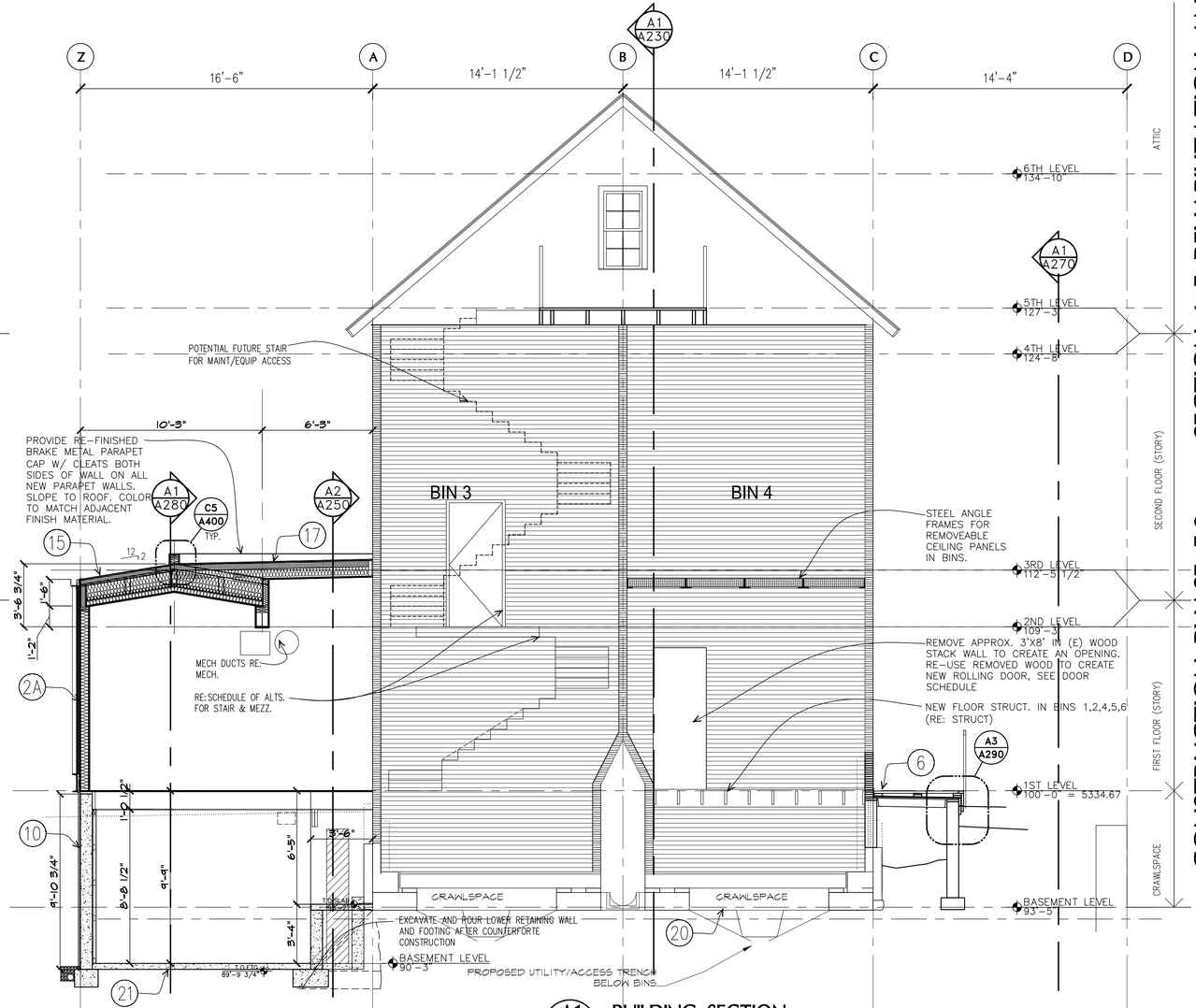



A2/A260 BUILDING SECTION

1/4" = 1' – 0"




A1/A260 BUILDING SECTION

1/4" = 1' – 0"

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK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PERMIT SUBMITTAL


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Building Sections

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**KEY NOTES (REFER TO SHEET A060 FOR ADDITIONAL INFORMATION):**

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**3-** PROVIDE R-10; 2" XPS RIGID INSULULATION (DUPONT STYROFOAM BRAND HIGHLOAD 40 XPS) ADHERED TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS; PROVIDE DECO 20 DAMPROOFING TO OUTSIDE FACE OF EXISTING AND NEW CONCRETE FOUNDATION WALLS FROM FOOTING TO MUDSILL; PROVIDE PREFINISHED METAL 'Z' FLASHING TO CAP TOP OF INSULATION WERE EXPOSED AND EXTEND BELOW GRADE 12".

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**17-** PROVIDE 60 MIL GRAY TPO MECH, FASTENED OR ADHERED ON 1/4" DENSDECK COVERBOARD ON 3/4" OSB ON ROOF FRAMING OR WOOD TRUSS W/ 4" SPRAY FOAM INSUL AND UNFACED OR BLOW-IN BATT INSUL TO FILL THE ENTIRE TRUSS OR FRAMING CAVITY AND LAYER OF 5/8" GWB AT BOTTOM OF JOISTS; PROVIDE 5/8" OSB FIREBLOCKING APPLIED TO EVERY THIRD ROOF TRUSS, CUT TO PROFILE OF THE TRUSS; PROVIDE MANUF. PREFAB. CURB FOR ALL RTUS; EXTEND ADHERED TPO UP PARAPET WALLS AND UNDER PREFAB, CLEATED PREFIN, SLOPED METAL PARAPET CAP W/ 1/2" HEMMED DRIP EDGE; PROVIDE MIN. 5/8" OSB AND ¼" DENSDECK COVERBOARD AT INSIDE FACE OF PARAPET WALLS; EXTEND TPO UP FACE OF EXISTING WALL 24"; CAP W/ PRESSURE BAR PER MANUF. STANDARD DETAILS; PROVIDE STANDARD TPO BOOTS FOR ALL PLUMBING PENETRATIONS AND TPO COATED METAL FLASHING FOR ALL STANDOFFS, TYP.

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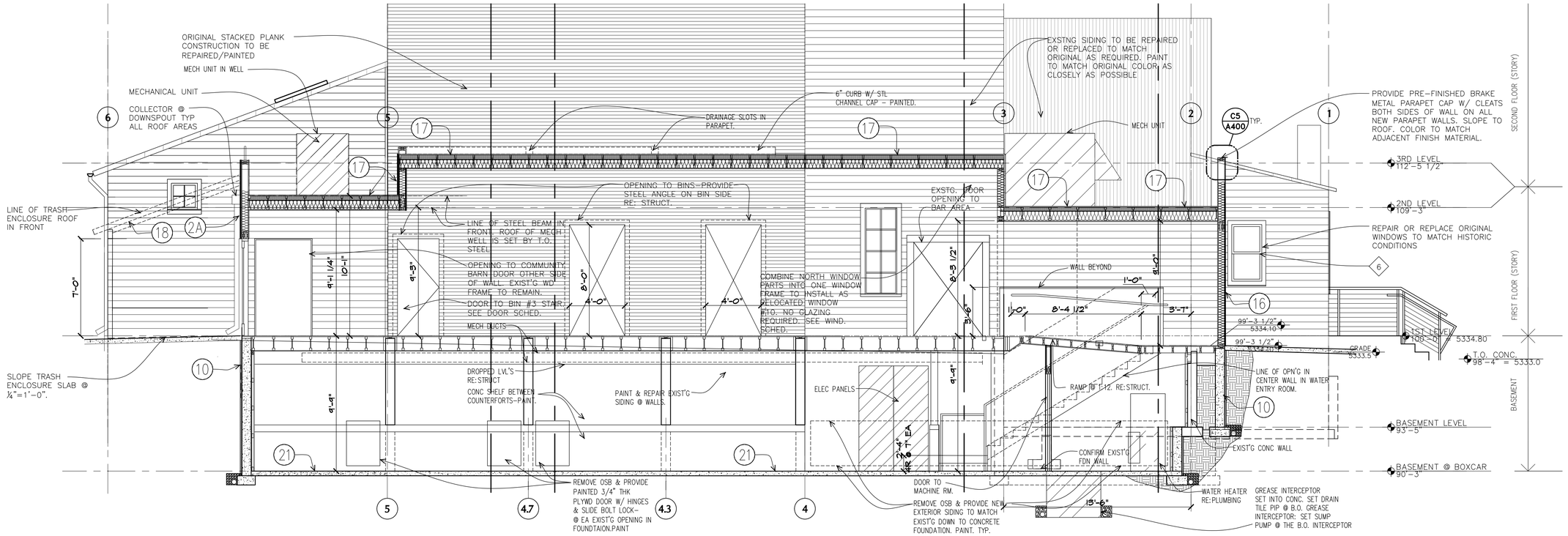
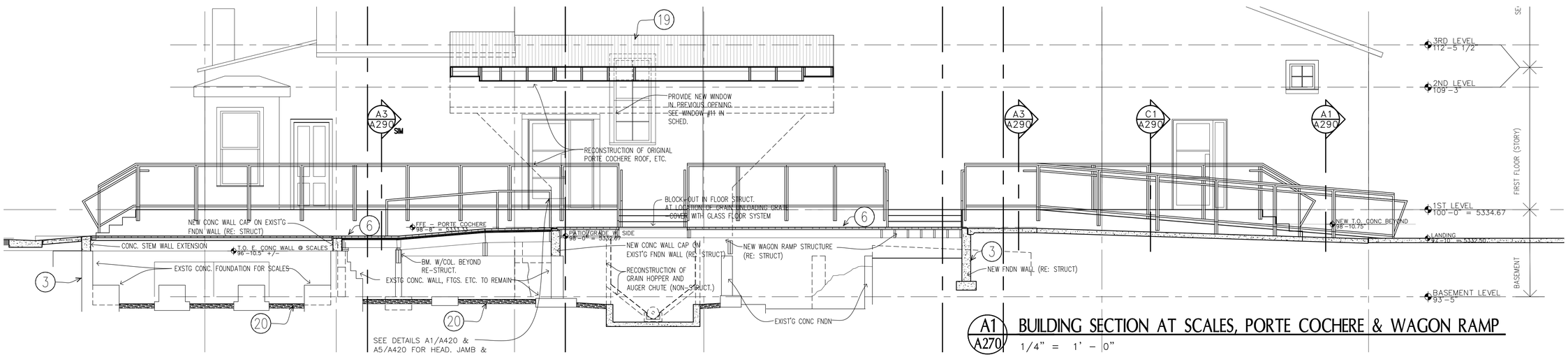



**C1 / A270 LONG SECTION @ BOXCAR**
1/4"=1'-0"




**A1 / A270 BUILDING SECTION AT SCALES, PORTE COCHERE & WAGON RAMP**
1/4" = 1' - 0"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# CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

# LOUISVILLE HISTORIC GRAIN ELEVATOR Renovation for THE GRAIN YARD

540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

STATE OF COLORADO — JON ERIK HARTRONFT — B-2238 — 12.05.25 — LICENSED ARCHITECT

**PROJECT # 1252.50**
**DATE:** 12/05/25
**DRAWN BY:** HAPC
**CHECKED BY:** JEH
**REVISIONS:**
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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**Building Section & Details**

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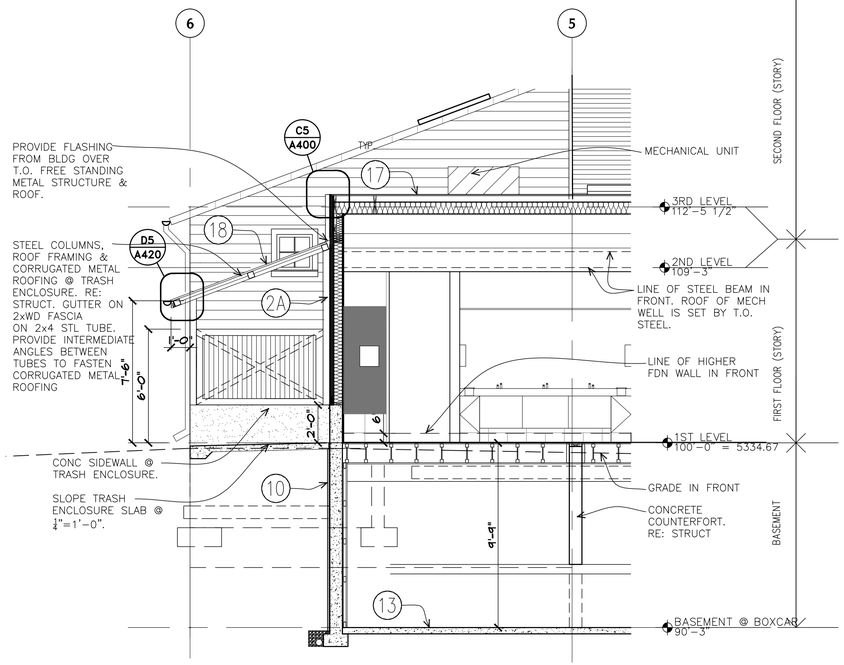


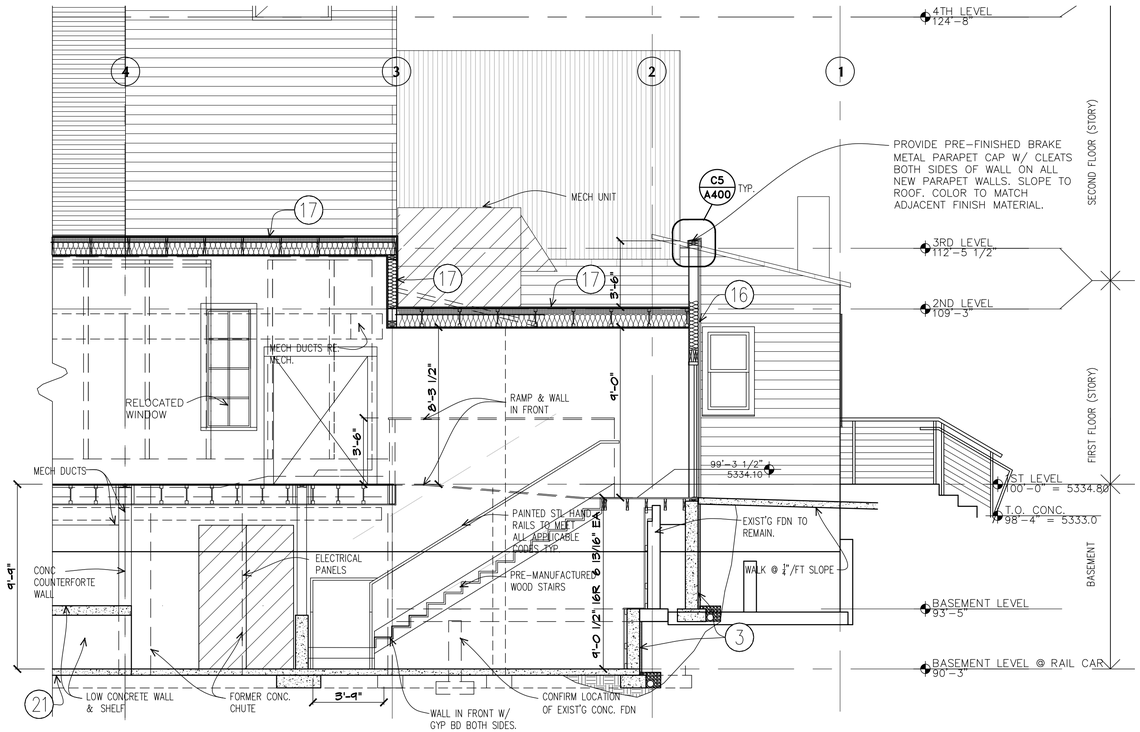


**KEY NOTES (REFER TO SHEET A060 FOR ADDITIONAL INFORMATION):**

**2A-** PROVIDE 1X LAP SIDING ON TYVEK COMMERCIAL WRAP D ON 1" RIGID INSUL R-5, ON ½" OSB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH R-21 KRAFT FACED BATT INSULATION WITH INTERIOR FINISH PER BOSC

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**17-** PROVIDE 60 MIL GRAY TPO MECH. FASTENED ON 1/4" DENSDECK COVERBOARD ON MIN. 1/4"/FT. SLOPED POLYISO. RIGID INSUL ON 3/4" OSB ON ROOF FRAMING W/ 4" SPRAY FOAM INSUL AND R-21 BATT INSUL IN CAVITY AND APPLY MEMBRAIN VAPOR BARRIER BELOW JOISTS AND LAYER OF 5/8" GWB AT BOTTOM OF JOISTS; PROVIDE MANUF. PREFAB. CURB FOR ALL RTUS; PROVIDE EXTRA SACRIFICIAL TPO UNDER ALL CURBS; EXTEND ADHERED TPO UP PARAPET WALLS AND UNDER PREFAB. SNAP ON PREFIN. SLOPED METAL PARAPET CAP W/ 1/2" DRIP EDGE; PROVIDE MIN. 5/8" OSB AT INSIDE FACE OF PARAPET WALLS; EXTEND TPO UP FACE OF EXISTING WALL 24"; CAP W/ PRESSURE BAR PER MANUF. STANDARD DETAILS; PROVIDE STANDARD TPO BOOTS FOR ALL PLUMBING PENETRATIONS AND TPO COATED METAL FLASHING FOR ALL STANDOFFS, TYP.

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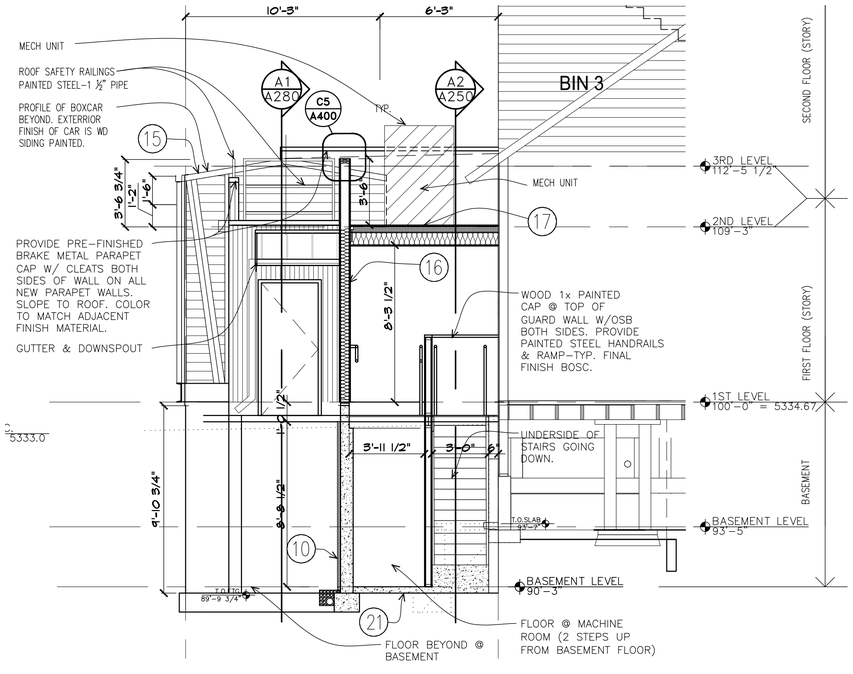
## B3 / A280 SECTION @ TRASH ENCLOSURE

1/4" = 1'-0"

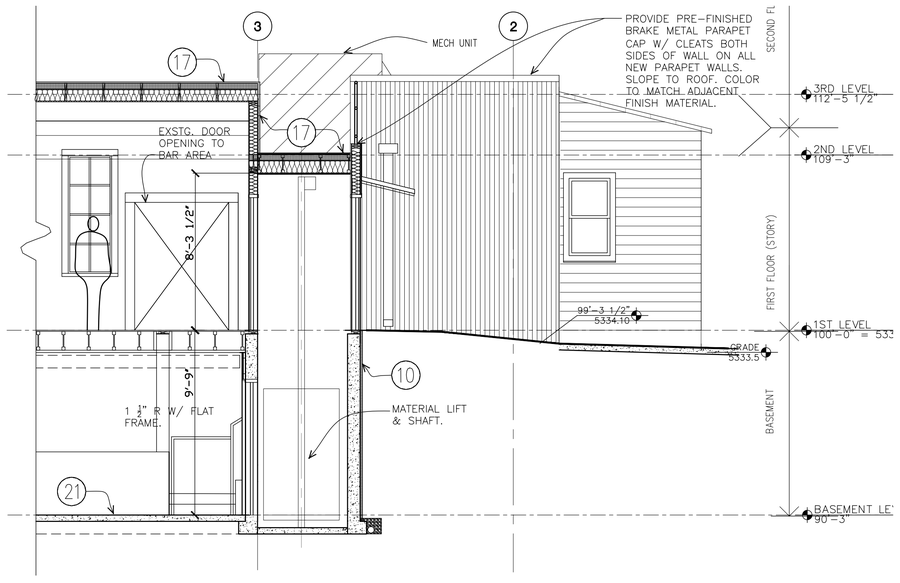



## A3 / A280 SECTION @ WATER ENTRY ROOM

1/4" = 1'-0"

## B1 / A280 STAIRWAY 100 - MAIN LEVEL TO BASEMENT

1/4" = 1'-0"




## A1 / A280 SECTION THRU MATERIAL LIFT

1/4" = 1'-0"

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01/23/26 ADDENDUM 2
FINAL SUBMITTAL

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Building Sections

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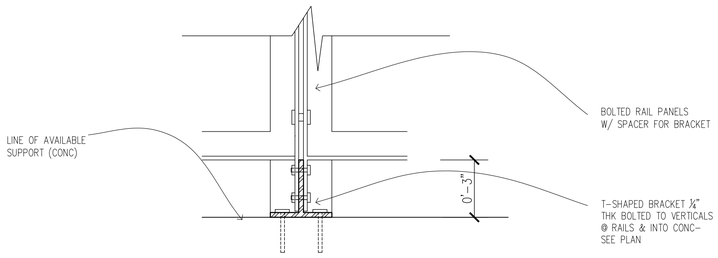
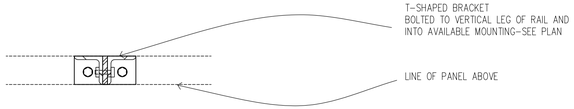
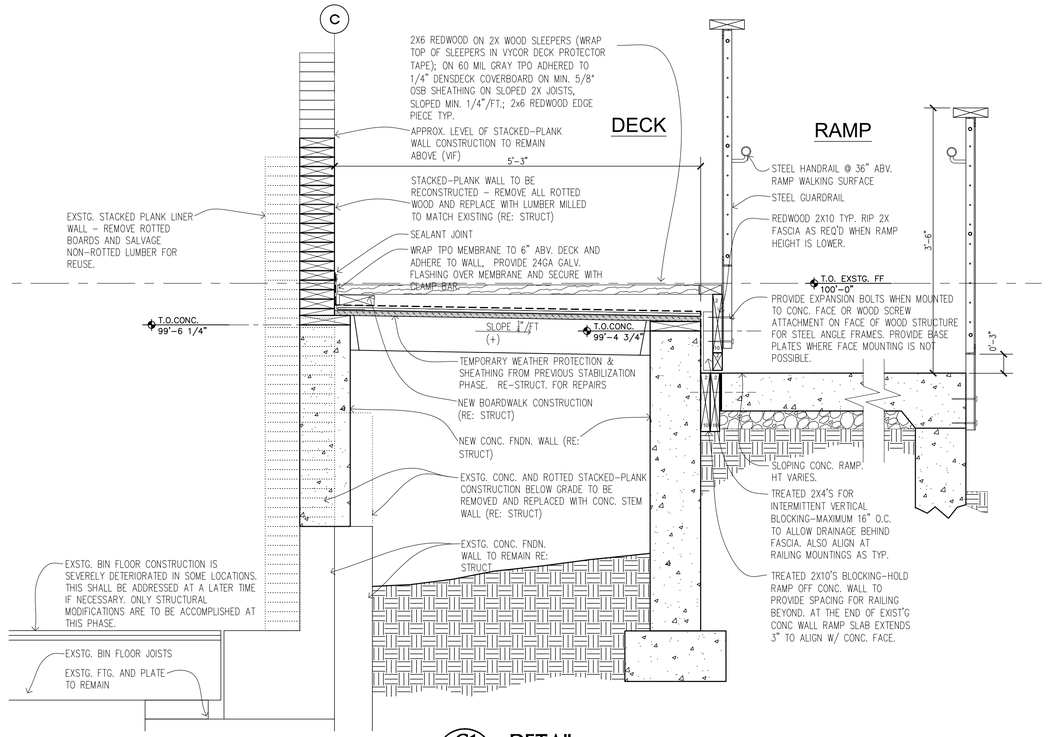


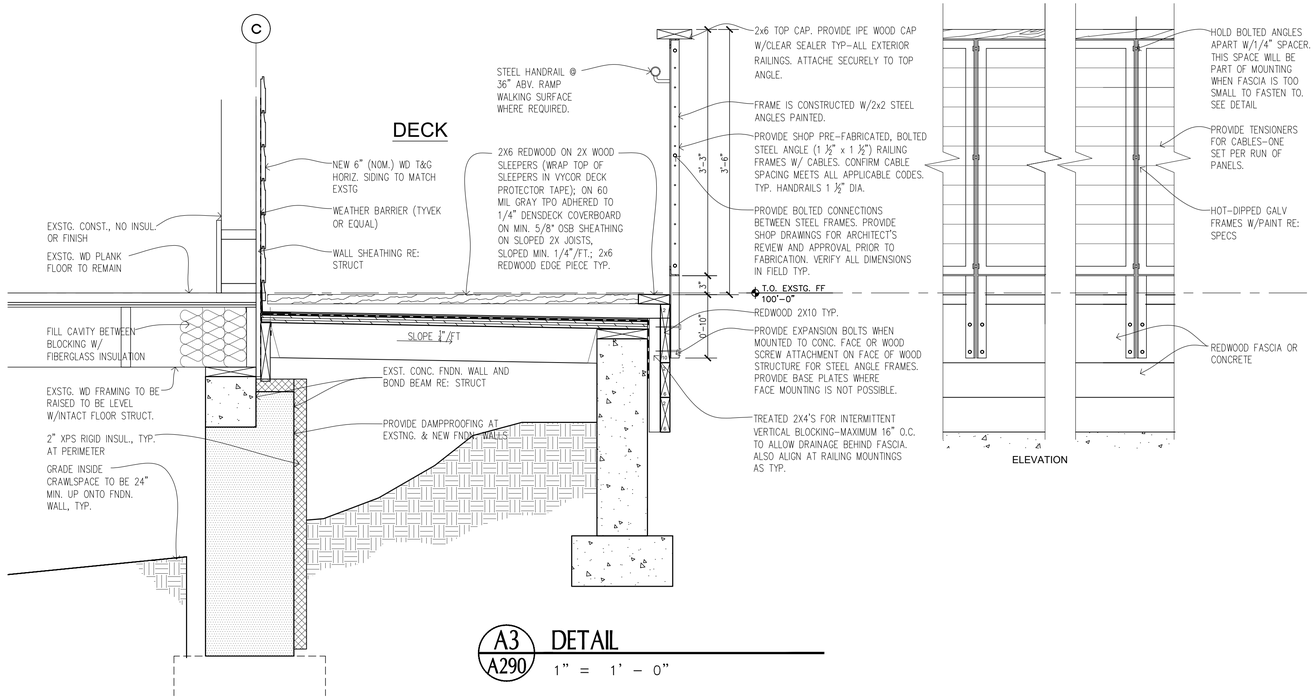

ELEVATION OF RAIL ATTACHMENT WHERE FASCIA IS TOO SMALL



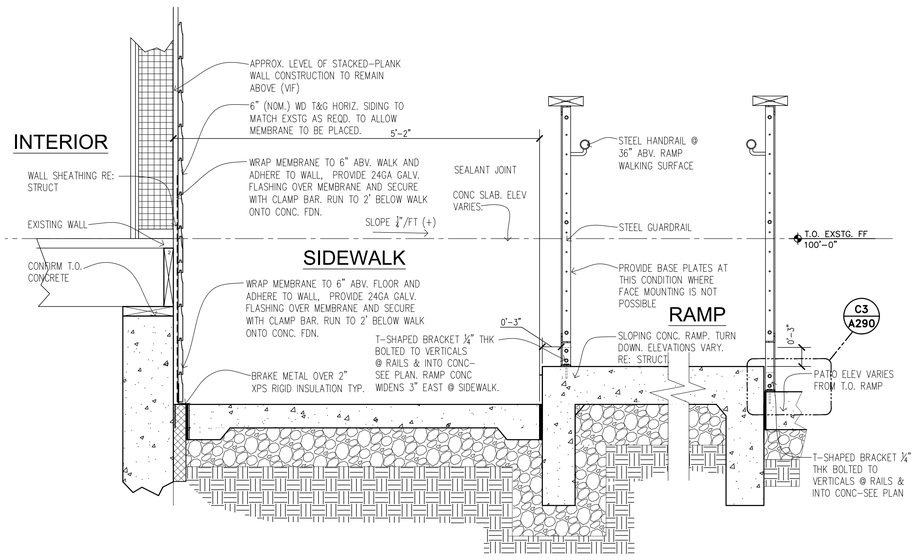

PLAN VIEW OF BASE PLATE WHERE FASCIA IS TOO SMALL




C1 A290 DETAIL
1/2" = 1' - 0"




A3 A290 DETAIL
1" = 1' - 0"




A1 A290 DETAIL
1" = 1' - 0"

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Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

HARTRONFT ASSOCIATES
A Professional Corporation
Planning
Architecture
Interior Design
950 Spruce Street, #2C
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

JON ERIK HARTRONFT B-2238 12.05.25 LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
01/16/26 ADDENDUM 1
01/23/26 ADDENDUM 2
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Building Sections & Details

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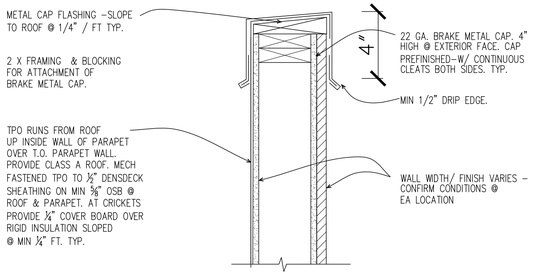
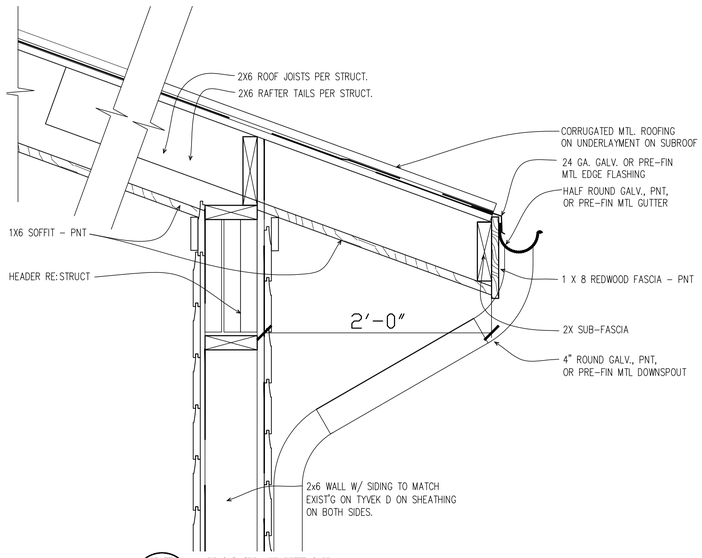


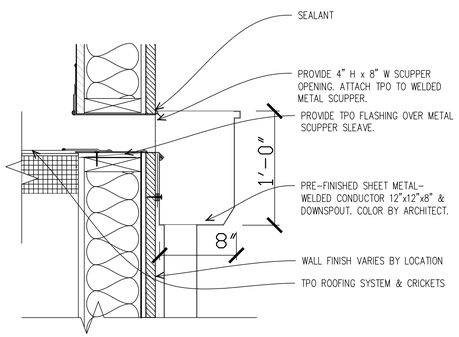

C5 / A400 **TYPICAL PARAPET CAP**

1 1/2" = 1'-0"



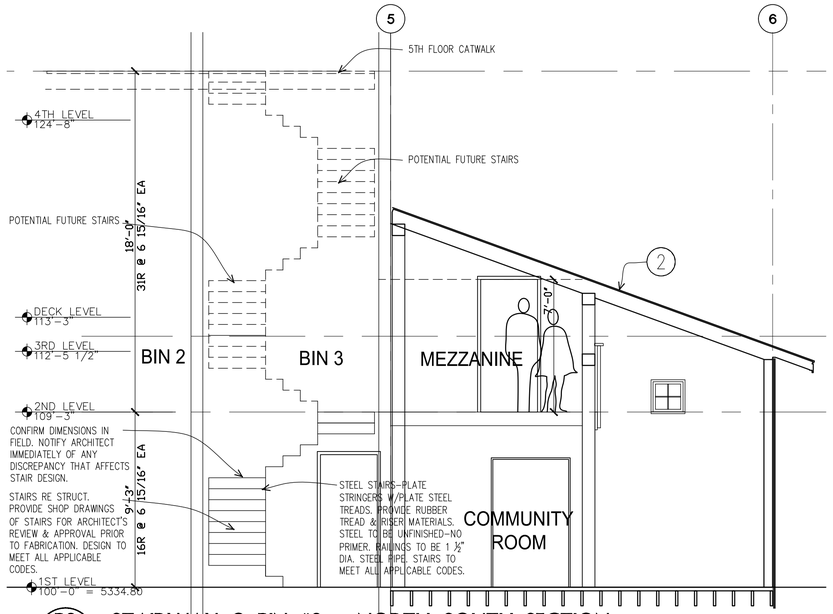

B5 / A400 **EAVE DETAIL**

1 1/2" = 1'-0"



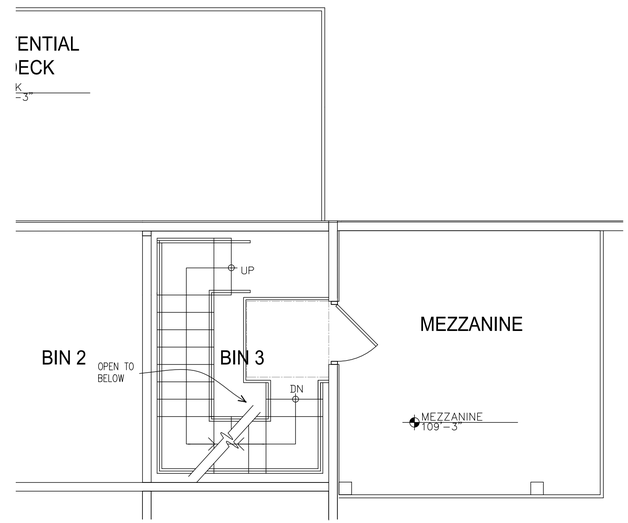

A5 / A400 **SCUPPER & COLLECTOR**

1 1/2" = 1'-0"



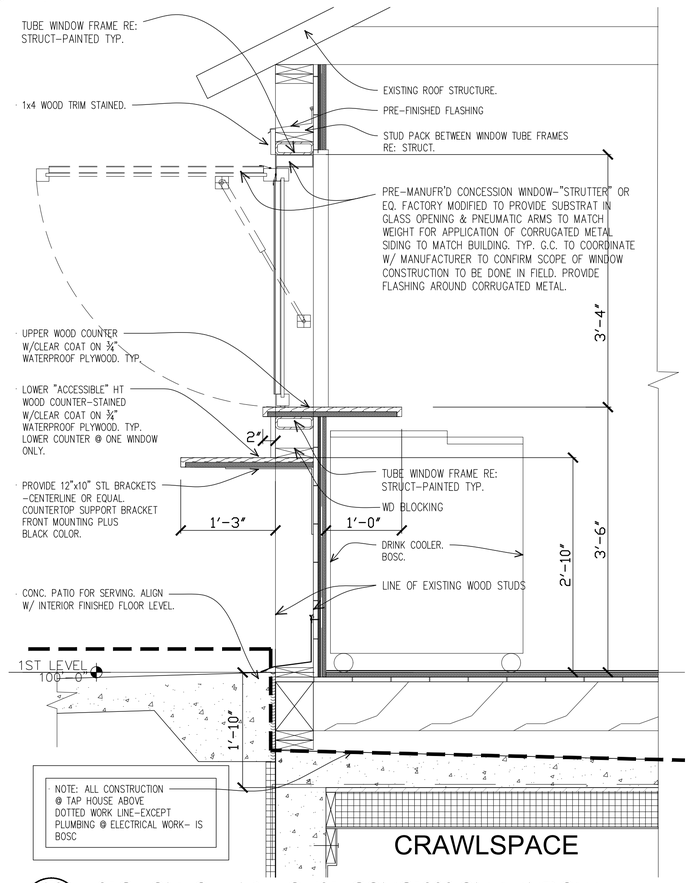

B3 / A400 **STAIRWAY @ BIN #3 - NORTH-SOUTH SECTION**

1/4" = 1'-0"



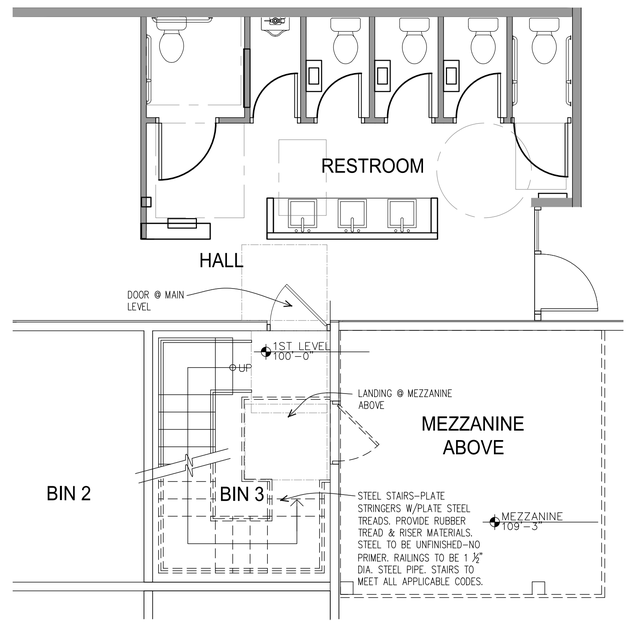

B1 / A400 **STAIRWAY @ BIN #3 - 2ND LEVEL PLAN**

1/4" = 1'-0"




A3 / A400 **SECTION @ TAP HOUSE CONCESSSION WINDOW**

1" = 1'-0"




A1 / A400 **STAIRWAY @ BIN #3 - MAIN LEVEL PLAN**

1/4" = 1'-0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
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A400
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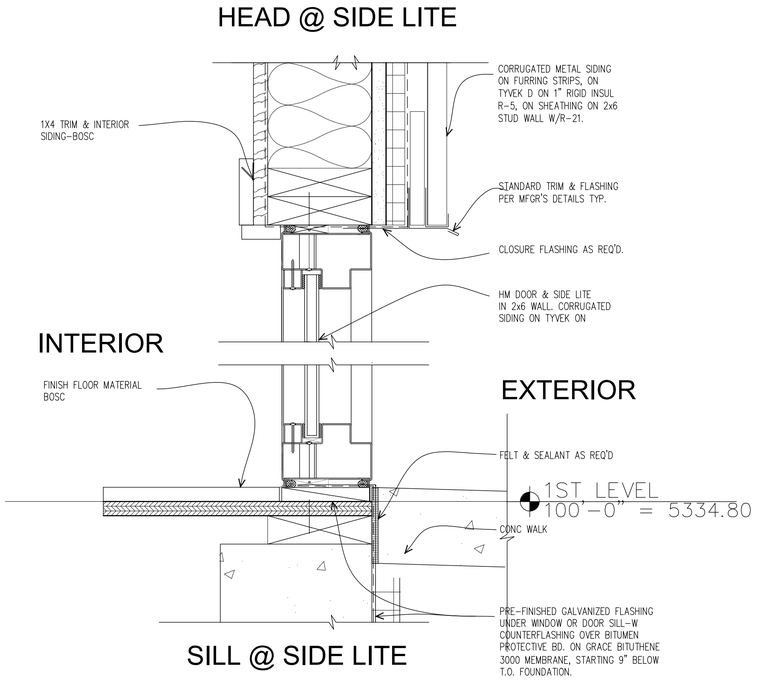
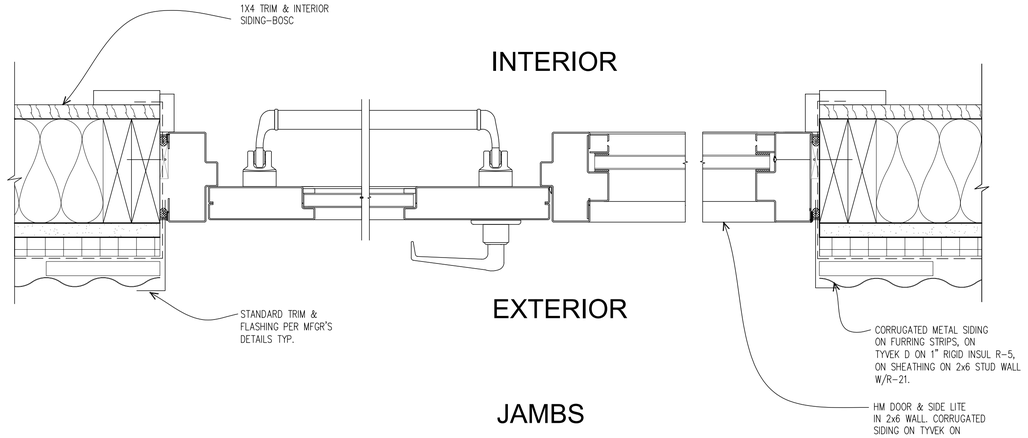
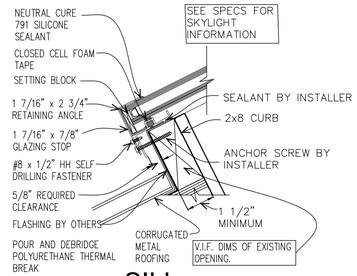
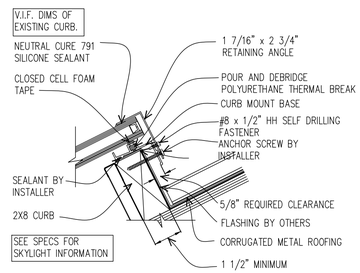


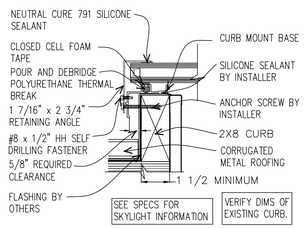

A5 / A410 HEAD, JAMB & SILL DETAIL
3" = 1'-0"



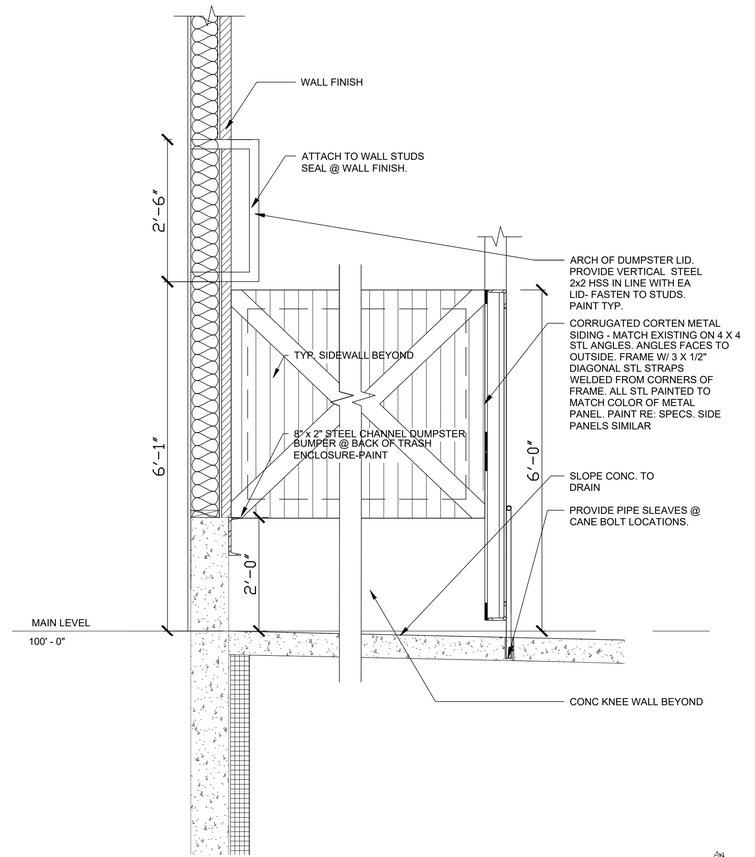

D1 / A410 DOOR JAMB DETAILS
3" = 1'-0"




A3 / A410 SECTION @ SKYLIGHT
3" = 1'-0"




A1 / A410 SECTION @ TRASH ENCLOSURE
3/4"=1'-0"

PLAN NORTH

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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B-2239
12.05.25
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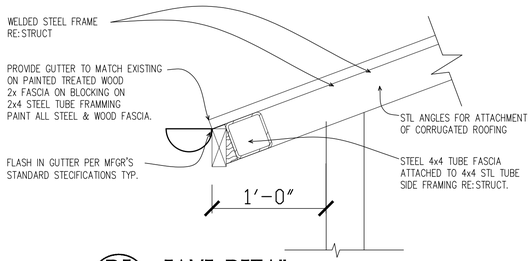
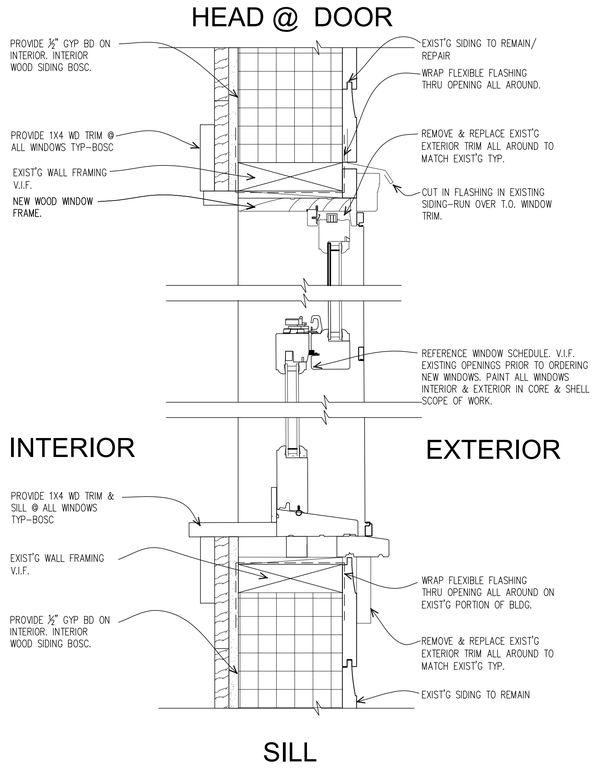


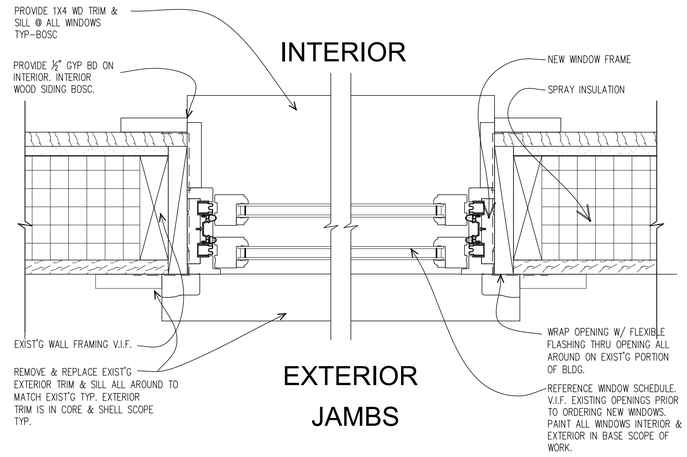

D5 / A420 EAVE DETAIL

1 1/2" = 1'-0"



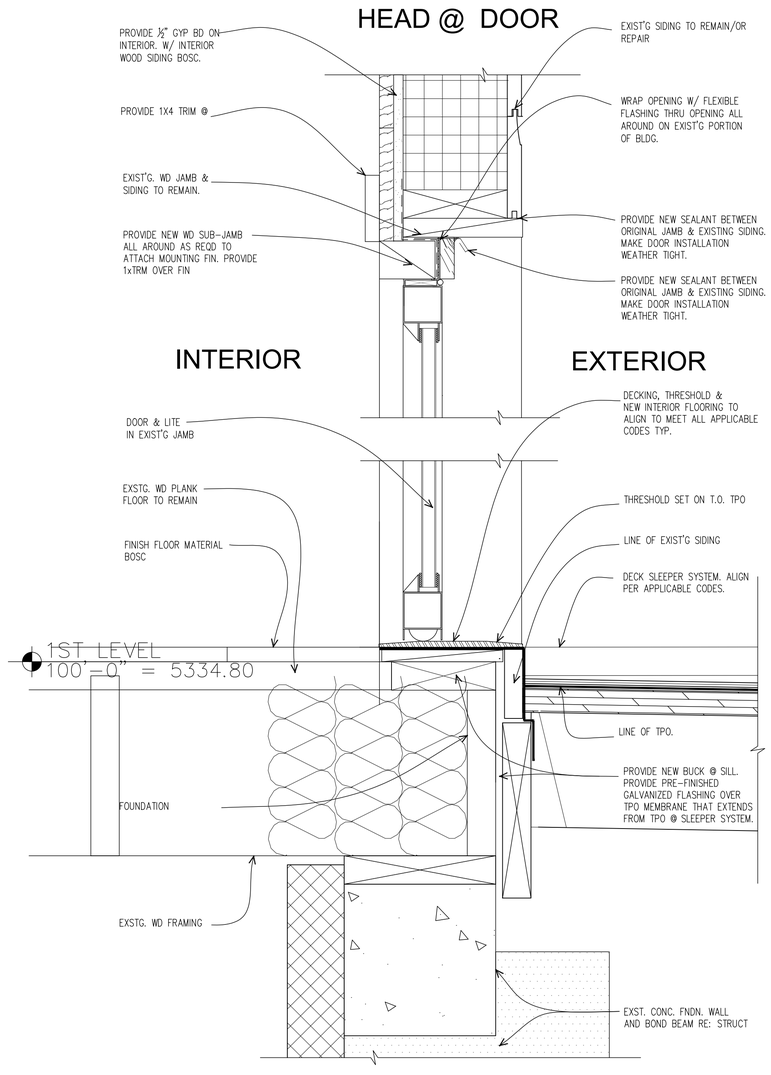

C3 / A420 WINDOW HEAD & SILL

3"=1'-0"



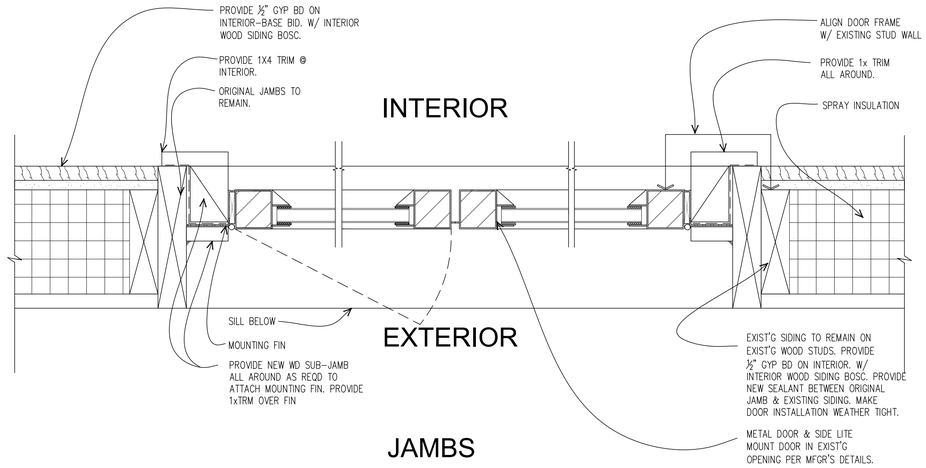

C1 / A420 WINDOW JAMB DETAILS

3"=1'-0"




A5 / A420 HEAD, JAMB & SILL DETAIL

3" = 1'-0"




A1 / A420 DOOR JAMB DETAILS

3"=1'-0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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B-2233
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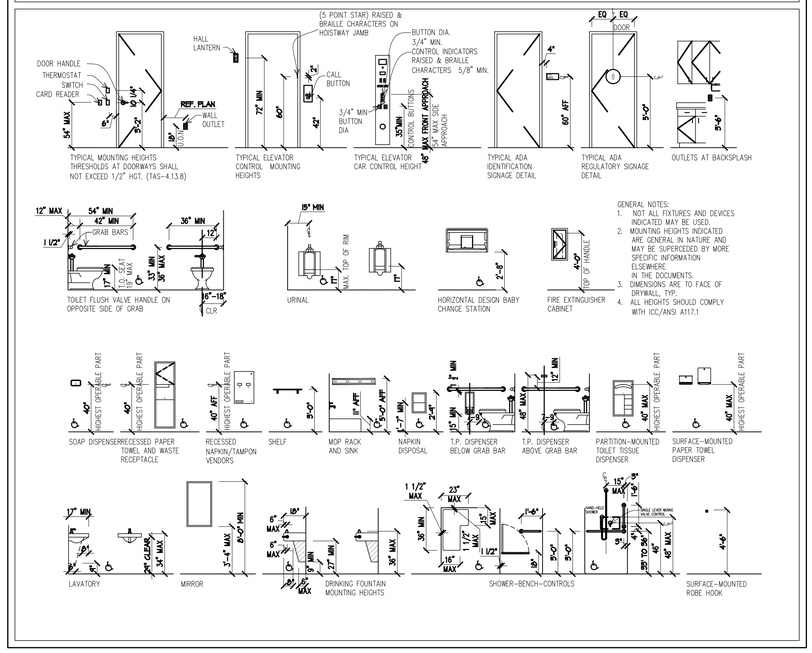
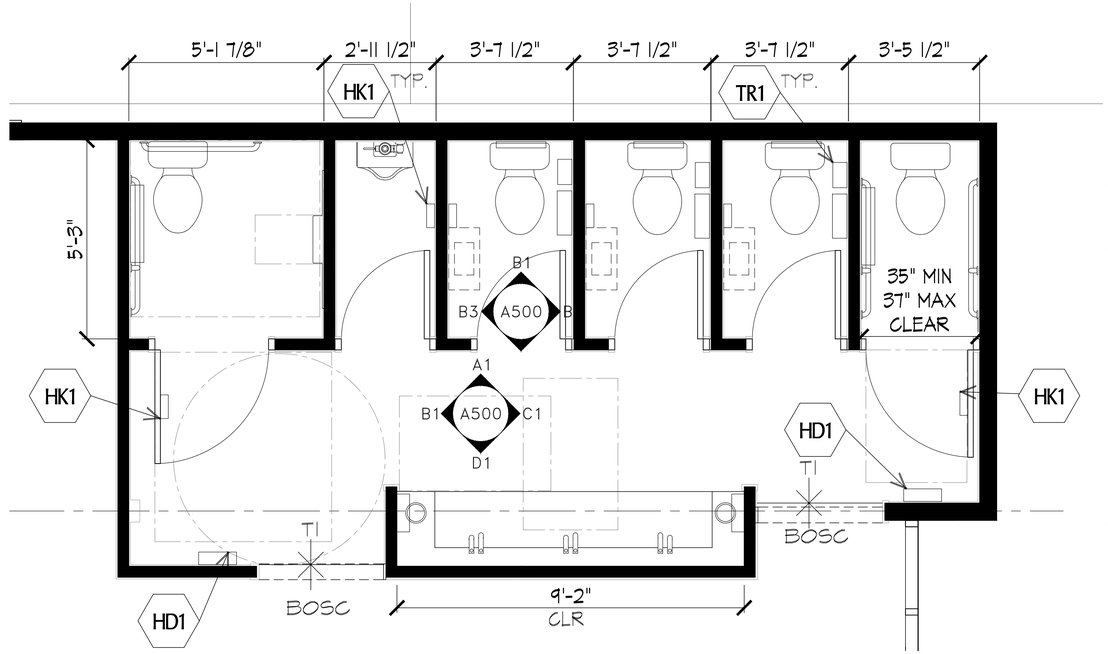
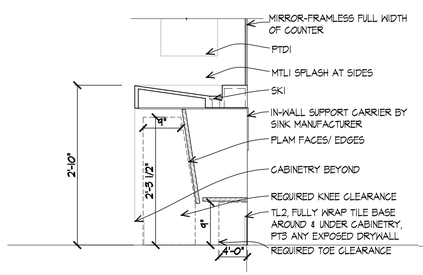
# ACCESSIBILITY CLEARANCES & MOUNTING HEIGHTS

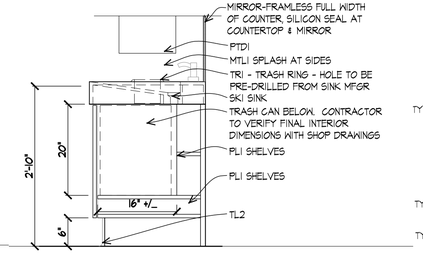


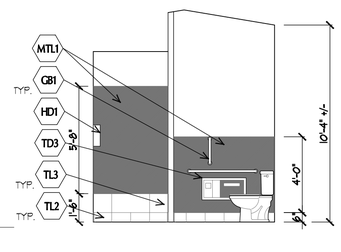

C1 / A500 FLOOR PLAN – FIRST LEVEL
1/2" = 1' – 0"



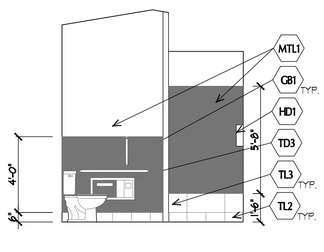

B5 / A500 SECTION
3/4" = 1' – 0"



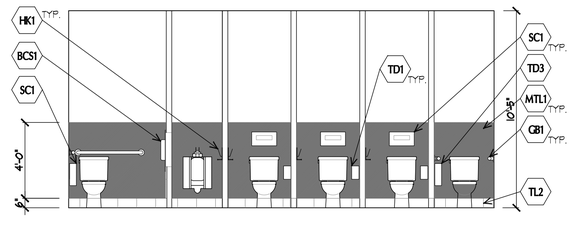

B4 / A500 SECTION
3/4" = 1' – 0"



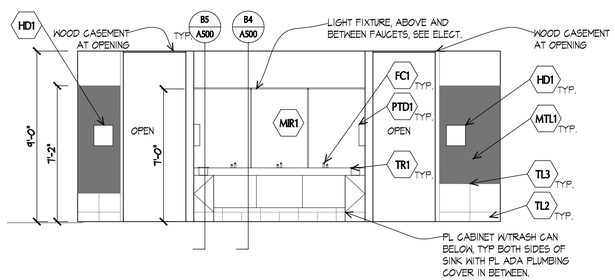

B3 / A500 SOUTH ELEVATION
1/4" = 1' – 0"



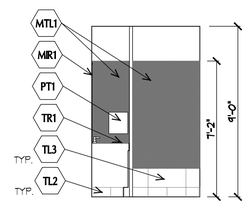

B2 / A500 NORTH ELEVATION
1/4" = 1' – 0"



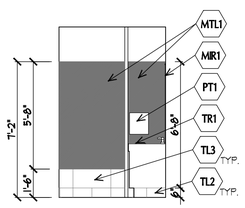

B1 / A500 RR 107 – WEST ELEVATION
1/4" = 1' – 0"



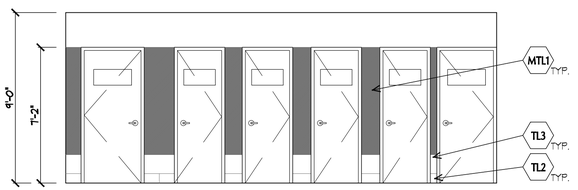

D1 / A500 EAST ELEVATION
1/4" = 1' – 0"




C1 / A500 SOUTH ELEVATION
1/4" = 1' – 0"




B1 / A500 NORTH ELEVATION
1/4" = 1' – 0"




A1 / A500 WEST ELEVATION
1/4" = 1' – 0"

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Enlarged Restroom Plans & Elevations

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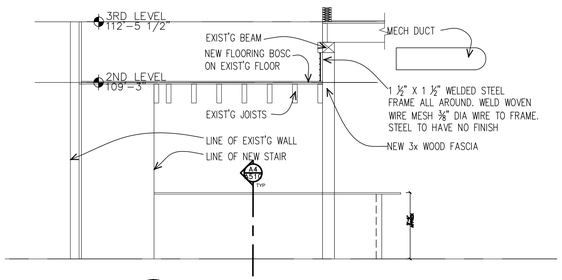
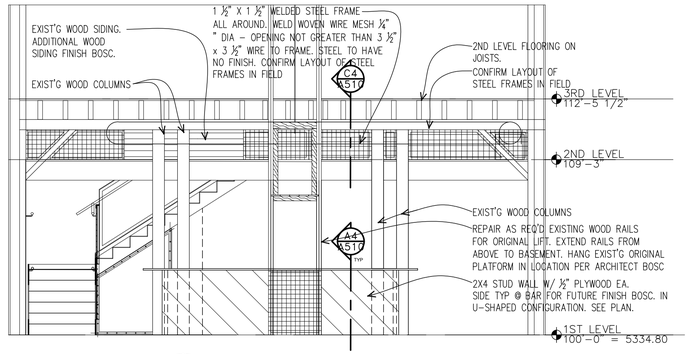


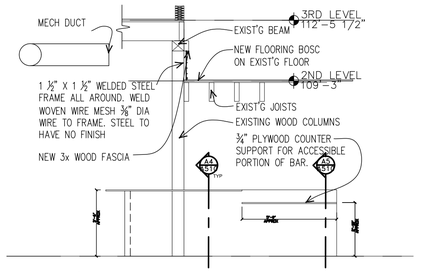

D5 A510 BAR -EAST ELEVATION

1/4" = 1' - 0"



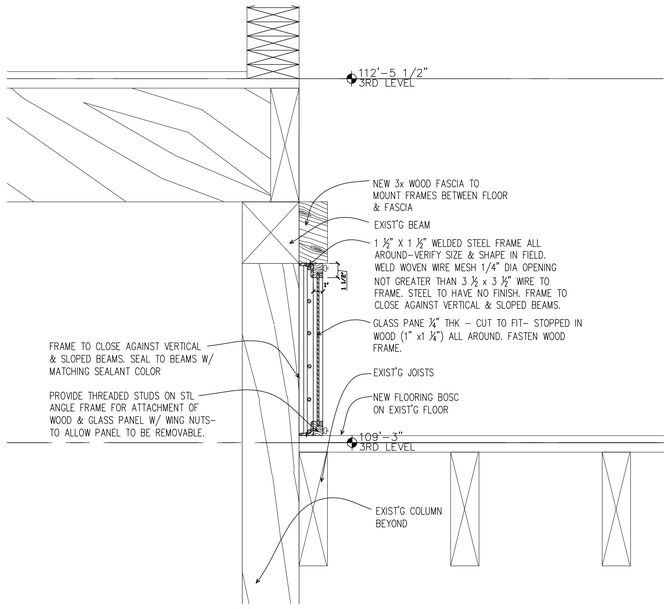

D3 A510 BAR -NORTH ELEVATION

1/4" = 1' - 0"



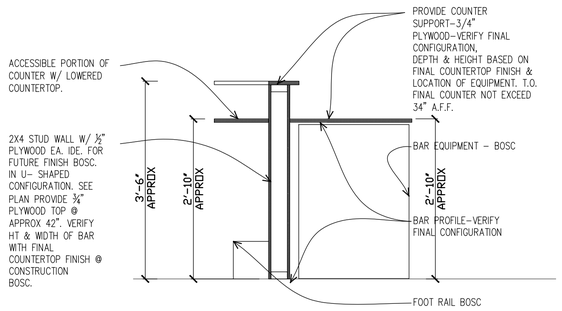

D1 A510 BAR -WEST ELEVATION

1/4" = 1' - 0"



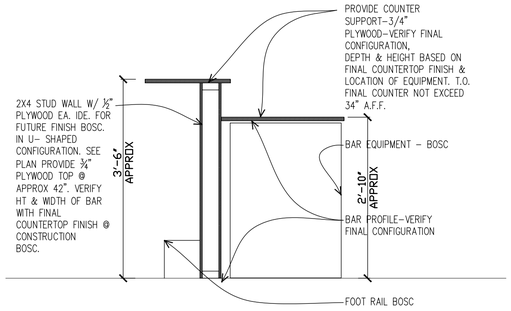

C4 A510 GRILL DETAIL

1 1/2" = 1'-0"



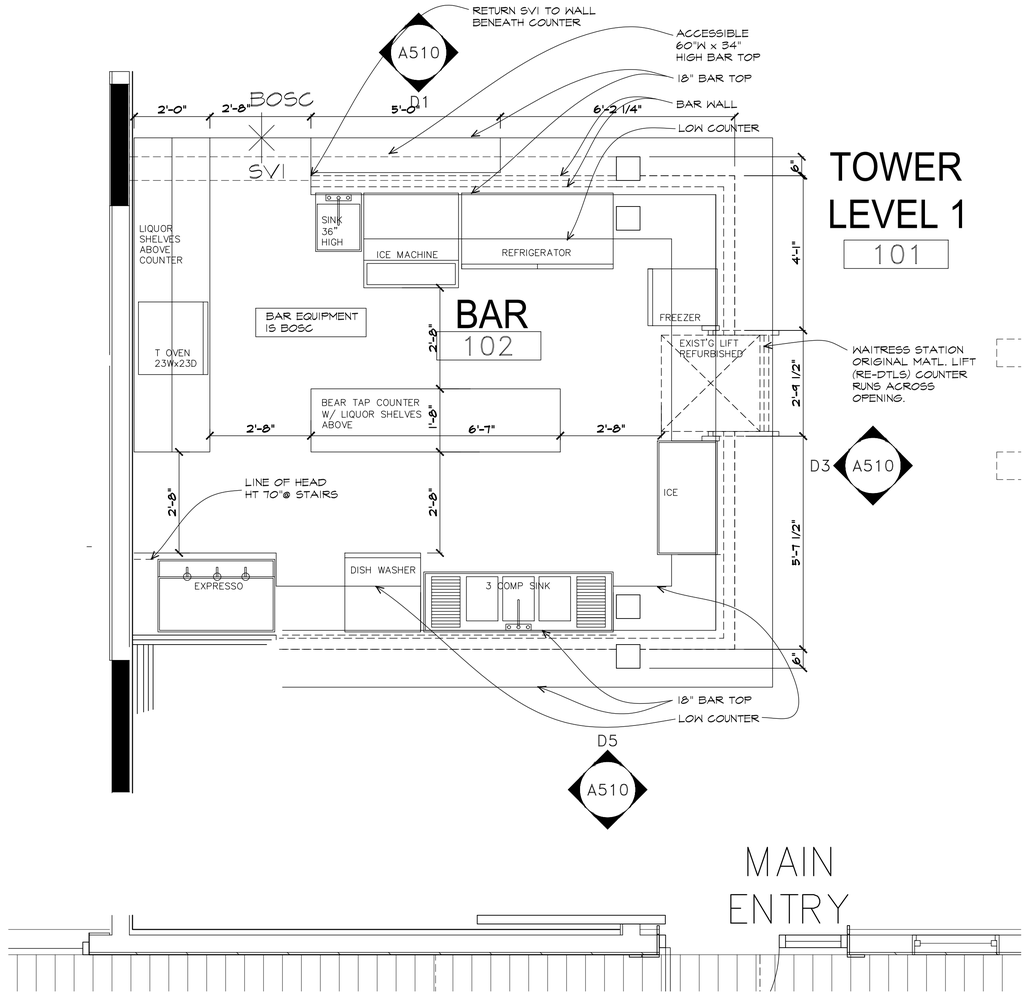

A5 A510 BAR - ACCESSIBLE COUNTER

3/4" = 1' - 0"




A4 A510 TYP STRUCT @ BAR

3/4" = 1' - 0"




TOWER
LEVEL 1
101

A1 A510 FLOOR PLAN - FIRST LEVEL

1/2" = 1' - 0"

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Enlarged Bar Plan & Elevations

Sheet
A510
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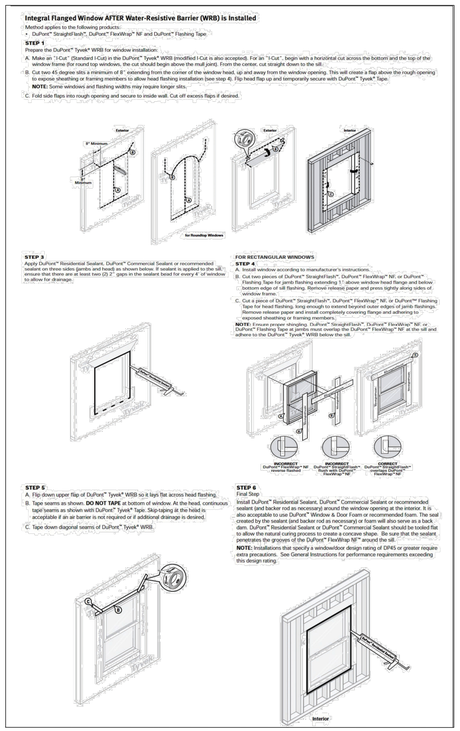
# TYVEK WINDOW WRAP DETAILS


Integral Flanged Window AFTER Water-Resistive Barrier (WRB) is Installed
Method applies to the following products:
• DuPont™ StraightFlash®, DuPont™ FlexWrap™ NF and DuPont™ Flashing Tape
STEP 1
Prepare the DuPont™ Tyvek® WRB for window installation:
A. Make an "I-Cut". (Standard I-Cut) in the DuPont™ Tyvek® WRB (modified I-Cut is also accepted). For an "I-Cut:", begin with a horizontal cut across the bottom and the top of the window frame (for round top windows, the cut should begin above the mull joint). From the center, cut straight down to the sill.
B. Cut two 45 degree slits a minimum of 6" extending from the corner of the window head, up and away from the window opening. This will create a flap above the rough opening to expose sheathing or framing members to allow head flashing installation (see step 4). Flip head flap up and temporarily secure with DuPont™ Tyvek® Tape.
NOTE: Some windows and flashing widths may require longer slits.
C. Fold side flaps into rough opening and secure to inside wall. Cut off excess flaps if desired.
Exterior
6"
6"
Interior
Non-Reveal Wall
Non-Reveal Windows
STEP 3
Apply DuPont™ Residential Sealant, DuPont™ Commercial Sealant or recommended sealant on three sides (jambs and head) as shown below. If sealant is applied to the sill, make sure gaps are at least two (2) 2" gaps in the sealant bead for every 4' of window to allow for drainage.
FOR RECTANGULAR WINDOWS
STEP 4
A. Install window according to manufacturer's instructions.
B. Cut two pieces of DuPont™ StraightFlash®, DuPont™ FlexWrap™ NF, or DuPont™ Flashing Tape for jamb flashing extending 1" above window head flange and below window sill flashing. Remove release paper and press tightly along sides of window frame.
C. Cut a piece of DuPont™ StraightFlash®, DuPont™ FlexWrap™ NF, or DuPont™ Flashing Tape for head flashing, long enough to extend beyond outer edges of jamb flashings. Remove release paper and install completely covering flange and adhering to exposed sheathing or framing members.
NOTE: Ensure proper shingling. DuPont™ StraightFlash®, DuPont™ FlexWrap™ NF, or DuPont™ Flashing Tape MUST be installed over the DuPont™ FlexWrap™ NF at the sill and adhere to the DuPont™ Tyvek® WRB below the sill.
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# HARDWARE SCHEDULE

**Hardware Group No. 012**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | EXTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | BBLK | IVE |
| 1 | EA | PANIC HARDWARE | LD-78-EO | 711 | VON |
| 1 | EA | BATTERY OPERATED EXIT DEVICE TRIM W/ KEYPAD | CO-100-993R-70-KP-LAT-P6 4B BATTERY OPERATED | 643e | SCE |
| 1 | EA | SURFACE CLOSER (W/ SPRING STOP) | 4050A SCUSH | 693 | LCN |
| 1 | EA | RAIN DRIP | 142BK | BK | ZER |
| 1 | SET | GASKETING | 429AA @ HEAD & JAMBS | BK | ZER |
| 1 | EA | DOOR SWEEP | 39BK | BK | ZER |
| 1 | EA | SADDLE THRESHOLD | 1/2" HIGH - DEPTH AS REQUIRED BY SILL DETAIL | A | ZER |

**FREE EGRESS AT ALL TIMES. LOCKSET IS NORMALLY SECURE. NORMAL CREDENTIAL UNLOCKS THE LOCK MOMENTARILY WHEN IN NORMALLY SECURED STATE. VALID TOGGLE CREDENTIALS ON THE EXTERIOR MAY BE USED TO CHANGE TO A PASSAGE OR SECURED STATUS.**

Hardware Group No. 013

SLIDING DOOR HARDWARE

Manufacturer: RealCraft
Style: Top Mounted - Box Rail Barn Door Sliding Hardware, Interior & Exterior (400 lbs)
Length: 8' One Piece/Wall Mounted. Verify Actual Length in Field
Finish: Black
Barn Door Floor Guide: T-Guide Sliding Door Floor Guide with Bottom Guide U Channel
Finish: Black

Note: Custom barn door approximately 5" thick. Provide 1x blocking and spacers as required to accommodate the width of the door.

Door pulls will be integrated in the 1/4" steel edges that surround the door on both sides of the door. Reference sheet A520 for door elevation.

**Hardware Group No. 06**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | STOREROOM | PC80P6D LAT | 622 | SCH |
| 1 | EA | WALL STOP | WS406/407 (CCV / CVX AS REQ'D) | BLK | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

**Hardware Group No. 08**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | BATTERY OPERATED STOREROOM LOCK W/ KEYPAD | CO-100-CY-70-KP-LAT-P6 4B BATTERY OPERATED | 643e | SCE |
| 1 | EA | SURFACE CLOSER (W/ HOLD OPEN) | 1450 HW/PA FC | 693 | LCN |
| 1 | EA | KICK PLATE | 8400 36" B-CS | BLK | IVE |
| 1 | EA | WALL STOP | WS406/407 (CCV / CVX AS REQ'D) | BLK | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

CONTRACTOR TO COORDINATE THE DOORS WITH THE LIFT MANUFACTURER
**FREE EGRESS AT ALL TIMES. LOCKSET IS NORMALLY SECURE. NORMAL CREDENTIAL UNLOCKS THE LOCK MOMENTARILY WHEN IN NORMALLY SECURED STATE. VALID TOGGLE CREDENTIALS ON THE EXTERIOR MAY BE USED TO CHANGE TO A PASSAGE OR SECURED STATUS.**

**Hardware Group No. 010**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | EXTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | BBLK | IVE |
| 1 | EA | PANIC HARDWARE | 78-NL | 711 | VON |
| 1 | EA | RIM CYLINDER | 20-022 | 622 | SCH |
| 1 | EA | SURFACE CLOSER (W/ STOP) | 4050A CUSH | 693 | LCN |
| 1 | SET | GASKETING | 429AA @ HEAD & JAMBS | BK | ZER |
| 1 | EA | DOOR SWEEP | 39BK | BK | ZER |
| 1 | EA | SADDLE THRESHOLD | 1/2" HIGH - DEPTH AS REQUIRED BY SILL DETAIL | A | ZER |

**FREE EGRESS AT ALL TIMES. KEY IN OUTSIDE TRIM RETRACTS LATCH FOR ENTRY ONLY. DOOR RE-SECURES WHEN KEY IS REMOVED. DOOR CAN BE HEX-KEY DOGGED FOR PUSH / PULL OPERATION.**

**Hardware Group No. 011**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | EXTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | BBLK | IVE |
| 1 | EA | BATTERY OPERATED STOREROOM LOCK W/ KEYPAD | CO-100-CY-70-KP-LAT-P6 4B BATTERY OPERATED | 643e | SCE |
| 1 | EA | LOCK GUARD | LG12 | 600 | IVE |
| 1 | EA | SURFACE CLOSER (W/ HOLD OPEN) | 4050A HEDA SRI | 693 | LCN |
| 1 | EA | EXTERIOR STOP | FS18 HEIGHT AS REQ'D | BLK | IVE |
| 1 | SET | GASKETING | 429AA @ HEAD & JAMBS | BK | ZER |
| 1 | EA | DOOR SWEEP | 39BK | BK | ZER |
| 1 | EA | SADDLE THRESHOLD | 1/2" HIGH - DEPTH AS REQUIRED BY SILL DETAIL | A | ZER |

CONTRACTOR TO COORDINATE THE DOORS WITH THE LIFT MANUFACTURER
**FREE EGRESS AT ALL TIMES. LOCKSET IS NORMALLY SECURE. NORMAL CREDENTIAL UNLOCKS THE LOCK MOMENTARILY WHEN IN NORMALLY SECURED STATE. VALID TOGGLE CREDENTIALS ON THE EXTERIOR MAY BE USED TO CHANGE TO A PASSAGE OR SECURED STATUS.**

**Hardware Group No. 01**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | PASSAGE LOCK | PC10S LAT | 622 | SCH |
| 1 | EA | SURFACE CLOSER (W/ HOLD OPEN) | 1450 HW/PA FC | 693 | LCN |
| 1 | EA | KICK PLATE | 8400 36" B-CS | BLK | IVE |
| 1 | EA | WALL STOP | WS406/407 (CCV / CVX AS REQ'D) | BLK | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

CONTRACTOR TO COORDINATE THE DOORS WITH THE LIFT MANUFACTURER

**Hardware Group No. 02**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | PASSAGE LOCK | PC10S LAT | 622 | SCH |
| 1 | EA | SURFACE CLOSER (W/ SPRING STOP) | 1450 SCUSH FC | 693 | LCN |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

**Hardware Group No. 02.1**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | PASSAGE LOCK | PC10S LAT | 622 | SCH |
| 1 | EA | SURFACE CLOSER | 1450 RW/PA FC | 693 | LCN |
| 1 | EA | WALL STOP | WS406/407 (CCV / CVX AS REQ'D) | BLK | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

**Hardware Group No. 03**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | PRIVACY LOCK W/ OUTSIDE INDICATOR | ND40S LAT OS-OCC | 622 | SCH |
| 1 | EA | WALL STOP | WS406/407 (CCV / CVX AS REQ'D) | BLK | IVE |
| 1 | EA | GASKETING | 488S @ HEAD & JAMBS | BK | ZER |

**Hardware Group No. 04**

Provide each SGL door(s) with the following:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|---|---|---|---|---|---|
| 1 | SET | INTERIOR BALL BEARING HINGE | 5BB1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK | IVE |
| 1 | EA | ENTRANCE LOCK | PC53P6D LAT | 622 | SCH |
| 1 | EA | WALL STOP | WS406/407 (CCV / CVX AS REQ'D) | BLK | IVE |
| 1 | EA | GASKETING | 488S @ HEAD & JAMBS | BK | ZER |

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK


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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
PERMIT SUBMITTAL


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Hardware Schedule

Sheet
A525
of Sheets

HAND RAIL EXTENSION ONLY ON WALL SIDE OF STAIRS– NO GUARD RAIL ON WALL SIDE. WRAP HANDRAIL ON INSIDE OF TURN. CONFIRM IN FIELD THAT NO OPENING BETWEEN ANY PORTION OF STAIRS AND WALL FINISH IS GREATER THAN 2".

CONFIRM THAT HEADROOM IS MAINTAINED PER ALL APPLICABLE CODES

B3 A600

A A600

TREADS AND RISERS IN FRONT–GOING TO SECOND LEVEL.

LINE OF WALL ADJACENT TO STAIRS. CONFIRM IN FIELD THAT NO OPENING BETWEEN STAIRS & WALL FINISH IS GREATER THAN 2". THIS NOTE IS TYPICAL FOR FIRST FLIGHT & LANDING AS WELL.

NO PERFORATIONS IN LANDING STEEL PLATE.

PLATE STRINGER STRUCTURE ON THIS SIDE CUT BACK & MODIFIED TO ALLOW HEADROOM FOR STAIR GOING TO LOWER LEVEL.

CONFIRM HEADROOM FOR STAIR GOING TO LOWER LEVEL MEETS ALL APPLICABLE CODES.

SIDE STRINGER @ LANDING–BEYOND.

GUARD RAILS–WELDED WIRE MESH TO BE WELDED TO 2"x2" STEEL ANGLE FRAME. MESH–WIRE TO BE ⅜" DIA ON 3 ½" O.V. SQUARE PATTERN. ONE FRAME PER RUN, OR LANDING. GUARD RAIL TO MEET ALL APPLICABLE CODES TYP.

1'–0"

3'–0"

3'–6"

STAIR WIDTH BETWEEN STRINGERS

VERIFY IN FIELD

6'–8"

3'–6"

1'–4"

3'–0"

1'–0"

R22.41°

122.41°

STEEL PLATE STRINGER– ½" THK & APPROX 12" HIGH. NO FINISH ON STEEL. PROVIDE CODE REQUIRED ABRASIVE BLACK WARNING STRIPE @ EDGE OF EA. TREAD AND LANDING TYP.

⅛" THK STEEL PLATE INFILL–DENOTED BY HATCH. BOLTED W/ CAP NUTS INSIDE 2"x2" STEEL ANGLE FRAME. CAP NUTS @ 6"O.C. PLATE & FRAME UNFINISHED.

## B5 A600 STAIRWAY
3/4" = 1'–0"

NOTE: VERIFY FLOOR TO FLOOR DISTANCE IN FIELD. G.C. TO PROVIDE SHOP DRAWINGS FOR ARCHITECT REVIEW TYP. RISERS & TREADS TO MEET ALL APPLICABLE CODES.

HAND RAIL EXTENSION ONLY ON WALL SIDE OF STAIRS– NO GUARD RAIL. WRAP HANDRAIL ON INSIDE OF TURN. CONFIRM IN FIELD THAT NO OPENING BETWEEN ANY PORTION OF STAIRS AND WALL FINISH IS GREATER THAN 2".

STEEL HANDRAIL @ 36" ABV. NOSING @ STEPS– 1 ½" DIA TYP.

A A600

3'–6"

STEEL–PRE–MANUFACTURED BENT STL PLATE RISERS & TREADS – WELDED TO STRINGERS. PRE–MANUFACTURED UNITS ARE ONE RISER & ONE TREAD. PERFORATED HOLES IN FACE OF STAIR RISERS–IN FIRST FLIGHT ONLY. LANDINGS AND SECOND FLIGHT OF STAIRS TO SECOND LEVEL WILL NOT HAVE HOLES IN RISERS OR TREADS. STEEL HOLE PATTERN BY ARCHITECT. PROVIDE ABRASIVE BLACK WARNING STRIPE @ EDGE OF EA. TREAD & LANDING. TYP.

GUARD RAILS–WELDED WIRE MESH TO BE WELDED TO 2"x2" STEEL ANGLE FRAME. MESH–WIRE TO BE ⅜" DIA ON 3 ½" O.V. SQUARE PATTERN. GUARD RAIL TO MEET ALL APPLICABLE CODES TYP.

WELD 2x2 STEEL ANGLE TO PLATE STRINGER.

3'–6"

3'–0"

STEEL PLATE STRINGER– ½" THK & APPROX 12" HIGH.

## B3 A600 STAIRWAY
3/4" = 1'–0"

CONFIRM THAT HEADROOM IS MAINTAINED PER ALL APPLICABLE CODES

LINE OF WALL ADJACENT TO STAIRS. CONFIRM IN FIELD THAT NO OPENING BETWEEN STAIRS & WALL FINISH IS GREATER THAN 2". THIS NOTE IS TYPICAL FOR FIRST FLIGHT & LANDING AS WELL.

B5 A600

A A600

3'–0"

1'–0"

3'–6"

LANDING LENGTH

TOP EDGE OF STRINGER PLATE

OPEN THRU WALL FOR STAIR GOING TO LOWER LEVEL

LANDING–NO PERFORATIONS IN LANDING STEEL PLATE.

ALIGN

PLATE STRINGER STRUCTURE ON THIS SIDE CUT BACK & MODIFIED TO ALLOW HEADROOM FOR STAIR GOING TO LOWER LEVEL.

BAR PROFILE–VERIFY FINAL CONFIGURATION

STEEL–PRE–MANUFACTURED BENT STL PLATE RISERS & TREADS – WELDED TO STRINGERS. PRE–MANUFACTURED UNITS ARE ONE RISER & ONE TREAD. NO PERFORATED HOLES IN TREADS & RISERS IN THIS FLIGHT OF STAIRS TO SECOND LEVEL. PROVIDE ABRASIVE BLACK WARNING STRIPE @ EDGE OF EA. TREAD & AT EDGE OF SECOND FLOOR TYP.

FLOOR STRUCTURE & SUBFLOOR 2ND LEVEL

2ND LEVEL 109'–3"

1'–10"

3'–6"

R22.41°

122.41°

1'–0"

1'–2"

2'–3 1/2" MIN 6 3/8" MAX

6"

2'–3 1/2" MIN 6 3/8" MAX

1ST LEVEL 100'–0" = 5334.80

⅛" THK STEEL PLATE INFILL– DENOTED BY HATCH– BOLTED W/ CAP NUTS INSIDE 2"x2" STEEL ANGLE FRAME. CAP NUTS @ 6"O.C. PLATE & FRAME UNFINISHED.

## B1 A600 STAIRWAY – MAIN LEVEL TO SECOND LEVEL
3/4" = 1'–0"

STEP IN FLOOR ABOVE 100'–0" @ THIS POINT REQUIRES AN ADDITIONAL RISER & FLOOR INFILL @ STAIR.

3'–0"

1'–10"

R22.41°

1'–2"

1'–0"

A2 A600

BOTTOM OF STRUCTURE FOR STAIR ABOVE.

BLOCKING AS REQ'D TO START POINT OF RISER & FLIGHT OF STAIRS.

3'–11" 7R @ 6 11/16" EA

STEEL–PRE–MANUFACTURED BENT STL PLATE RISERS & TREADS – WELDED TO STRINGERS. PRE–MANUFACTURED UNITS ARE ONE RISER & ONE TREAD. PERFORATED HOLES IN TREADS & FACE OF STAIR RISERS. PROVIDE PERFORATED HOLES IN LANDINGS. STEEL HOLE PATTERN BY ARCHITECT. PROVIDE ABRASIVE BLACK WARNING STRIPE @ EDGE OF EA. TREAD & LANDING. TYP.

2'–10 3/4" 5R @ 7" EA

2'–3 3/4" 4R @ 6 15/16" EA V.I.F.

VIEW OF TREADS IS UNDERNEATH FLIGHT GOING DOWN.

LANDING– PROVIDE PERFORATIONS IN LANDING STEEL PLATES @ STAIR THAT EXTEND FROM MAIN LEVEL TO LOWER LEVEL. CUT STRINGER TO ALLOW LANDING TO CLEAR EXIST'G CONC. FDN. LANDING & THIS FLIGHT OF STAIRS TO BE CENTERED ON FLIGHT OF STAIRS ABOVE.

3'–0"

3'–6"

## A5 A600 STAIRWAY
3/4" = 1'–0"

1. ON STAIRS GOING FROM MAIN LEVEL TO LOWER LEVEL, PROVIDE GUARDRAIL & HANDRAIL ON BOTH SIDES OF STAIRS TYP.
2. ON STAIRS GOING FROM MAIN LEVEL TO LOWER LEVEL ALL RISERS, TREADS & LANDINGS TO HAVE PERFORATIONS TYP.
3.VERIFY FLOOR TO FLOOR DISTANCES IN FIELD. G.C. TO PROVIDE SHOP DRAWINGS FOR ARCHITECT REVIEW TYP. STAIR CONSTRUCTION TO MEET ALL APPLICABLE CODES.

DETAIL A–TYP CORNER

1ST LEVEL 100'–0" = 5334.80

LANDING– PROVIDE PERFORATIONS IN LANDING STEEL PLATES @ STAIR THAT EXTEND FROM MAIN LEVEL TO LOWER LEVEL. CUT STRINGER TO ALLOW LANDING TO CLEAR EXIST'G CONC. FDN. LANDING & THIS FLIGHT OF STAIRS TO BE CENTERED ON FLIGHT OF STAIRS ABOVE.

GUARDRAIL BEYOND @ BACK OF LANDING

DOTTED LINES ARE TREADS AND RISERS IN FRONT–GOING TO MAIN LEVEL.

A A600

3'–0"

3'–6"

GUARDRAIL BEYOND

LANDING– PROVIDE PERFORATIONS IN LANDING STEEL PLATES @ STAIR THAT EXTENDS FROM MAIN LEVEL TO LOWER LEVEL. CUT STRINGER TO ALLOW LANDING TO CLEAR EXIST'G CONC. FDN. WALL. LANDING @ THIS FLIGHT OF STAIRS TO BE CENTERED ON FLIGHT OF STAIRS ABOVE.

LANDING–NO PERFORATIONS IN LANDING STEEL PLATE.

STEPS TO BASEMENT FLOOR IN FRONT.

## A2 A600 STAIRWAY – MAIN LEVEL TO LOWER LEVEL
3/4" = 1'–0"

BASEMENT LEVEL 94'–1"

STRINGER PLATE BELOW

STEEL ANGLE FRAMES. WELD ANGLES @ CORNERS WHERE GUARDRAILS TURN

STEEL WELDED WIRE MESH.

## A A600 GUARDRAIL CORNERS
3" = 1'–0"

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
01/16/26 ADDENDUM 1
01/23/26 ADDENDUM 2
PERMIT SUBMITTAL


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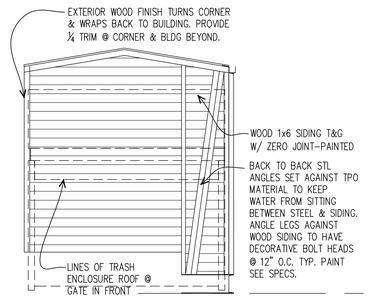
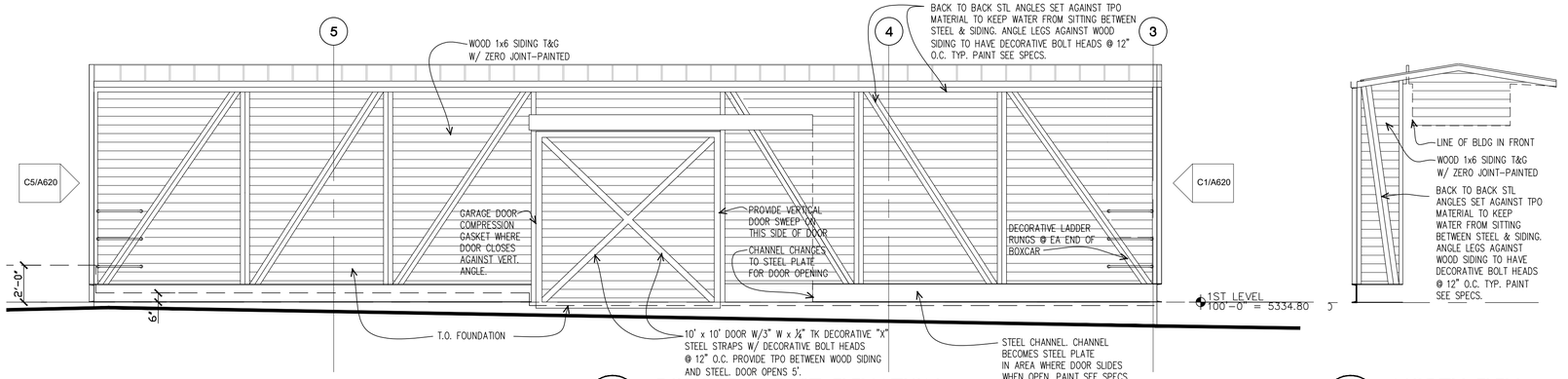
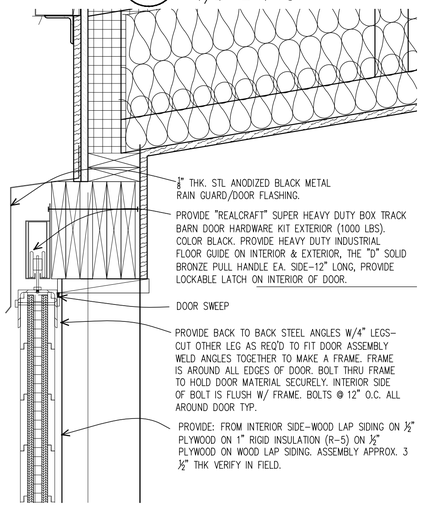
Building Section & Details

Sheet
A600
of Sheets

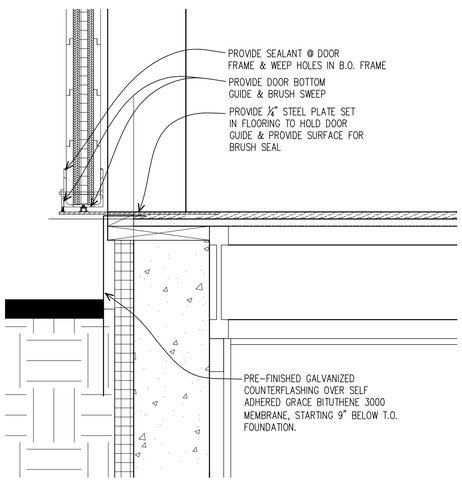



## C5/A620 SOUTH ELEV
1/4" = 1'-0"

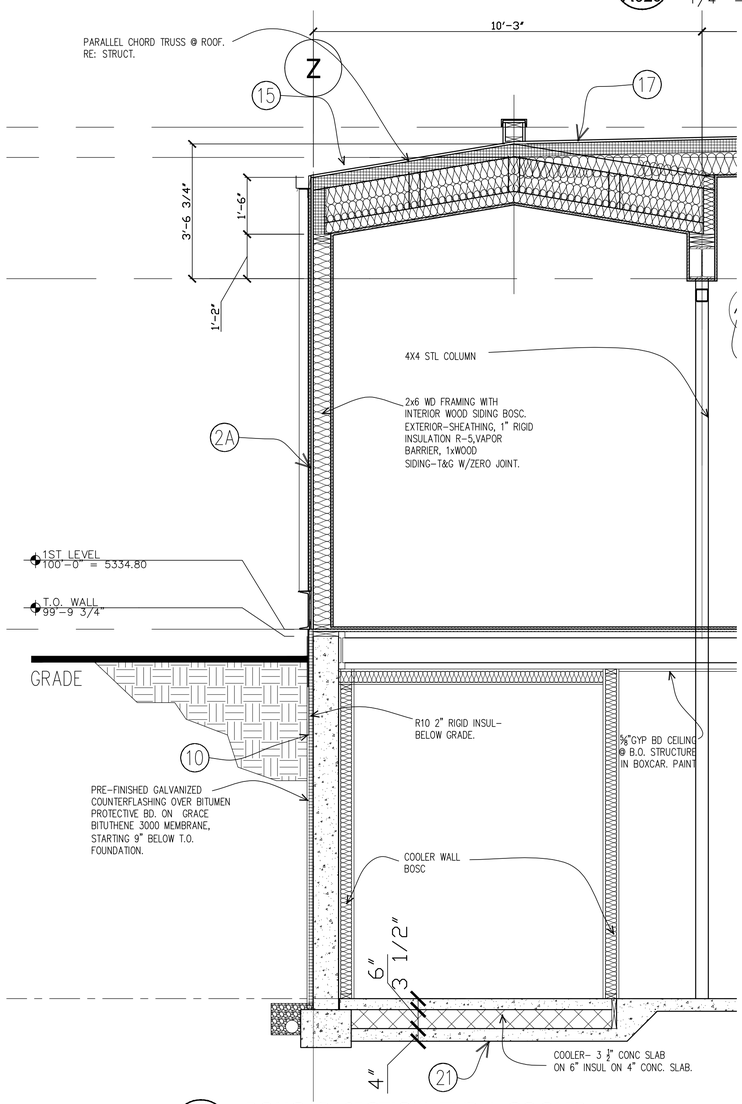



## B5/A620 BOXCAR DOOR HEAD
1 1/2" = 1'-0"




## A5/A620 BOXCAR DOOR SILL
1 1/2" = 1'-0"

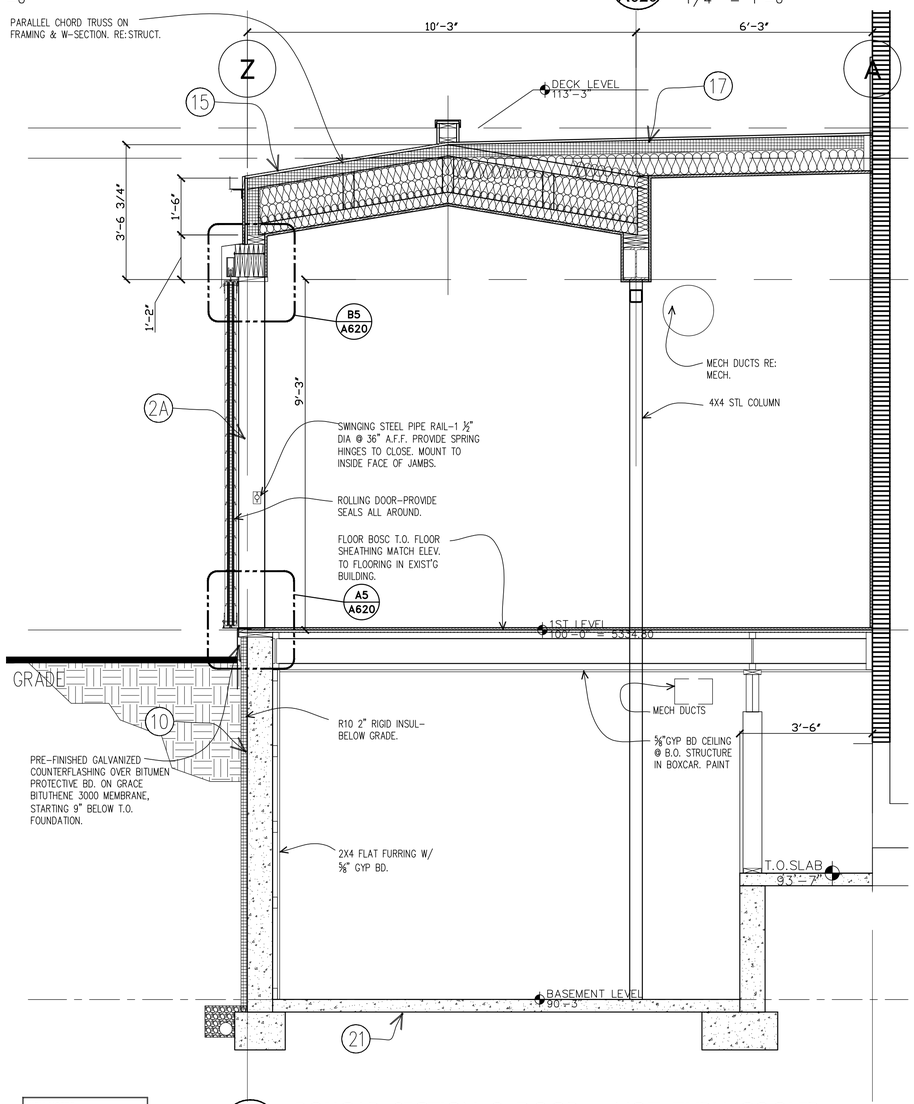
## C3/A620 BOXCAR - EAST ELEVATION
1/4" = 1'-0"




## A3/A620 BOXCAR SECTION THRU COOLER
1/2" = 1'-0"

KEY NOTES - REFER TO SHEET A060 FOR ADDITIONAL INFORMATION

## C1/A620 NORTH ELEV
1/4" = 1'-0"




## A1/A620 BOXCAR SECTION @ DOOR - NOT THRU COOLER
1/2" = 1'-0"

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LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL

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## DIVISION 0 - CONDITIONS OF THE CONTRACT

GENERAL CONDITIONS- AIA

1. Unless otherwise noted in written form and approved by Owner and Architect the terms and conditions set forth herein, inclusive of "for construction" set of drawings shall be followed by Contractor. The "General Conditions of the Contract for Construction", AIA Document A201, Fourteenth Edition, 1997, is a part of the Contract and is incorporated as fully as if here set forth.

SUPPLEMENTARY CONDITIONS-AIA

1. These Supplementary Conditions amend or supplement the General Conditions of the Contract for Construction (AIA Document A201,1997 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect. The terms used in these Supplementary Conditions which are defined in the General Conditions of the Contract for Construction (AIA Document A201, 1997 Edition) have the meanings assigned to them in the General Conditions.

## DIVISION 1 - GENERAL REQUIREMENTS

SUMMARY OF WORK

1. DESCRIPTION OF WORK
   A. The work includes the redevelopment of approximately .37 acres including general site development, a renovation of an existing historic mill providing for a core and shell, and an addition to the structure.
   B. The site work includes the construction of new private drives, sidewalks and paving, landscaping, and utility connections.
   C. The work includes mechanical, plumbing, and electrical work per the requirements of the applicable drawings and specifications included in the Contract Documents.

2. CONTRACTOR USE OF SITE
   A. Access to Site: Limited to those designated areas indicated explicitly by the scope of work shown in these drawings. Contractor to limit disturbance of adjacent site as to not impede operations of the adjacent businesses and homes.
   B. Construction Operations: Limited to the site and to public right-of-way only for the purpose of completing that work located in the public right-of-way.
   C. Time Restrictions for Performing Exterior Work: Limited to after 6:00 a.m. and before 7:00 p.m. unless otherwise approved by the Owner.

CONTRACT MODIFICATION PROCEDURES

1. CHANGE PROCEDURES
   A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions.
   B. Time and Material Change Order: Time and Material Change Orders will be discouraged and shall not become effective unless approved by Owner and Architect in writing prior to initiation of work. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
   C. Execution of Change Orders: All change orders shall be approved by the Owner, the Architect, and the Contractor.

2. DEFECT ASSESSMENT
   A. Replace the Work, or portions of the Work, not conforming to specified requirements. If, in the opinion of the Architect, it is not practical to remove and replace the Work, the Architect will direct an appropriate remedy or adjust payment.

ADMINISTRATIVE REQUIREMENTS

1. COORDINATION AND PROJECT CONDITIONS
   A. Coordinate scheduling, submittals, and Work of the various sections of the Contract Documents.
   B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
   C. Coordinate space requirements, supports, and installation of mechanical and electrical Work. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
   D. In finished areas, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
   E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

2. FIELD ENGINEERING
   A. Employ a Land Surveyor registered in the State of Colorado. Contractor shall locate and protect survey control and reference points.
   B. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
   C. Submit three copies of improvement survey and certificate prepared and signed by the Land Surveyor indicating elevations of floors, dimensions, and locations of the Work.

3. PROGRESS MEETINGS
   A. Schedule and administer meetings throughout progress of the Work at appropriate intervals. Agenda shall include review of minutes of previous meetings, review of Work progress, field observations, problems, and decisions, identification of problems which impede planned progress, review of status of submittals, corrective measures to regain projected schedules, maintenance of quality and work standards, effect of proposed changes on progress schedule and coordination, and other business relating to Work.

4. CUTTING AND PATCHING
   A. Employ skilled and experienced installer to perform cutting and patching.
   B. Execute cutting, fitting, and patching to complete Work, and to:
      i. Fit the several parts together, to integrate with other Work.
      ii. Uncover Work to install or correct ill-timed Work.
      iii. Remove and replace defective and non-conforming Work.
      iv. Remove samples of installed Work for testing.
      v. Provide openings in elements of Work for penetrations of structural, mechanical and electrical Work.
   C. Execute work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
   D. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

CONSTRUCTION PROGRESS DOCUMENTATION

1. During the duration of the Work, Contractor shall maintain a complete set of Contract Drawings in job office, upon which set he/she is required to note in red, or other clear manner, all authorized deviations from the Contract Documents. Marked-up Drawings prepared from this job set are a part of the project close-out documents and made available to Architect.
2. Contractor shall provide to the Owner and Architect a comprehensive Gantt Chart schedule for construction activities that require three months or longer to complete. Indicate an estimated completion percentage in 10% increments within time bar.

SUBMITTALS

1. SUBMITTAL PROCEDURE
   A. Schedule submittals to expedite the Project, and deliver to Architect at business address. Coordinate submission of related items.
   B. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
   C. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
   D. Submitted to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents. Architect will not review submittals not previously reviewed and stamped by the Contractor.

2. PRODUCT DATA
   A. Submit two copies one copy will be returned by the Architect.

3. SHOP DRAWINGS OR PRODUCT DATA
   A. Shop Drawings For Review: Foundation and slab reinforcing, equipment and fixtures, stair systems, metal railings, toilet accessories, paint data, windows, bike racks, lighting, insulation, doors, and door hardware.
   B. Refer to mechanical, electrical, plumbing, or structural drawings for additional shop drawings to be provided.
   C. Submit in the form of two opaque reproductions.

4. SAMPLES
   A. Samples and Products for Review: wood siding, metal mesh, flooring, pre-finished metal assemblies, weather barriers, glazing, metal mesh, windows, doors, roofing, concrete finishes, gypsum board, stain, exterior siding, paint draw downs, millwork, and all interior finishes.
   B. Samples For Selection:
      i. Submitted to Architect for aesthetic, color, or finish selection.
      ii. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect selection.
   C. Submit the number of samples desired; at least one sample will be retained by Architect.
   D. Size: Submit a sample size of no less than 6"x6".
   E. Provide 6'x6' samples of finished exterior wood siding

TEMPORARY FACILITIES AND CONTROLS

1. TEMPORARY ELECTRICITY
   A. Cost: Power will be provided on-site by owner.
   B. Provide power outlets for construction operations.

2. TEMPORARY HEATING
   A. Enclose building prior to activating temporary heat.
   B. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Replace filters and worn or consumed parts.

3. TEMPORARY VENTILATION
   A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

4. TEMPORARY WATER SERVICE
   A. Connect to existing water source, at existing building, for construction operations at time of project mobilization.
   B. Owner will pay cost of water used.

5. TEMPORARY SANITARY FACILITIES
   A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

6. BARRIERS
   A. Provide barriers to prevent unauthorized entry to construction areas and to provide safe protection of the public. Barriers shall not prevent access to or operation of adjacent homes and businesses.
   B. Provide barricades if required by governing authorities for public rights-of-way.

7. WATER CONTROL
   A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment as required.
   B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion and to avoid sediment flow onto adjacent properties, public right-of way, or public storm sewer.

SUBSTITUTION PROCEDURES

1. Contractor shall make every effort to provide products specified.
2. Substitutions will be considered if:
   A. Contractor has submitted substitution to Architect in writing.
   B. Contractor has investigated proposed product and determined that it is equivalent to that specified.
   C. Contractor has indicated in writing cost, time or other benefits for substitution.
3. Architect shall be judge of acceptability and reserves right to reject proposed substitution.

STARTING AND ADJUSTING

1. STARTING OF SYSTEM
   A. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
   B. Verify that wiring and support components for equipment are complete and tested.
   C. Execute start-up in accordance with manufacturers' instructions.

2. DEMONSTRATION AND INSTRUCTIONS
   A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final observation.

CLOSEOUT PROCEDURES

1. FINAL CLEANING
   A. Contractor shall employ skilled workmen for final cleaning, including all glass, metal, glossy surfaces, floors and finishes.
   B. Replace filters of operating equipment.
   C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

2. CLOSEOUT DOCUMENTS
   A. Contractor shall provide documentation stating work has been substantially completed. Where Owner requires use of space prior to final completion, Contractor shall provide project record documents, material and finish data, operation and instruction manuals, warranties and bonds at project completion. Submit (3 each) bound in 8 1/2" x 11" three-ring binders with durable plastic covers. Arrange in format similar to specifications.
   B. Contractor shall submit (marked-up) record Drawings to Owner.
   C. Contractor shall provide evidence of payments and release of liens to Owner. Contractor will sign lien waiver prior to receipt of monthly progress payment.
   D. Contractor shall obtain Certificate of Occupancy and provide to Owner.
   E. Contractor shall provide final Certificate for Payment to Owner.

3. OPERATION AND MAINTENANCE DATA
   B. Submit data bound in 8-1/2 x 11 inch text pages, three ring binders with durable plastic covers.
   C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.
   D. Submit two sets, within 10 days before final inspection
   The manual shall provide the following information per 2024 IECC, Section C408. The *building* operations and maintenance documents shall be provided to the *owner* and shall consist of manufacturers' information, specifications and

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CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
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recommendations; programming procedures and data points; narratives; and other means of illustrating to the *owner* how the *building*, equipment and systems are intended to be installed, maintained and operated. Required regular maintenance actions for equipment and systems shall be clearly stated on a readily visible label. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.

i. Submittal data with equipment data
ii. Manufacturer's Operation manual and maintenance manuals for each piece of equipment
iii. Name and address of at least one service agency
iv. HVAC and service hot water controls system maintenance and calibration information.
v. Submittal data for each piece of lighting equipment and controls
vi. Operation and maintenance manual for each piece of lighting equipment.
vii. Schedule for inspecting and recalibrating all lighting controls.
viii. A narrative of how each system is intended to operate.

4. COMMISSIONING
   A. Building commissioning of the mechanical system and the power and lighting systems shall comply with the 2024 IECC Section C408.2-C406.3.
   B. Testing services may be ongoing throughout project. The Commissioning Agent is to identify milestones for building and/or system testing as required by code.
   C. Provide Preliminary and Final commissioning reports for HVAC and Lighting systems, equipment and controls.

## DIVISION 2 - SITEWORK

Also see Civil Drawings

### SUMMARY OF WORK

1. DESCRIPTION OF WORK
   Work under this division includes Selective Demolition, Excavation, and Earthwork as required for building construction, specialty ground cover, landscaping, and Concrete Paving.
2. All Landscaping shall be provided by Contractor, including irrigation systems and landscape preparation.
3. Refer to Civil Drawings for specifications on road base, Asphalt and Concrete Paving.

### SITE DEMOLITION

4. Demolition as required for the removal of existing construction as required to accommodate new construction, as indicated on drawings, to include but not be limited to:
   A. Existing site structures and infrastructure as required.
   B. Existing walls, stairs, paving, windows, and doors as required.
   C. Existing electrical systems as required.
   D. Refer to drawing notations and other specification sections for new paint.
5. Protection:
   A. Remove, handle and dispose of hazardous materials other than asbestos or PCB in a safe manner and as required by authorities having jurisdiction.
   B. Perform demolition in accordance with applicable authorities having jurisdiction.
   C. Use skilled workers to carefully remove materials and equipment indicated or scheduled for Owner's salvage. Deliver and store on site where directed by Owner.

## DIVISION 3 - CONCRETE

Also see Structural Drawings

### SUMMARY OF WORK

1. Work under this division includes Cast in Place Concrete for foundations, slab on grade, stairs, ramps, and landings.
2. Refer to Structural Drawings for required concrete strengths, reinforcing, and other design requirements.
3. Provide min. welded wire mesh and fiber mesh at all exterior slabs.
4. Provide DECO 20 Dampproof Coating at below grade foundation walls and footings.
5. Concrete finishes shall be as follows:
   A. Apply Broom Finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
      i. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
      ii. Provide fiber mesh for all exterior slabs
   B. Apply Trowel Finish for all interior floor slabs and trash enclosure concrete as follows:
      i. Comply with the following: ACI 301 & ACI 117
      ii. Execution shall follow criteria set forth in ASTM E1155.
      iii. Provide flatness and levelness of $SOF_F = 35$; $SOF_L = 25$

## DIVISION 5 - METALS

Also see Structural Drawings

### SUMMARY OF WORK

1. DESCRIPTION OF WORK

   Work under this division includes metal fabrications, structural steel, metal stair stringers, and decorative metal railings.

All welds shall be continuous and ground smooth of any protrusions for appearance for NOMMA #2 joint welds. Provide factory applied red oxide primer on all concealed steel fabrications. Exposed steel per painting specifications. All exterior exposed architectural steel shall be hot-dipped galvanized and receive a high-performance paint finish. Color per Architect.

### DECORATIVE METAL RAILINGS

1. Structural Performance: Provide railing systems capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:
   A. Top Rail: Shall withstand the following loads:
      i. Concentrated load of 200 lbf (890 N) applied at any point and in any direction
      ii. Uniform load of 50 lbf per foot (730 N/m) applied horizontally or vertically downward.
      iii. Concentrated and uniform loads above need not be assumed to act concurrently.
   B. Handrails not Serving as Top Rails: Shall withstanding the following loads:
      i. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
      ii. Uniform load of 50 lbf per foot (730 N/m) applied in any direction.
      iii. Concentrated and uniform loads above need not be assumed to act concurrently.
      iv. Guard Infill Area: Shall withstand the following loads: Concentrated horizontal load of 50 lbf (222 N) applied to 1 square foot (0.09 $m^2$) at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area. Loads need not be assumed to act concurrently with loads on top rails in determining stress on guard.
2. Railing materials to be steel where indicated.
   C. Metal railing components to be provided with high performance paint.
   D. Provide Stainless steel cable rails system with:
      i. CRL 3/16" mill 316 stainless steel cable
      ii. CRL mill 316 stainless steel button tensioner
      iii. CRL 316 stainless steel beveled washer for 3/16" cable
   E. Welded wire mesh at interior locations to be McNichols Item #36042600
   F. Welded wire mesh at select gates to be McNichols Item #32939201

## DIVISION 6 - WOOD, PLASTIC, AND COMPOSITES

### SHEATHING

1. Exterior Wall Sheathing and subflooring - refer to Structural specifications for more information.
   A. Provide a complete and continuous thermal and moisture envelope that does not allow unregulated air leakage except where specified.
2. Roof Sheathing and at inside face of parapet walls - refer to Structural specifications for more information
   A. Provide min. 5/8" roof sheathing at locations to receive TPO.
3. Gypsum Sheathing
   A. Provide 5/8" USG Sheetrock panels at interior walls.
   B. Provide 5/8" USG Sheetrock UltraLight panels at interior ceilings.
   C. Provide 5/8" USG Mold Tough panels at walls in the bathroom and other wet applications.
   D. Provide 5/8" USG Durock Cement Board at locations to receive wall tile.
   E. All gypsum sheathing products may be substituted with equal or better products for their intended function. Provide substitutions as necessary.
   F. Provide minimum Level 4 finish paint and back-roll at all interior gypsum walls and ceilings. Paint by BOSC

### REDWOOD DECKING

1. Provide 2x6 solid redwood deck boards.
2. Pre-drill and fasten with Camo Edge Fastening System and stainless-steel screws
3. Provide 3/16" gap between boards using
4. Provide 25-year standard warranty
5. Provide stain and sealer per finish specifications

## DIVISION 7 - THERMAL AND MOISTURE PROTECTION

### SUMMARY OF WORK

DESCRIPTION OF WORK
Work under this division includes thermal insulation, weather barriers, exterior wall sheathing, TPO membrane roofing, sheet metal flashing, and joint sealants.

### THERMAL INSULATION (provide minimum R-values per assembly)

1. Fiberglass Batt Insulation
   A. Provide R-21 (5 1/2") kraft faced batt insulation at exterior and demising walls where indicated
   B. Provide R-15 (3 1/2") kraft faced batt insulation where indicated
2. Blow-in Fiberglass Insulation
   A. Certainteed Optima Blow-in Insulation system
   B. Completely fill ceiling cavities with batt insulation where indicated.
   C. Insulation to be blown in at a design density of a min. 0.8 pounds per cubic foot. At ceiling areas of 8" or deeper.
   D. Insulation to be blown in at a design density of a min. 1.6 pounds per cubic foot. At ceiling areas of 7.25" or shallower.
3. Spray Foam Insulation
   A. Provide Huntsman Building Solutions "HeatLok HFO Pro" spray foam insulation where indicated.
   B. Provide minimum R-7.0 per inch spray foam insulation.
   C. Prepare all substrates per manufacturer's instructions.
   D. Install per manufacturer's installation instructions.
   E. All spray foam must be separated from interior space by a minimum ½" gypsum wallboard thermal barrier.
4. Rigid Insulation
   A. Provide Owens Corning Foamular NGX 250 XPS Rigid Insulation
   B. Provide R-5 per inch XPS rigid insulation where indicated.
5. Identification:
   A. A R-value identification mark shall be applied by the manufacturer to each piece of building thermal envelope insulation.

### WEATHER BARRIER

1. Tyvek Commercial Wrap D
   A. Provide under exterior walls assemblies where indicated.
   B. Install per manufacturers recommended installation instructions
   C. Provide only approved Tyvek fasteners including cap nails, cap screws or cap staples
   D. Seal bottom of wrap directly to the concrete foundation with Dupont Adhesive/Primer
   E. Provide Dupont Tyvek Tape and overlap all seams and any penetrations
   F. Provide Dupont FlexWrap at all window and door flashing
      i. Install window and door flashing per construction documents
   G. Prepare all surfaces to remove dirt, dust, or moisture before applying any adhesive material.
2. Grace Vycor Deck Protector
   A. Install Grace Vycor Deck Protector self-adhered flashing to protect decking structure and associated fasteners. Place one layer above all exposed deck joist, beams, and sleepers.
   B. Install Grace Vycor Deck Protector per manufacturers recommended installations instructions.
3. Certainteed Membrain vapor retarder
   A. Install Membrain vapor retarder at inside faces of all new exterior wall framing insulated with batt insulation.
   B. Install per manufacturers installation instructions.
4. GCP Bituthene 3000 self-adhesive, rubberized waterproof membranes
   A. Install Bituthene where indicated on construction documents.
   B. Install per manufacturers installation instructions.
   C. Do not allow bituthene to touch TPO as products will degrade each other.

### METAL SIDING AND ROOFING

1. Corrugated metal siding and roofing
   A. Provide Corten steel corrugated metal roofing and siding panels
   B. Match existing sine wave profile to existing structure
   C. Overlap and stitch panels a minimum of two ridges; predrill holes
   D. Provide zinc coated gasketed fasteners to match existing; provide a minimum
      i. Provide #10 gasketed woodfast screws for use at dimensional lumber. Min. 7/16" thickness.
      ii. Provide #14 gasketed wafer screws for used at plywood and OSB sheathing. Min. 7/16" thickness.
      iii. Provide screws every 12" up the panel at roof conditions
      iv. Provide Butyl sealant between every panel at side laps
      v. It is the responsibility of the GC to ensure that purlins are adequately spaced to meet specific engineering requirements.
      vi. Refer to drawings for specific details

### TPO ROOFING

1. Warranty: 15 year
2. Manufacturer: Genflex
3. Products:
   A. UltraPly TPO
   B. 60 mils
   C. Mechanically Fastened with heat welded seams
   D. Color: Grey
   E. Install per manufacturer's Class A assembly requirements.
4. Accessories
   A. Provide ¼" Coverboard; Georgia Pacific Dens Deck when attaching TPO directly over rigid insulation, parapet walls, or subroofing.
5. TPO is not compatible with Ice and Water Shield. Provide Grace Ultra underlayment under TPO roofing at roof to wall transitions or other transitions where Ice and Water Shield is to be used.

### SHEET METAL FLASHING

1. Provide 26-gauge sheet metal prefinished flashing where shown on construction documents including: at window and door heads and sills, door thresholds, eaves, rakes, parapets, or other locations as indicated on construction documents.
2. Provide 22-gauge sheet metal prefinished flashing for any depth equal to or larger than 4" facing.
3. Drip edges to have 1/2" drip edges, typical.
4. Provide Kynar 500 finish.
5. Architect to choose from manufacturer's standard colors.

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CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

STATE OF COLORADO
JON ERIK HARTRONFT
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JOINT SEALANTS

1. Provide silicon joint sealers between all dissimilar materials in colors to match adjacent surfaces and formulation as required for bonding and performance at specific application.
2. Provide backer rods as necessary top maintain a joint depth no greater than the joint width.
3. Provide paintable exterior grade, min class 25 silicon sealant meeting ASTM C920 at exterior locations.

BUILDING THERMAL ENVELOPE

1. Recessed luminaries installed in the building thermal envelope shall be sealed to limit air leakage.
2. Provide adhesive or sealant at the following locations east of Grid A:
   A. Provide gaskets under mud sills.
   B. Provide continuous sealant or adhesive at top and bottom of rim joist
   C. At flooring to sill plate
   D. Exterior sheathing to sill plates
   E. Exterior sheathing to window and door headers and at trim studs
   F. Continuous sealant or adhesive at top and bottom of top plate and sill plate to interior GWB
   G. Ceiling GWB taped to wall board
   H. Provide sealant around all concealed fire sprinkler cover plates and exterior recessed lighting.
   I. Refer to window wrap details elsewhere for window and door seals

GUTTERS AND DOWNSPOUTS

1. Provide seamless aluminum box type gutters and downspouts except where indicated.
   A. Provide open-faced prefinished aluminum downspouts.
   B. Install per manufacturers installation instructions.
   C. Provide standard Kynar 500 or Hylar 5000 applied to exposed side.
   D. Warranty: Manufacturers Standard Warranty

## DIVISION 8 - DOORS AND WINDOWS

SUMMARY OF WORK

1. DESCRIPTION OF WORK
   Work under this division includes Exterior and Interior Doors, Wood Windows, Skylights, and Glazing.

INTERIOR DOORS

1. Provide TruStile Doors – TMF1000 interior doors
   A. 1 3/4" thick typical flush slabs.
   B. Provide 48 lb MDF core with LVL stiles and rails
   C. Provide factory finishing and paint per finish schedule
   D. Provide prehung wood frames
   E. Warranty: Manufacturers Standard
   F. Refer to Door General Notes for door hardware.

2. Provide Allegion-SteelCraft Hollow Metal Doors
   A. 1 3/4" thick typical flush slabs with glass lites where shown.
   B. Provide L18 – 18 gauge – Exterior – Galvannealed Steel
   C. Provide factory priming and paint per finish schedule
   D. Provide Polyurethane Core and LF door edge construction
   E. Provide PS074 gasket and FAS-SEAL door bottom
   F. Warranty: Manufacturers Standard
   G. Refer to door hardware schedule and door elevations for glass lites.
   H. Glass lites to have a U-factor of .37 or better.

3. Provide Black Badge Steel Storefront entry door and sidelights
   A. Provide Ferrofinestra W50 TB thermally broken frames
   B. Provide FV 1807R-02 Glazing bead
   C. Provide C99008-12 door hinges
   D. Provide 10" bottom rail
   E. Provide 1" double pane, Low-e, insulated glass lite – argon filled
   F. Provide standard matte black finish
   G. Warranty: Manufacturers Standard
   H. Refer to door hardware schedule for additional information
   I. Door assembly to have a U-factor of .37 or better.

HOLLOW METAL DOOR AND WINDOW FRAMES

1. Provide SteelCraft – F Series hollow metal frames
   A. Provide fully welded, galvannealed, 16-gauge series with 2" facing
   B. Provide reinforcing sleeve for door closers
   C. Provide insulated, tempered, and Low-E clear glazing at sidelights where indicated
   D. Warranty: Manufacturers Standard
   E. Refer to Door General Notes and Door Hardware Schedule
   F. Provide (4) 4" butt hinges per door
   G. Provide full weather seals on all sides; bottom rail to be machined for weather seal.
   H. Min. Assembly U-Factor for entry doors and sidelights = .30.
   I. Provide hollow metal frames for sidelights where indicated and 1" low-e insulated glass

ROOF SKYLIGHTS

1. Provide Dalyte – Summit Series Curb Mount Fixed Flat Glass Skylight
   A. Size to fit existing framed openings
   B. Min. Assembly U-Factor = .30
   C. Min. SHGC = .4
   D. Provide Low-E Solarban 70 clear + clear glazing
   E. Provide manufacturers standard warranty

WALKABLE GLASS FLOORING SYSTEM

1. Provide Glass Flooring System – Series 2000 thermally broken pedestal perimeter Walkable Glass Skylight
   A. Provide 4'x5' walkable glass skylight system
   B. Glass to be flush with adjacent decking
   C. Provide "Hudson-Transparent" glass texture
   D. Skylight to have a minimum U-factor of .5
   E. Refer to drawing for additional information
   F. Provide manufacturers standard warranty

GLAZING

1. Warranty: Manufacturer's standard
2. Products: Provide 1" insulated glazing units
3. Min. Assembly U-Factor = .30
4. Min. SHGC = .42

## DIVISION 9 - FINISHES

PAINT AND STAIN

1. High Performance Paint for all exterior metal fabrications -
   A. Colors: match architect's sample.
   B. Provide degreasing, acid pickling and fluxing surface preparation.
   C. Hot dipped galvanizing to achieve a dry film thickness of 5.0-7.0 mils.
   D. Finish coat: Hydrophobic Acrylic applied at spreading rate recommended by mfgr. to achieve a dry film thickness of 5.0-7.0 mils.
      i. Tnemec Uni-Bond DF – Series V115
   E. Provide samples of each paint color to architect for approval.
   F. Apply paint per conventional air spray or airless spray methods only.
2. Stain for exterior redwood surfaces
   A. Provide Cabot Australian Timber Oil for all redwood decks
   B. Sand, clean with Cabot Wood Cleaner and prepare surfaces to receive stain.
   C. Apply with brush or spray; if spraying back brush immediately.
   D. Apply one coat only. Do not overapply.
   E. Provide sample for architect approval.
3. Sealer for Ipe railing top rails
   A. Provide "Ipe Oil Plus"
   B. Prepare surface per manufacturer's instructions including aging in place for 6-8 weeks, cleaning, drying, and wipe off excess.
   C. Final color to be determined.
4. Ceiling paint
   A. Provide Sherwin Williams Promar Ceiling paint
   B. Where exposed floor/ceiling joists are exposed with gypsum wall board between joists, joists are <u>not</u> to be painted.
   C. Final color and sheen per finish schedule
   D. Provide samples of each paint color to architect for approval.
   E. Interior paint is BOSC
5. Interior Wall paint
   A. Provide Sherwin Williams Promar 200 Zero VOC
   B. Prepare surface per manufacturer's instructions including aging in place for 6-8 weeks, cleaning, drying, and wipe off excess.
   C. Final color and sheen per finish schedule
   D. Provide samples of each paint color to architect for approval.
   E. Interior paint is BOSC
6. Exterior Siding Paint
   A. Conduct testing throughout exterior siding to determine if existing paint is oil based or water based
   B. Conduct adhesion test on both primer and top coat at location per architect
   C. Provide Sherwin Williams Exterior Latex Waterbased Wood Primer.
   D. Provide Sherwin Williams Duration Exterior Acrylic Latex Paint topcoat
      i. Provide two coats of top coat
      ii. Each coat to be 5.3-7 mil thick
      iii. Spray apply and backroll
   E. Prepare surface per manufacturer's instructions including:
      i. Scrape away loose and peeling paint
      ii. Clean and pressure wash existing exterior siding
      iii. Allow building to dry for 3 days minimum
      iv. Wipe or blow away dust
      v. Fill holes, cracks, and gaps with exterior-grade filler or caulk, then sand these isolated spots
      vi. Provide prime coat to entirety of exterior
      vii. Provide top coat
   F. Final color and sheen per finish schedule
   G. Provide samples of each paint color to architect for approval.
   H. Follow manufacturers surface preparation and application instructions.

## DIVISION 10 - SPECIALTIES

FIRE EXTINGUISHERS

1. Basis of Design: Buckeye Fire Equipment
2. Products:
   A. 5 lb. ABC Multipurpose Stored Pressure Extinguisher
   B. Provide Kidde – surface-mounted fire extinguisher cabinet model#KF9721-C
   C. Provide fire extinguishers and cabinets where shown on the Code Plan.

## DIVISION 14 – CONVEYING EQUIPMENT

MATERIAL LIFT

1. Basis of Design: Custom Industrial Products – C Series
2. Review drawings to describe lift opening configuration and anticipated elevations for each stop.
3. Provide 48"x31" platform
4. Interlock hollow metal entry doors with elevator controls to lock doors when elevator platform is not available.
5. Provide exterior weatherproof elevator call signals.
6. Provide anti-slip platform surface
7. Provide platform gates
8. Contact: Custom Industrial Products Representative
   A. Hein de Hoog – 952-831-8447 – hein@manufacturingsales.com

## DIVISION 21 - FIRE SUPPRESSION

1. Fire Sprinkler Systems
   A. Provide NFPA 13 dry fire sprinkler system
   B. Provide full shop drawings to architect for review and approval of pipe elevations, valve assemblies, and sprinkler head locations.
   C. At all areas east of Grid A; all heads and pipes to be concealed with white escutcheon plates at ceiling.
   D. Hold all pipes and pipe assemblies within 6" of all ceiling structures with downward pointing sprinkler heads, except as noted otherwise.
   E. Do not paint sprinkler piping.
   F. Provide low-temperature alarm for valve room.
   G. Fill pipes with nitrogen and provide nitrogen bottle within valve room.

## DIVISION 32 - EXTERIOR IMPROVEMENTS

DESCRIPTION OF WORK

Work under this division includes selective, Excavation and Earthwork as required for building construction and site features, Artificial Turf, gravel parking, landscape beds, rain gardens, Concrete Paving, and Concrete curbs.

All Landscaping shall be provided by Contractor, including irrigation systems and landscape preparation.

ARTIFICIAL TURF

1. Basis of Design: ADA compliant SynAccess artificial turf
2. Substrate: ½" crusher fines leveling course on 4" of Class 6 Road Base on 6" compacted subgrade on undisturbed soil
3. Artificial turf is BOSC

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

HARTRONFT ASSOCIATES
A Professional Corporation
Planning
Architecture
Interior Design
950 Spruce Street, #2C
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

STATE OF COLORADO
JON ERIK HARTRONFT
B-2238
12.05.25
LICENSED ARCHITECT

PROJECT # 1252.50
DATE: 12/05/25
DRAWN BY: HAPC
CHECKED BY: JEH
REVISIONS:
1 CITY/CDA ADDENDUM 1
2 CITY/CDA ADDENDUM 2
PERMIT SUBMITTAL

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SPECIFICATIONS

Sheet
A702
- of - Sheets

# GENERAL STRUCTURAL NOTES

## 1.0 GOVERNING BUILDING CODE: 2024 INTERNATIONAL BUILDING CODE

## 2.0 DESIGN CRITERIA & LOADS

A. RISK CATEGORY: II

B. DEAD LOADS:
- a. ROOF: 15 psf + 5 psf FOR PHOTOVOLTAIC PANELS
- b. FLOOR: 20 psf
- c. DECK: 25 psf

C. LIVE LOADS:
- a. FLOOR: 100 psf
- b. EXTERIOR STAIRS & LANDINGS: 100 psf
- c. DECKS: 100 psf
- d. ROOF (NOT OCCUPIABLE, $L_R$): 20 psf

D. SNOW LOADS:
- a. GROUND SNOW LOAD ($p_g$): 40 psf
- b. FLAT ROOF SNOW LOAD ($p_f$): 30 psf
- c. SNOW EXPOSURE FACTOR ($C_e$): 1.0
- d. SNOW LOAD IMPORTANCE FACTOR ($I_s$): 1.0
- e. THERMAL FACTOR ($C_t$): 1.2
- f. SLOPE FACTOR ($C_s$): 1.0
- g. DRIFT SURCHARGE LOADS ($p_d$): SEE PLAN
- R. WIDTH OF SNOW DRIFTS (w): SEE PLAN
- i. WINTER WIND PARAMETER ($W_p$): 0.35

E. WIND:
- a. BASIC WIND SPEED (V): 145 MPH
- b. EXPOSURE: C
- c. INTERNAL PRESSURE: +0.18, -0.18 (ENCLOSED BUILDING)

F. EARTHQUAKE DESIGN DATA:
- a. EARTHQUAKE IMPORTANCE FACTOR: 1.0
- b. SPECTRAL RESPONSE PARAMETERS
  - 1. SHORT PERIODS ($S_{DS}$): 0.219
  - 2. ONE-SECOND PERIOD ($S_1$): 0.059
- c. SITE CLASS: E
- d. DESIGN SPECTRAL RESPONSE PARAMETERS
  - 1. SHORT PERIODS ($S_{DS}$): 0.35
  - 2. ONE-SECOND PERIOD ($S_{D1}$): 0.166
- e. SEISMIC DESIGN CATEGORY: C
- f. BASIC SEISMIC FORCE-RESISTING SYSTEMS:
  1. BEARING WALL SYSTEMS: LIGHT-FRAME WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE (R=6.5)
  2. STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE (R=3)
- g. SEISMIC RESPONSE COEFFICIENT ($C_S$): 0.027
- R. DESIGN BASE SHEAR: 0.077W
- i. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE

## 3.0 GENERAL

A. THE STRUCTURAL DOCUMENTS ILLUSTRATE THE COMPLETED STRUCTURE WITH ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED. THE CONTRACTOR IS RESPONSIBLE FOR ADEQUATE BRACING AND SHORING AS REQUIRED DURING CONSTRUCTION TO WITHSTAND ALL LOADS, STOCKPILES OF MATERIALS AND EQUIPMENT, SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS REQUIRED UNTIL THE CONSTRUCTION OF THE STRUCTURE IS COMPLETED.

B. GENERAL CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS DURING CONSTRUCTION.

C. GENERAL CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH WORK AFFECTED BY AREAS WITH EXISTING CONDITIONS. REPORT ANY SIGNIFICANT DISCREPANCIES TO THE STRUCTURAL ENGINEER IMMEDIATELY.

D. WHERE PERIODIC OR CONTINUOUS INSPECTIONS AND / OR TESTING ARE REQUIRED BY THESE DOCUMENTS, GOVERNING BUILDING CODE OR THE GOVERNING BUILDING OFFICIAL, ENGINEER OR AN INDEPENDENT INSPECTION AND / OR TESTING AGENCY SHALL BE RETAINED BY THE OWNER TO PERFORM REQUIRED INSPECTIONS AND / OR TESTING.

E. THE CONTRACTOR SHALL INFORM ARCHITECT AND ENGINEER CLEARLY IN WRITING AND PROVIDE DOCUMENTATION FOR THE REVIEW OF ANY SUBSTITUTIONS OR DEVIATIONS OF REQUIREMENTS OF THE CONTRACT DOCUMENTS.

F. THESE PLANS HAVE BEEN ENGINEERED FOR CONSTRUCTION AT ONE SPECIFIC BUILDING SITE. BUILDER ASSUMES ALL RESPONSIBILITY FOR USE OF THESE PLANS AT ANY OTHER LOCATION.

G. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE. PLANS AND DETAILS ARE TO SCALE UNLESS NOTED. WHILE DRAWING SCALE IS BELIEVED TO BE RELIABLE, THE ACCURACY AND COMPLETENESS IS NOT GUARANTEED BY THE ENGINEER. CONSULT THE ARCHITECT OR ENGINEER OF RECORD FOR DIMENSION VERIFICATION. NOTIFY ARCHITECT OR ENGINEER OF ANY DISCREPANCIES IN DIMENSIONS BETWEEN THE ARCHITECTURAL AND STRUCTURAL DOCUMENTS BEFORE PROCEEDING WITH THE WORK.

H. NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS ALLOWED BY MANUFACTURER, SPECIFICALLY SHOWN ON THESE DOCUMENTS OR APPROVED BY THE ENGINEER IN ADVANCE.

I. SECTIONS OR DETAILS SHOWN OR NOTED APPLY TO SIMILAR CONDITIONS ELSEWHERE NOT SPECIFICALLY SHOWN OR NOTED.

J. THESE CONSTRUCTION DOCUMENTS ARE BASED ON THE WORK BEING COMPLETED IN A WORKMAN LIKE MANNER BY A CONTRACTOR EXPERIENCED WITH SIMILAR CONSTRUCTION.

## 4.0 FOUNDATIONS

A. THE FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN THE SOIL REPORT PREPARED BY SCOTT, COX & ASSOCIATES, PROJECT NO. 13512 DATED OCTOBER 31, 2013.

B. SAID SOIL REPORT IS HEREBY MADE A PART OF THESE DOCUMENTS AND EXCEPT WHERE OTHERWISE SPECIFICALLY NOTED HEREIN; ALL RECOMMENDATIONS AND PRECAUTIONS CONTAINED IN THAT REPORT SHALL BE ADHERED TO BY THE CONTRACTOR.

C. SOIL DESIGN VALUES SHOWN BELOW ARE TO BE VERIFIED BY OPEN HOLE INSPECTION BY THE SOIL ENGINEER. ANY CHANGES IN THE STATED SOIL DESIGN VALUES MAY REQUIRE REVISIONS TO THE FOUNDATION DESIGN.

D. FOOTINGS SHALL BE FOUNDED UPON UNDISTURBED NATURAL SOIL OR COMPACTED FILL, TESTED AND APPROVED BY A SOILS ENGINEER.
- a. MAXIMUM DESIGN SOIL BEARING PRESSURE: 1,500 PSF.
- b. MINIMUM DEAD LOAD: 400 PSF.
- c. FOOTINGS SHALL BE PLACED A MINIMUM OF 36" BELOW FINAL FINISHED GRADE (FROST DEPTH)
- d. DESIGN LATERAL SOIL PRESSURE (EQUIVALENT FLUID PRESSURE, AT REST CONDITION, USING ON-SITE GRANULAR SOILS AS BACKFILL): 65 PSF/FT.

E. PRIOR TO BACKFILLING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING FOUNDATION WALLS TO RETAIN EARTH AGAINST BACKFILLING PRESSURES UNTIL SUPPORTING ELEMENTS INCLUDING FLOOR SLABS ARE IN PLACE.

F. FOUNDATION WALLS AND GRADE BEAMS HAVING EARTH PLACED ON BOTH SIDES SHALL HAVE BOTH SIDES FILLED SIMULTANEOUSLY TO MAINTAIN A COMMON ELEVATION.

G. DO NOT BACKFILL WITH EXPANSIVE SOILS, VERIFY FILL TYPE WITH SOILS ENGINEER PRIOR TO BACKFILLING.

H. PROVIDE A CONTINUOUS PERIMETER DRAIN SYSTEM PER THE SOILS ENGINEER WITH AN INVERT A MINIMUM OF 6" BELOW THE BOTTOM OF THE BASEMENT SLAB. EXTEND THE PERIMETER DRAIN TO A SUMP OR TO DAYLIGHT. CO-ORDINATE DESIGN WITH ANY RECOMMENDATIONS CONTAINED IN THE SOIL REPORT.

I. PROVIDE 8" CLEAR MINIMUM FROM GRADE TO TOP OF FOUNDATION WALL. FOOTING BEARING ELEVATIONS SHALL BE ADJUSTED IN THE FIELD TO ACCOMMODATE FINAL ANTICIPATED FINISHED GRADES AND REQUIRED FROST DEPTHS, NOTIFY ENGINEER OF CHANGES IN ELEVATION FROM THAT SHOWN ON FOUNDATION PLAN.

J. CENTER ALL FOOTINGS UNDER WALLS, COLUMNS OR GRIDLINES UNLESS NOTED OTHERWISE ON DOCUMENTS.

K. SLOPE THE EXTERIOR GRADE AWAY FROM THE STRUCTURE.

## 5.0 CONCRETE AND REINFORCEMENT

A. CONCRETE DESIGN IS BASED ON "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).

B. CONCRETE SHALL CONFORM TO THE APPLICABLE PROVISIONS OF "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301).

C. CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 28-DAY COMPRESSIVE STRENGTH PER THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.

D. CEMENT SHALL BE OF THE TYPE SPECIFIED ON THE CONCRETE MIX TABLE ON THE STRUCTURAL PLANS, CONFORMING TO ASTM C150.

E. FLY ASH SHALL CONFORM TO ASTM C618, CLASS C OR F. FLY ASH SHALL NOT EXCEED 20% OF THE TOTAL WEIGHT OF CEMENTITIOUS MATERIAL.

F. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED IN ANY CONCRETE.

G. COLD WEATHER CONCRETING: WHEN TEMPERATURES DROP BELOW 40 DEGREES AT ANY TIME DURING CONCRETE PLACING AND CURING, THE PROVISIONS OF ACI306R SHALL BE FOLLOWED TO PROTECT CONCRETE FROM FREEZING.

H. HOT WEATHER CONCRETING: PLACE AND CURE CONCRETE IN ACCORDANCE WITH ACI 305. COOL INGREDIENTS BEFORE MIXING TO MAINTAIN CONCRETE SLUMP AT TIME OF PLACEMENT BELOW 90 DEGREES F.

I. CONCRETE MUST BE CONTINUOUSLY PLACED WITHOUT HORIZONTAL COLD JOINTS. IF COLD JOINTS ARE NECESSARY, ADEQUATE REINFORCING AND HORIZONTAL KEYS OR A ROUGHENED SURFACE MUST BE PROVIDED; COORDINATE REQUIREMENTS WITH ENGINEER. ALL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

J. DEFORMED REINFORCEMENT: ASTM A615, GRADE 60 EXCEPT TIES OR STIRRUPS: ASTM A615, GRADE 40.

K. REINFORCING BARS TO BE WELDED SHALL BE ASTM A706, GRADE 60.

L. WELDED WIRE FABRIC: ASTM A185 (LAP ONE FULL MESH AND TIE SECURELY, CUT ALTERNATE WIRES AT CONTROL JOINTS).

M. REINFORCEMENT SHALL BE FABRICATED AND PLACED AS PER THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" (ACI-315).

N. UNLESS NOTED OTHERWISE, DEVELOPMENT OF CONCRETE REINFORCING SHALL BE AS BELOW. CLEAR COVER MUST BE MIN. 1 BAR DIAMETER, AND CLEAR SPACING BETWEEN BARS MUST BE MIN. 2 BAR DIAMETERS.
- a. #6 BARS AND SMALLER: 47 BAR DIAMETERS
- b. #7 - #11 BARS: 59 BAR DIAMETERS

O. MINIMUM CONCRETE COVERAGE FOR REINFORCING STEEL:
- a. UNFORMED SURFACE CAST AGAINST EARTH 3"
- b. FORMED SURFACE EXPOSED TO EARTH OR WEATHER
  - 1. #6 THROUGH #18 BARS 2"
  - 2. #5 AND SMALLER BARS 1 1/2"
- c. FORMED SURFACE NOT EXPOSED TO EARTH OR WEATHER
  - 1. SLABS, WALLS AND JOISTS
    - (a) #14 THROUGH #18 BARS 1 1/2"
    - (b) #11 AND SMALLER BARS 3/4"
  - 2. BEAMS AND COLUMNS 1 1/2"

P. PROVIDE (2) #5 EACH SIDE OF ALL WALL OPENINGS OR NOTCHES, U.N.O. VERTICAL BARS SHALL BE FULL-HEIGHT; HORIZONTAL BARS SHALL EXTEND A MINIMUM OF 3'-0" BEYOND THE EDGE OF THE OPENING.

Q. MAINTAIN CONTINUITY OF ALL HORIZONTAL REINFORCEMENT AT CORNERS, INTERSECTIONS AND AT STEPS IN THE TOP AND BOTTOM OF WALLS OR FOOTINGS.

R. WELDING OF REINFORCING STEEL SHALL BE PERFORMED ONLY WHERE INDICATED ON THE DRAWINGS AND SHALL BE IN COMPLIANCE WITH ALL THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY "REINFORCING STEEL WELDING CODE", AWS D1.4. PROVIDE WELDING PROCEDURES AND MILL TEST REPORTS FOR ALL REINFORCEMENT TO BE WELDED TO ENGINEER FOR APPROVAL.

S. BASE PLATES, ANCHOR BOLTS, SUPPORT ANGLES AND OTHER STEEL EXPOSED TO EARTH OR GRANULAR FILL SHALL BE COVERED WITH A MINIMUM OF 3 IN. OF CONCRETE.

T. PROVIDE VAPOR BARRIER BELOW INTERIOR SLABS-ON-GRADE AS REQUIRED FOR THE ANTICIPATED FLOOR FINISH, RE: ARCHITECT.

U. PRIOR TO PLACEMENT OF SLABS SUPPORTED BY COLUMNS OR WALLS WITH A GROUT SPACE, VERIFY GROUT HAS BEEN PLACED AND SUFFICIENT TIME HAS ELAPSED FOR GROUT TO DEVELOP 75% OF 28 DAY STRENGTH PER MANUFACTURER'S PUBLISHED STRENGTH SCHEDULE.

V. PROVIDE SLIP JOINT MATERIAL SEPARATING CONCRETE SLABS FROM STEEL COLUMNS AND PLUMBING PENETRATIONS TO ALLOW SLAB MOVEMENT INDEPENDENT OF THE COLUMNS OR PLUMBING. PROTECT STEEL COLUMNS FROM CORROSION BELOW GRADE.

W. EXPANSION JOINT MATERIAL, WHERE NOTED IN STRUCTURAL PLANS AND DETAILS, SHALL CONFORM TO ASTM 1751 AND BE 1/2" THICKNESS, UNLESS NOTED OTHERWISE.

X. PROVIDE SLAB CONTROL JOINTS IN ACCORDANCE WITH SOILS REPORT RECOMMENDATIONS, CONTROL JOINTS SHALL BE SAW CUT TO 1/4 OF THE SLAB DEPTH AND SHALL BE LOCATED AT ALL COLUMN CENTERLINES IN AT LEAST ONE DIRECTION.

Y. FOR LOCATION, SIZE AND DETAILS OF OPENINGS, SLEEVES, INSERTS, CONDUITS, PIPES SLOTS AND RELATED ITEMS REQUIRED TO BE LOCATED PRIOR TO PLACING CONCRETE, REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND OTHER DRAWINGS FOR THIS PROJECT.

## 6.0 STRUCTURAL STEEL

A. ALL STRUCTURAL STEEL SHALL BE OF THE GRADES INCLUDED BELOW:
- a. WIDE FLANGE SHAPES, CHANNELS AND TEES: ASTM A992 (FY=50 KSI).
- b. OTHER ROLLED SHAPES (ANGLES, PLATES AND BARS): ASTM A36 (FY=36 KSI).
- c. STEEL RODS AND MISCELLANEOUS (EXCEPT THREADED ROD): ASTM A36 (FY=36KSI)
- d. STEEL PIPE: ASTM A53, GRADE B (FY=35 KSI).
- e. RECTANGULAR STRUCTURAL TUBE SECTIONS (TS AND HSS): ASTM A500, GR. C (FY=50 KSI).
- f. ROUND STRUCTURAL TUBE SECTIONS (TS AND HSS): ASTM A500, GR. C (FY=46 KSI).

B. STRUCTURAL STEEL DESIGN IS BASED ON "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS", AISC-360.

C. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE AISC CODE OF STANDARD PRACTICE.

D. BOLTS AND THREADED RODS:
- a. ALL STEEL-TO-STEEL CONNECTIONS: ASTM F3125, GRADE A325
- b. TIMBER CONNECTIONS AND MISCELLANEOUS BOLTS: ASTM A307 GR A (FU=60KSI)
- c. THREADED RODS (EXCEPT FOR ANCHORING TO FOUNDATION): ASTM A307 GR A (FU=60KSI)
- d. FOUNDATION ANCHORS (THREADED RODS AND CAST-IN BOLTS): ASTM F1554, GR 36 (FY=36KSI)

E. WELD MATERIAL: E70XX ELECTRODES, WELDING MAY ONLY BE PERFORMED BY AWS CERTIFIED WELDERS.

F. NON-SHRINK GROUT SHALL COMPLY WITH ASTM C1107, AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI AFTER 28 DAYS, BE NON-CORROSIVE, NON-METALLIC AND NON-STAINING. DRY PACK GROUT ONLY PERMITTED IN GROUT SPACES <12" DEEP FROM PLACEMENT EDGE.

G. STEEL-TO-STEEL FIELD BOLTED CONNECTIONS SHALL BE STANDARD FRAMED BEAM CONNECTIONS OF BEARING TYPE WITH 3/4" DIA. A325-N HIGH STRENGTH BOLTS PER AISC "MANUAL OF STEEL CONSTRUCTION" UNLESS NOTED OTHERWISE ON THE DOCUMENTS. STEEL-TO-STEEL CONNECTIONS SHALL BE DESIGNED AND FABRICATED BY THE STRUCTURAL STEEL SUPPLIER FOR 60% OF THE TOTAL UNIFORM LOAD CAPACITY FOR EACH BEAM AND SPAN AS SHOWN IN THE AISC UNIFORM LOAD CONSTANT TABLES.

H. ADJUSTABLE PIPE COLUMNS SHALL BE DESIGNED BY THE COLUMN SUPPLIER INCLUDING BUT NOT LIMITED TO THE SCREW JACK, TOP PLATE AND BEARING PLATE FOR THE LOADS LISTED BELOW:
- a. 3" DIA. NOMINAL STD. ADJ. PIPE COLUMNS: 28,000 LBS AT 9'-0" MAXIMUM LENGTH.

I. ALL STRUCTURAL STEEL IS TO BE PRIMED PRIOR TO SHIPMENT AND TOUCHED-UP AFTER ERECTION.

## 7.0 POST-INSTALLED ANCHORS AND REINFORCING BARS

A. POST-INSTALLED ANCHOR BOLTS (WEDGE OR SCREW TYPE, NOT INCLUDING ADHESIVE ANCHORS) SHALL BE OF THE BRAND AND TYPE SPECIFIED IN THE STRUCTURAL PLANS. INSTALL ANCHOR BOLTS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

B. POST-INSTALLED ADHESIVE ANCHORS SHALL BE OF THE BRAND AND TYPE SPECIFIED IN THE STRUCTURAL DRAWINGS. DRILL AND CLEAN HOLE, INJECT ADHESIVE, AND INSTALL ANCHOR IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. ONCE ADHESIVE HAS CURED TO MANUFACTURER'S REQUIREMENTS, TIGHTEN NUTS TO MANUFACTURERS' SPECIFIED TORQUE.

C. POST-INSTALLED REBAR SHALL USE THE BRAND AND TYPE OF ADHESIVE SPECIFIED IN THE STRUCTURAL DRAWINGS. DRILL AND CLEAN HOLE, INJECT ADHESIVE, AND INSTALL REBAR IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. SUBSEQUENT CONCRETE PLACEMENT SHALL NOT OCCUR UNTIL EPOXY HAS CURED PER MANUFACTURER'S SPECIFICATION.

D. SUBSTITUTION OF ANCHORS AND/OR ADHESIVES IS NOT PERMITTED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD. REQUESTS FOR SUBSTITUTION MUST INCLUDE DOCUMENTATION SHOWING SUGGESTED ALTERNATE IS OF THE SAME TYPE AS THE ORIGINAL AND PROVIDES EQUAL OR GREATER STRENGTH IN THE INTENDED APPLICATION.

E. HOLES SHALL BE HAMMER-DRILLED INTO DRY CONCRETE, UNLESS NOTED OTHERWISE.

F. THE REMOVAL AND RESETTING OF POST-INSTALLED MECHANICAL ANCHORS IS PROHIBITED.

G. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT THE TIME OF ANCHOR INSTALLATION.

H. TEMPERATURE OF BASE MATERIAL AND ADHESIVE SHALL REMAIN WITHIN MANUFACTURER'S SPECIFIED RANGE FOR THE DURATION OF THE SPECIFIED CURE TIME.

I. DO NOT DRILL INTO OR DAMAGE EXISTING REINFORCEMENT. IF THE LOCATION OF THE HOLE CANNOT BE ADJUSTED IF REBAR IS ENCOUNTERED DURING DRILLING, EXISTING REINFORCEMENT SHALL BE LOCATED USING NON-DESTRUCTIVE METHODS PRIOR TO DRILLING.

J. ADHESIVE ANCHORS AND REBAR INSTALLED IN A HORIZONTAL OR UPWARDLY INCLINED ORIENTATION SUPPORTING SUSTAINED TENSION LOADS AND NOTED ON STRUCTURAL PLANS AS "CERT", SHALL ONLY BE INSTALLED BY PERSONNEL CERTIFIED AS AN ACI / CRSI ADHESIVE ANCHOR INSTALLER. ALL OTHER ADHESIVE ANCHOR AND REBAR INSTALLATIONS DO NOT REQUIRE AN ACI CERTIFIED INSTALLER, BUT SHALL BE INSTALLED BY PERSONNEL HAVING AT LEAST COMPLETED A PRODUCT SPECIFIC TRAINING COURSE BY THE MANUFACTURER'S REPRESENTATIVE. G.C. SHALL VERIFY AND DOCUMENT QUALIFICATIONS FOR ALL PERSONNEL INSTALLING ANCHORS PRIOR TO INSTALLATION.

## 8.0 WOOD FRAMING

A. ALL DIMENSIONAL LUMBER AND TIMBERS USED FOR STRUCTURAL FRAMING SHALL BE AT A MOISTURE CONTENT OF 19% OR LESS AND HAVE THE FOLLOWING MINIMUM VISUAL GRADE STAMP WITH UNFACTORED ALLOWABLE STRESSES:
- a. 4x POSTS: DOUGLAS FIR, NO. 1 (Fb=1000psi, Fc=1150psi, E=1,700,000psi)
- b. 2x STUDS, < 8'-0": DOUGLAS FIR, STUD GRADE (Fb=700 psi, Fc= 850 psi, E=1,400,000psi)
- c. 2x STUDS, > 8'-0", <10'-0": DOUGLAS FIR, NO. 2 (Fb=900 psi, Fc = 1350 psi, E=1,600,000psi)
- d. 2x4x JOISTS/RAFTER: DOUGLAS FIR, NO. 2 (Fb=900 psi, E=1,600,000psi)
- e. POSTS AND TIMBERS (5x5 AND LARGER): DOUGLAS FIR, NO.1 (Fb=1200psi, Fc=1000 psi, E=1,600,000psi)
- f. BEAMS AND STRINGERS (5X5 AND LARGER): DOUGLAS FIR, NO.1 (Fb=1350psi, Fc=925 psi, E=1,600,000psi).

B. MICROLLAM BEAMS, LVL: 2.0E, Fb=2600 psi AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL UNLESS NOTED OTHERWISE, FASTEN MULTIPLE MICROLLAM BEAMS IN FLUSH FRAMED CONDITIONS TOGETHER WITH NAILS OR BOLTS PER MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE NOTED ON PLANS AND DETAILS. ALL LVL PLIES ARE 1 3/4" THICKNESS UNLESS NOTED OTHERWISE.

C. LAMINATED STRUCTURAL LUMBER, LSL (9 1/2", 11 7/8", 14" DEPTHS): 1.55E, Fb=2325 psi AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL UNLESS NOTED OTHERWISE, FASTEN MULTIPLE LSL BEAMS IN FLUSH FRAMED CONDITIONS TOGETHER WITH NAILS OR BOLTS PER MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE NOTED ON PLANS AND DETAILS.

D. LAMINATED STRUCTURAL LUMBER, LSL (7 1/4" AND SMALLER DEPTHS): 1.3E, Fb=1700 psi AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL UNLESS NOTED OTHERWISE.

E. PARALLAM STRUCTURAL LUMBER, PSL: 2.0E, Fb=2900 psi AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL UNLESS NOTED OTHERWISE.

F. LSL STUDS: AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL UNLESS NOTED OTHERWISE.
- a. 5 1/2" DEPTH AND SMALLER: TIMBERSTRAND 1.3E LSL STUDS, Fb=1700 psi, Fcll=1835 psi
- b. 7 1/4" DEPTH: TIMBERSTRAND 1.5E LSL STUD, Fb=2250 psi, Fcll=2105 psi

G. PREFABRICATED JOISTS: UNLESS NOTED OTHERWISE, PREFAB 'I' SERIES JOISTS SHALL BE TJI 210 AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL. DO NOT BIRDSMOUTH OR OTHERWISE NOTCH THE FLANGE MATERIAL IN ANY MANNER. WEB PENETRATIONS AS PER TJI RECOMMENDATIONS ONLY. INSTALLATION PER THE 'RESIDENTIAL TJI INSTALLATION GUIDE'. NOTIFY THE STRUCTURAL ENGINEER IF THE FLOOR JOIST PACKAGE AS FABRICATED FOR THIS PROJECT VARIES FROM THAT SHOWN ON THE CONSTRUCTION DOCUMENTS.

H. FLOOR RIM JOIST MATERIAL: 1 1/4" "TIMBERSTRAND LSL" AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL.

I. PROVIDE PRESSURE TREATED LUMBER OR ICC APPROVED BARRIER AT LOCATIONS WHERE MEMBER IS TO BE IN CONTACT WITH CONCRETE, MASONRY, SOIL, OR EXPOSED TO WEATHER, UNLESS NOTED OTHERWISE.

J. PRESSURE TREATED LUMBER: ALL FASTENERS AND HANGERS FOR USE WITH ACQ TREATED LUMBER SHALL BE GALVANIZED WITH A G185 COATING OR SHALL BE STAINLESS STEEL, EXCEPT 1/2" OR LARGER MUDSILL ANCHOR BOLTS AT INTERIOR CONDITIONS. LUMBER IN CONTACT WITH CONCRETE BUT NOT EXPOSED TO WEATHER SUCH AS MUDSILLS MAY BE TIMBERSTRAND STRANDGUARD AS MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL IN LIEU OF CORROSIVE ACQ TREATED LUMBER.

K. ALL SHEATHING SHOWN ON THESE DOCUMENTS SHALL BE C-D GRADE WITH EXTERIOR GLUE IN ACCORDANCE WITH THE U.S. PRODUCT STANDARD PS 1-95 OR PS 2-92. ALL PANELS SHALL BE MARKED WITH AN APA GRADE MARK WITH AN IDENTIFICATION INDEX IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. HEADS OF NAILS OR CROWNS OF STAPLES SHALL NOT PENETRATE THE FACE SKIN OR ADDITIONAL NAILING WILL BE REQUIRED.

L. ROOF TRUSSES SHALL BE DESIGNED BY A LICENSED COLORADO PROFESSIONAL ENGINEER FOR THE LIVE LOADS PREVIOUSLY STATED AND FOR A DEAD LOAD OF 10 PSF (TOP CHORD) AND 10 PSF (BOTTOM CHORD) EXCEPT AS NOTED ON THE LOADING DIAGRAM. TRUSS ERECTION HARDWARE (HANGERS, HOLDOWNS, ETC.), INCLUDING TRUSS-TO-TRUSS CONNECTIONS, SHALL BE DESIGNED AND SUPPLIED BY THE TRUSS MANUFACTURER.

M. ERECTION AND PERMANENT TRUSS BRACING SHALL BE SUPPLIED AND ERECTED AS PER THE TRUSS MANUFACTURER'S RECOMMENDATIONS. NOTIFY THE STRUCTURAL ENGINEER IF THE ROOF TRUSS PACKAGE AS FABRICATED FOR THIS PROJECT VARIES FROM THAT SHOWN ON THE CONSTRUCTION DOCUMENTS.

N. DIAPHRAGM SHEATHING SHALL BE OF THICKNESS AND INDEX NUMBER SHOWN ON THE PLANS, PLACED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS AND END JOINTS SHALL BE STAGGERED.

O. STRUCTURAL HEADERS SHALL BE (3) 2x8 OR (2) 2x10 UNLESS OTHERWISE NOTED.

P. ALL TRUSSES, RAFTERS AND FLOOR JOISTS IN FLUSH FRAMED CONDITIONS SHALL BEAR IN JOIST HANGERS.

Q. ALL WALL STUDS SHALL BE CONTINUOUS FROM FLOOR TO FLOOR OR FROM FLOOR TO ROOF.

R. PROVIDE CRIPPLE STUDS OR SQUASH BLOCKS BELOW SOLID OR BUILT-UP POSTS OR COLUMNS WITHIN FLOOR SPACES BELOW TO FOUNDATION. PROVIDE CRIPPLE STUDS OR SQUASH BLOCKS WITH EQUIVALENT NUMBER OF STUDS OR AREA OF POST.

S. BOTTOM FLANGE OF CONTINUOUS JOISTS AT CRAWLSPACE AND UNFINISHED BASEMENT CONDITIONS SHALL BE BRACED BY BLOCKING, BRIDGING OR STRAPPING PER PLAN OR MANUFACTURER'S REQUIREMENTS.

T. METAL HANGERS AND CONNECTORS SHALL BE "SIMPSON STRONG-TIE" OR AN APPROVED EQUAL. UNLESS NOTED OTHERWISE PROVIDE ALL MANUFACTURER RECOMMENDED FASTENERS FOR THE MAXIMUM CAPACITY OF THE HANGER.

U. NAILING SHALL CONFORM TO INTERNATIONAL BUILDING CODE, TABLE 2304.10.1, UNLESS MORE OR LARGER NAILING IS OTHERWISE SPECIFIED.

V. FASTEN ALL WOOD MEMBERS WITH COMMON NAILS UNLESS NOTED OTHERWISE, WHERE POWER NAILS ARE USED THEY SHALL BE EQUIVALENT IN DIAMETER TO THE COMMON NAIL INDICATED. PREDRILL NAIL HOLES AS REQUIRED TO PREVENT SPLITTING OF THE WOOD MEMBERS.

W. AT STEEL BEAMS, FASTEN BEAM WITH 2x NAILER BY WIDTH OF BEAM TO BEAM FLANGE WITH HILTI KU 0.157" DIA. POWDER ACTUATED FASTENERS OR APPROVED EQUAL @ 12" o.c. STAGGERED UNLESS OTHERWISE NOTED. AT FLUSH FRAME CONDITIONS PACK BEAM WEBS SOLID AND PROVIDE 1/2" DIA. THRU BOLTS @ 24" o.c. STAGGERED UNLESS OTHERWISE NOTED.

## 9.0 SHOP SUBMITTALS

A. THE FOLLOWING SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT AND THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION:
- a. REBAR AND P.T. PLACEMENT SHOP DRAWINGS
- b. STRUCTURAL STEEL SHOP DRAWINGS AND ERECTION PLANS.
- c. PRE-ENGINEERED ROOF TRUSS CALCULATIONS AND SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF COLORADO.
- d. PRE-ENGINEERED STAIR CALCULATIONS AND SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF COLORADO.

## 10.0 STRUCTURAL INSPECTIONS

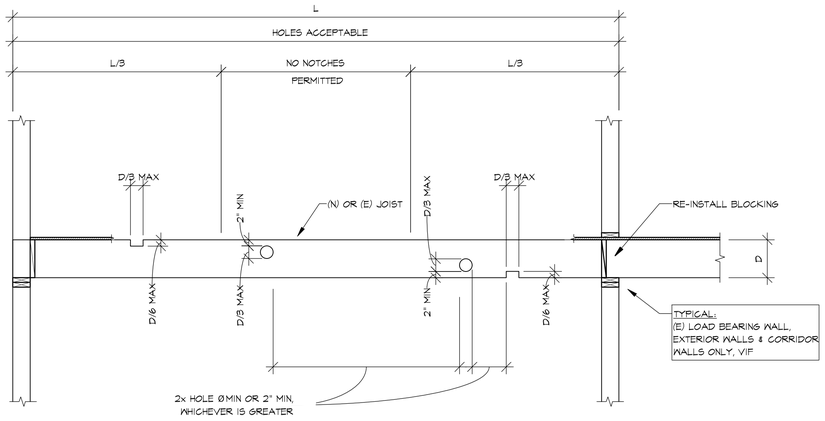
A. CONSTRUCTION OR WORK FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL AND/OR THIRD-PARTY INSPECTORS. REQUIRED INSPECTIONS ARE DETERMINED BY THE BUILDING OFFICIAL. AND IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE WITH THE BUILDING OFFICIAL ON REQUIRED INSPECTIONS. CONSTRUCTION SUBJECT TO INSPECTION SHALL REMAIN VISIBLE AND ABLE TO BE ACCESSED FOR INSPECTION PURPOSES UNTIL APPROVED.

B. REQUIRED OBSERVATIONS BY THE ENGINEER OF RECORD:
- a. FOOTING AND PIER FORMWORK AND REINFORCING (CAISSONS SHALL BE INSPECTED BY OTHERS).
- b. CONCRETE WALL FORMWORK AND REINFORCING.
- c. SHEAR WALLS INCLUDING CONTINUOUS LATERAL LOAD PATH AND UPLIFT TIES.
- d. FINAL STRUCTURAL FRAMING.

SPECIAL INSPECTORS EMPLOYED BY THE OWNER SHALL PROVIDE STRUCTURAL SPECIAL INSPECTIONS PER INTERNATIONAL BUILDING CODE. SEE THE STATEMENT OF SPECIAL INSPECTIONS FOR THE REQUIRED INSPECTIONS AND REFERENCES TO THE RELEVANT STANDARDS FOR INSPECTION. CONTRACTOR SHALL COORDINATE WITH THE SPECIAL INSPECTOR ON REQUIRED INSPECTIONS. A SIGNED FINAL REPORT SHALL BE SUBMITTED BY THE SPECIAL INSPECTOR TO THE ARCHITECT AND STRUCTURAL ENGINEER.

### TYPICAL HANGER SCHEDULE
(UNLESS NOTED OTHERWISE)

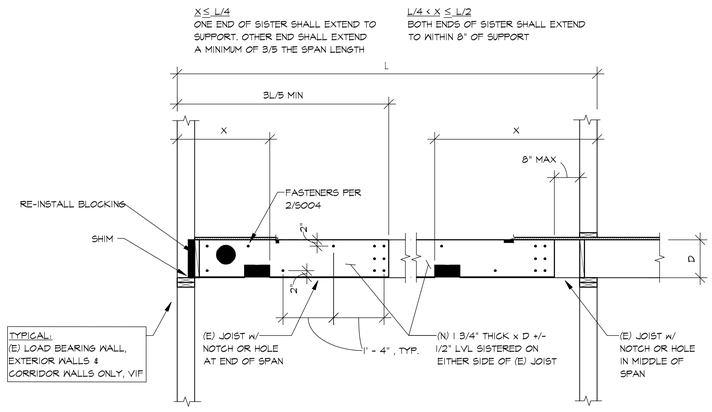
| JOIST OR BEAM PRODUCT | FACE MOUNT HANGER | TOP FLANGE HANGER |
|---|---|---|
| (1) 11⅞" TJI 210 | IUS2.06/11.88 | IT52.06/11.88 |
| (2) 11⅞" TJI 210 | HU4.28/11 | LBV4.28/11.88 |
| (1) 1¾"x11⅞" LVL | MIU1.81/11 | MIT11.88 |
| (2) 1¾"x11⅞" LVL | HU412 (




TYPICAL ACCEPTABILITY CRITERIA FOR NOTCHES AND HOLES IN (N) OR (E) FLOOR JOISTS

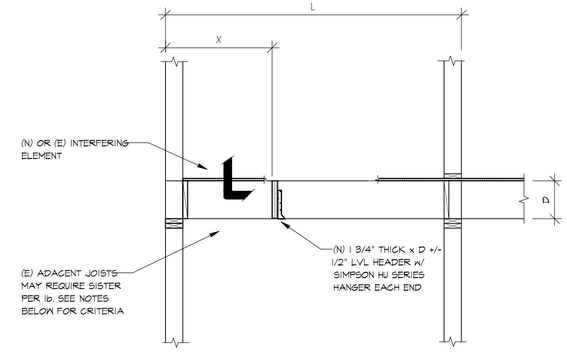
- CRITERIA VALID ONLY FOR UNIFORMLY LOADED JOISTS. NOT VALID WHERE JOISTS SUPPORT BEARING WALLS OR CONCENTRATED LOADS.
- CRITERIA NOT APPLICABLE TO BEAMS, GIRDERS, OR CANTILEVERED JOISTS.
- NOTCHES AT ENDS OF JOISTS SHALL NOT EXCEED 1/4 JOIST DEPTH (D).
- JOISTS WITH NOTCHES OR HOLES EXCEEDING THOSE SHOWN ABOVE ARE UNACCEPTABLE.
- JOISTS WITH SPLITS, CRACKS, DETERIORATION, OR OTHER SIGNS OF DISTRESS ARE UNACCEPTABLE. CHECKING AT JOISTS ENDS IS ACCEPTABLE IF <1/4" WIDE AT WIDEST POINT.
- NEW HOLES AND NOTCHES IN EXISTING OR NEW WOOD MEMBERS SHALL NOT EXCEED THOSE SHOWN ABOVE WITHOUT PRIOR CONSENT BY THE CO.
- AT END SUPPORTS MINIMUM BEARING LENGTHS SHALL BE 2". AT INTERMEDIATE SUPPORTS MINIMUM BEARING LENGTH SHALL B 3-1/2". REPORT TO THE CO IF BEARING CONDITIONS ARE OBSERVED THAT VIOLATE THESE MINIMUMS.
- SQUARE "HOLES" ACCEPTABLE ONLY IF PERIMETER CAN BE CIRCUMSCRIBED BY ACCEPTABLE ROUND HOLE.

1 S002 SECTION 1/2" = 1'-0




JOIST SISTERING DETAIL

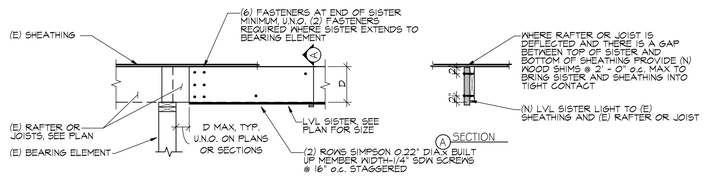
16 S002 SECTION 1/2" = 1'-0




JOIST HEADERING DETAIL

- HEADER ONLY IF SISTERING PER 1b IS NOT FEASIBLE.
- ADJACENT JOISTS SUPPORTING (N) HEADER SHALL BE SISTERED PER SECTION 1b IF L≤4'(2X OTHERWISE, NO SISTERING REQUIRED.
- SIMPSON HU HANGERS SHALL BE OF APPROPRIATE DEPTH TO ACCOMODATE SUPPORTED MEMBER AND SHALL BE ATTACHED w/ MINIMUM FASTENERS SPECIFIED BY MANUFACTURER

1c S002 SECTION 1/2" = 1'-0




TYPICAL (E) RAFTER, TOP CHORD, FLOOR JOIST, OR CEILING JOIST WITH SISTER

2 S002 SECTION 1/2" = 1'-0

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO REGISTERED MATTHEW KNIGHT 37594 1/23/26 PROFESSIONAL ENGINEER

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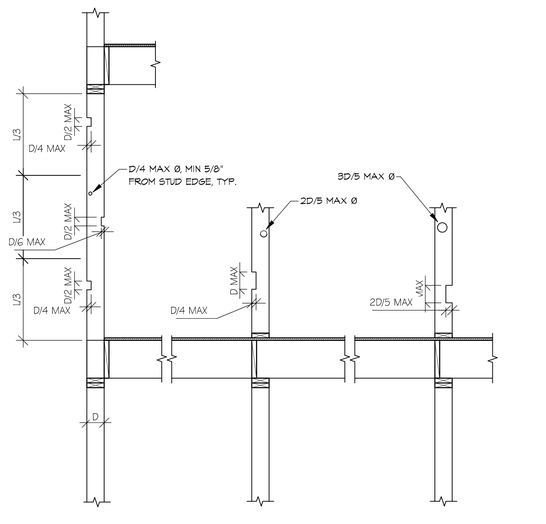
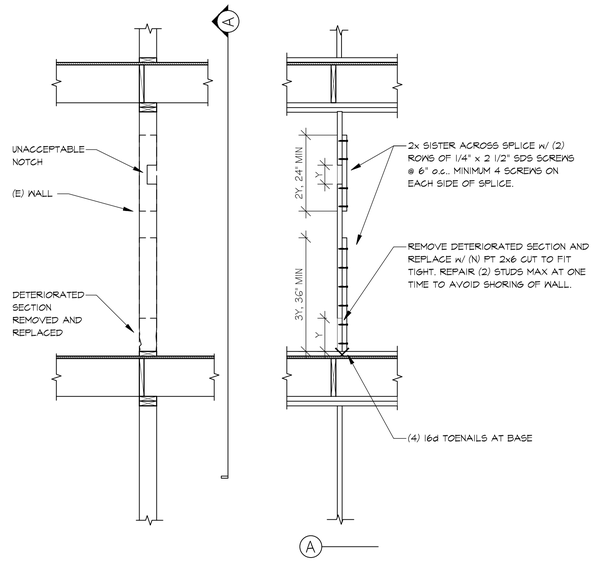



(E) EXTERIOR WALL (E) INTERIOR BEARING WALL (E) INTERIOR NON-BEARING WALL

TYPICAL ACCEPTABILITY CRITERIA FOR NOTCHES AND HOLES IN (N) OR (E) WALL STUDS

- CRITERIA VALID ONLY FOR UNIFORMLY LOADED STUDS. NOT VALID AT STUD PACKS, S/A BOUNDARY STUDS, OR TIMBERS SUPPORTING CONCENTRATED LOADS.
- HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUDS AS A NOTCH.
- HOLES ARE ALLOWABLE ALONG ENTIRE HEIGHT OF MEMBER.
- STUDS WITH NOTCHES OR HOLES EXCEEDING THOSE SHOWN ABOVE ARE UNACCEPTABLE.
- STUDS WITH SPLITS, CRACKS, DETERIORATION, OR OTHER SIGNS OF DISTRESS ARE UNACCEPTABLE. CHECKING AT STUD ENDS IS ACCEPTABLE IF <1/4" WIDE AT WIDEST POINT.
- DETERIORATED MATERIAL IS NOT ACCEPTABLE AND SHALL BE REMOVED AND REPAIRED PER IB/SODS
- NEW HOLES AND NOTCHES IN EXISTING OR NEW WOOD MEMBERS SHALL NOT EXCEED THOSE SHOWN ABOVE WITHOUT PRIOR CONSENT BY THE EOR.
- SQUARE "HOLES" ACCEPTABLE ONLY IF PERIMETER CAN BE CIRCUMSCRIBED BY ACCEPTABLE ROUND HOLE.




STUD WALL REPAIR

- VALID WHERE DEFICIENCY OCCURS IN UPPER OR LOWER THIRD OF (E) STUD HEIGHT. WHERE DEFICIENCY OCCURS IN MIDDLE THIRD, INSTALL FULL HEIGHT SISTER.
- IF DETERIORATED IN THE TOP OR BOTTOM THIRD OF THE MEMBER, REMOVE MATERIAL, REPLACE SECTION, AND SISTER PER DETAIL. IF DETERIORATION OCCURS IN THE MIDDLE THIRD OF THE MEMBER, COMPLETELY REMOVE DETERIORATED MATERIAL, INFILL SECTIONS, AND SISTER WITH FULL HEIGHT STUD.
- WHEN REMOVING DETERIORATED MATERIAL, OVER-CUT AT LEAST 4" INTO SECTION OF ACCEPTABLE MATERIAL.
- WHERE FRAMING IS WITHIN 18" OF SOIL, REPAIR w/ (N) 2x PT MEMBER MATCHING SIZE OF (E) MEMBER TO BE REPAIRED AND USE GALVANIZED FASTENERS.

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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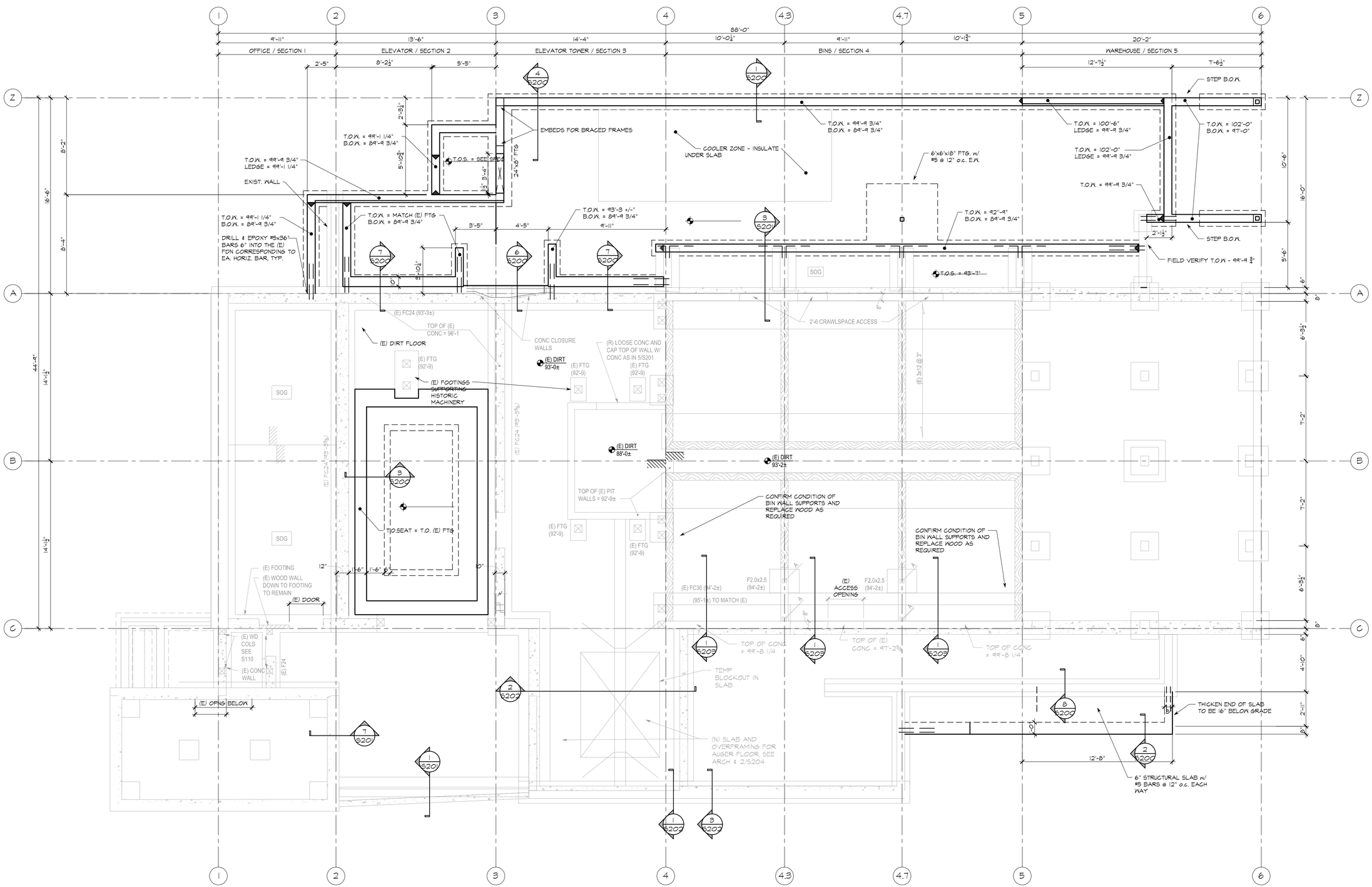


# FOUNDATION PLAN

scale: 1/4" = 1'-0"

NORTH

FOUNDATION NOTES:

- USGS ELEVATION 5330.88' = 100'-0, TOP OF 1ST LEVEL SHEATHING AT OFFICE- SECTION 1
- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- SEE SHEET S1.1 FOR HOLDOWNS, ANCHOR BOLTS, AND SILL PLATE LOCATIONS.
- ALL FTG'S MUST REST ON NATURAL UNDISTURBED SOIL OR COMPACTED FILL PER SOILS ENGINEER AT LEAST 36" BELOW FINISHED GRADE.
- FOOTINGS ARE 16" x 8" UNLESS NOTED OTHERWISE.
- FIELD VERIFY GRADE WITH TOP OF WALL AND WALL STEPS AND COORDINATE WITH ENGINEER.

KEY

▲ - STEP IN TOP OF WALL.

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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FOUNDATION PLAN

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# 1ST LEVEL FRAMING PLAN

scale: 1/4" = 1'-0"

NORTH

PLAN NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE TJI BLOCKING @ ALL INTERIOR JOIST BEARING LOCATIONS.
- PROVIDE SQUASH BLOCKS OR ADDITIONAL RIM SECTION BELOW (2) 2x AND LARGER POSTS, TO TRANSFER LOADS FROM ABOVE THROUGH THE FLOOR SYSTEM TO FOUNDATION.
- FLOOR JOISTS ARE TJI 210 UNLESS NOTED OTHERWISE.
- ALL HEADERS (3) 2x8 OR (2) 2x10 UNLESS NOTED OTHERWISE.

KEY

- ⊞ - POST BELOW (2) 2x4 OR (2) 2x6 MIN. POSTS TO MATCH WALL STUD SIZE U.N.O.
- ▣ - POST FROM ABOVE
- ▭ - INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16" O.C.
- HDI - HOLDOWN - CONFIRM GAST-IN-PLACE LSTHD8RJ I5 IN PLACE OR PROVIDE SIMPSON HDU2-SDS2.5 W/ $\frac{5}{8}$" DIA THREADED ROD DRILLED AND EPOXIED 8" (MIN) INTO TOP OF CONCRETE W/ SIMPSON SET EPOXY.

FRAMING KEYNOTES

NOTE: AT STACKED 2x BIN WALLS: PLACE SCREW CENTERED INTO 2x ON BIN WALL, NOT IN A JOINT

1. 11 7/8" LVL w/ (3) SDS25412 SCREWS @ 12" o.c.
2. 11 7/8" LVL w/ (3) SDS25412 SCREWS @ 16" o.c.
3. 11 7/8" LVL w/ (2) SDS25412 SCREWS @ 16" o.c.
4. 9 ½" LVL w/ (3) SDS25412 SCREWS @ 16" o.c.
5. 9 ½" LVL w/ (3) SDS25412 SCREWS @ 12" o.c.

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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FIRST LEVEL FRAMING PLAN

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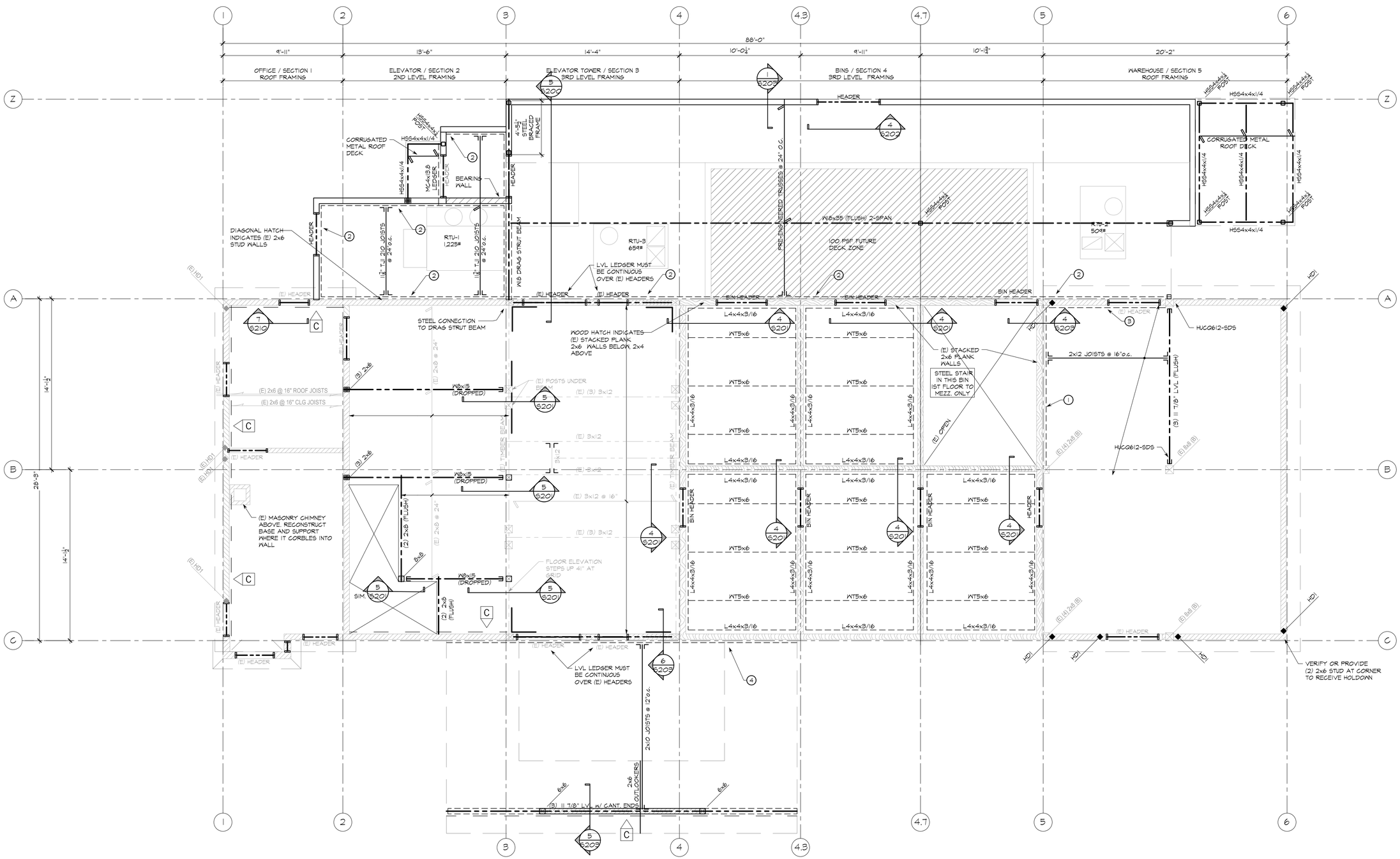


# 2ND & 3RD LEVEL AND LOW ROOF FRAMING PLAN

scale: 1/4" = 1'-0"

NORTH

PLAN NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE TJI BLOCKING @ ALL INTERIOR JOIST BEARING LOCATIONS.
- PROVIDE SQUASH BLOCKS OR ADDITIONAL RIM SECTION BELOW (2) 2x AND LARGER POSTS, TO TRANSFER LOADS FROM ABOVE THROUGH THE FLOOR SYSTEM TO FOUNDATION.
- FLOOR JOISTS ARE TJI 210 UNLESS NOTED OTHERWISE.
- ALL HEADERS (3) 2x8 OR (2) 2x10 UNLESS NOTED OTHERWISE.

ROOF NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SIMPSON H2.5 AT ALL TRUSSES AND RAFTERS.
- PROVIDE SIMPSON H6 AT EA. END OF GIRDER TRUSSES UNLESS NOTED OTHERWISE.
- SUBMIT TRUSS SHOP DRAWINGS AND CALCULATIONS TO ENGINEER, PER GENERAL NOTES.

KEY

- ■ - POST BELOW (2) 2x4 OR (2) 2x6 MIN. POSTS TO MATCH WALL STUD SIZE U.N.O.
- ▦ - POST FROM ABOVE
- ▭ - INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16" O.C.

HDI - HOLDOWN - CONFIRM CAST-IN-PLACE LSTHD8RJ I5 IN PLACE OR PROVIDE SIMPSON HDU2-SDS2.5 W/ ⅝" DIA THREADED ROD DRILLED AND EPOXIED 8" (MIN) INTO TOP OF CONCRETE W/ SIMPSON SET EPOXY.

FRAMING KEYNOTES

NOTE: AT STACKED 2x BIN WALLS: PLACE SCREW CENTERED INTO 2x ON BIN WALL, NOT IN A JOINT

1. 11 7/8" LVL w/ (3) SDS25412 SCREWS @ 12" o.c.
2. 11 7/8" LVL w/ (3) SDS25412 SCREWS @ 16" o.c.
3. 11 7/8" LVL w/ (2) SDS25412 SCREWS @ 16" o.c.
4. 9 ¼" LVL w/ (3) SDS25412 SCREWS @ 16" o.c.
5. 9 ¼" LVL w/ (3) SDS25412 SCREWS @ 12" o.c.

CONSTRUCTION PHASE 5.0 – SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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2ND & 3RD LEVEL AND LOW ROOF FRAMING PLAN

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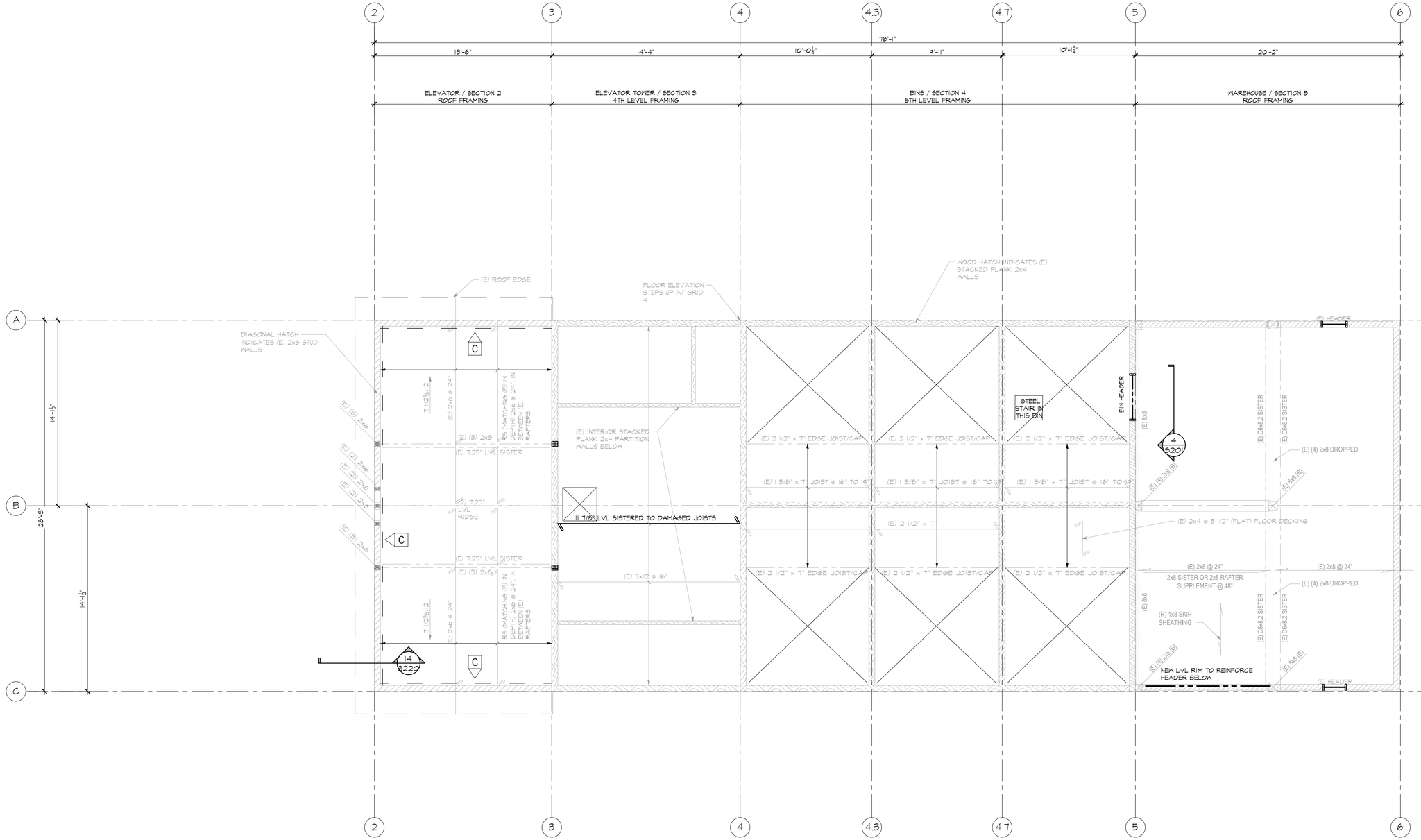


# 4TH & 5TH LEVEL AND ELEVATOR ROOF FRAMING PLAN

NORTH

scale: 1/4" = 1'-0"

ROOF NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SIMPSON H2.5 AT ALL TRUSSES AND RAFTERS.
- PROVIDE SIMPSON H6 AT EA. END OF GIRDER TRUSSES UNLESS NOTED OTHERWISE.
- SUBMIT TRUSS SHOP DRAWINGS AND CALCULATIONS TO ENGINEER, PER GENERAL NOTES.
- ALL GABLE END WALLS TO BE BALLOON FRAMED FROM FLOOR TO CEILING.
- ALL HEADERS (3) 2x8 OR (2) 2X10 UNLESS NOTED OTHERWISE.

KEY

- ▣ - A MINIMUM OF (2) 2x4 OR (2) 2x6 POSTS TO MATCH WALL STUD SIZE U.N.O.
- ▭ - INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16" O.C.
- /// - OVERFRAMING OF 2x6 @ 24" O.C. W/2X4 VERTS @ 24", VERIFY W/ TRUSS MFR.
- ⟨X⟩ - HOLDOWN PER SCHEDULE AND 4/S01.1

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

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COLORADO REGISTERED MATTHEW KNIGHT 37594 1/23/26 PROFESSIONAL ENGINEER

PROJECT # 2025-0150
DATE: 12/5/2025
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4TH & 5TH LEVEL & ELEVATOR ROOF FRAMING PLAN

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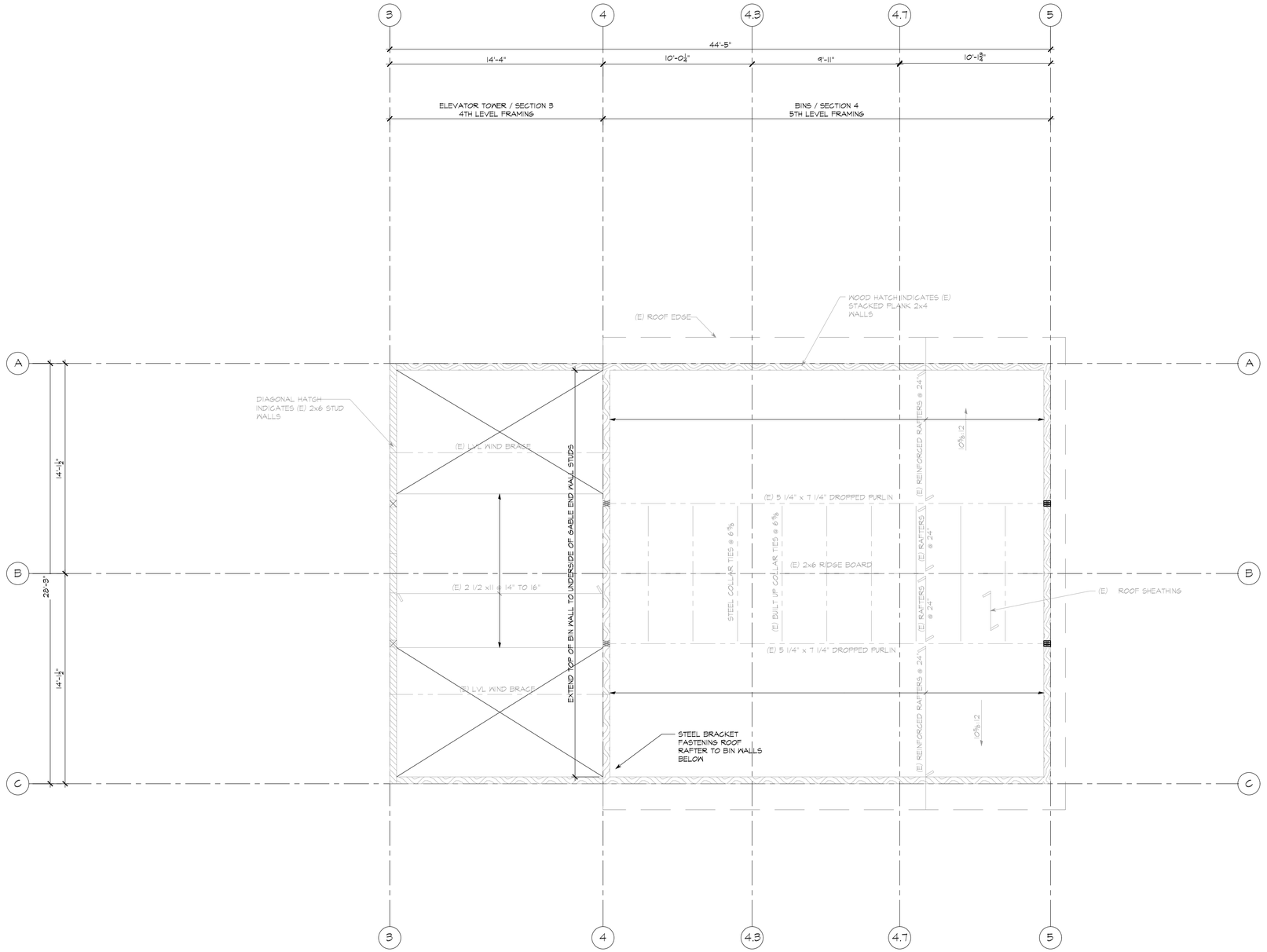


# 6TH LEVEL AND BIN ROOF FRAMING PLAN

scale: 1/4" = 1'-0"

NORTH

ROOF NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SIMPSON H2.5 AT ALL TRUSSES AND RAFTERS.
- PROVIDE SIMPSON H6 AT EA. END OF GIRDER TRUSSES UNLESS NOTED OTHERWISE.
- SUBMIT TRUSS SHOP DRAWINGS AND CALCULATIONS TO ENGINEER PER GENERAL NOTES.
- ALL GABLE END WALLS TO BE BALLOON FRAMED FROM FLOOR TO CEILING.
- ALL HEADERS (3) 2x8 OR (2) 2x10 UNLESS NOTED OTHERWISE.

KEY

- ■ - A MINIMUM OF (2) 2x4 OR (2) 2x6 POSTS TO MATCH WALL STUD SIZE U.N.O.
- ▭ - INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16" O.C.
- ▨ - OVERFRAMING OF 2x6 @ 24" O.C. W/2X4 VERTS @ 24", VERIFY W/ TRUSS MFR.
- ⟨X⟩ - HOLDOWN PER SCHEDULE AND (4 / S0.1)

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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6TH LEVEL & ROOF FRAMING PLAN

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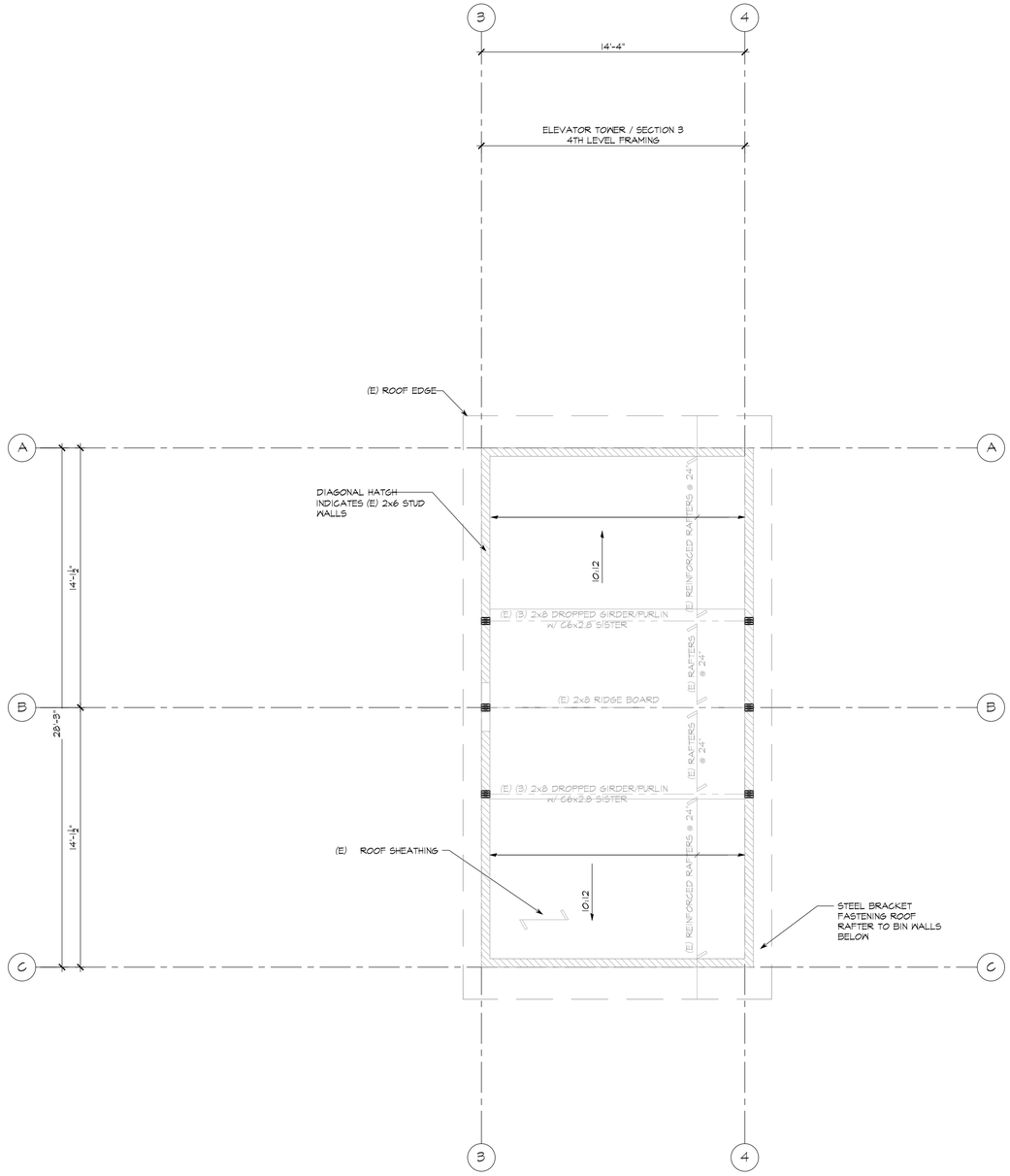


# ELEVATOR TOWER
# ROOF FRAMING PLAN

**scale: 1/4" = 1'-0"**

NORTH

ROOF NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SIMPSON H2.5 AT ALL TRUSSES AND RAFTERS.
- PROVIDE SIMPSON H6 AT EA. END OF GIRDER TRUSSES UNLESS NOTED OTHERWISE.
- SUBMIT TRUSS SHOP DRAWINGS AND CALCULATIONS TO ENGINEER, PER GENERAL NOTES.
- ALL GABLE END WALLS TO BE BALLOON FRAMED FROM FLOOR TO CEILING.
- ALL HEADERS (3) 2x8 OR (2) 2x10 UNLESS NOTED OTHERWISE.

KEY

- ■ - A MINIMUM OF (2) 2x4 OR (2) 2x6 POSTS TO MATCH WALL STUD SIZE U.N.O.
- ▭ - INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16" O.C.
- ▨ - OVERFRAMING OF 2x6 @ 24" O.C. W/2X4 VERTS @ 24", VERIFY W/ TRUSS MFR.
- ⟨X⟩ - HOLDOWN PER SCHEDULE AND (4 / S0.1)

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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ELEVATOR TOWER ROOF FRAMING PLAN

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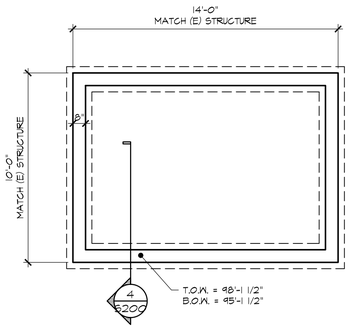


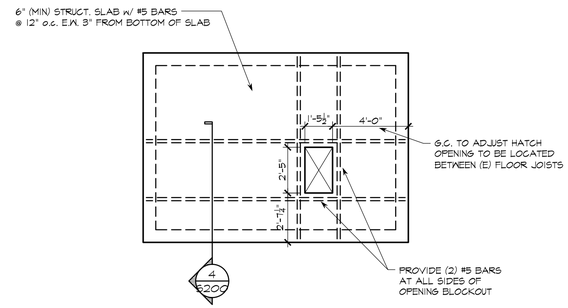

## FOUNDATION PLAN

scale: 1/4" = 1'-0"

NORTH

FOUNDATION NOTES:

- USGS ELEVATION 5330.88' = 100'-0, TOP OF 1ST LEVEL SHEATHING AT OFFICE- SECTION 1
- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- SEE SHEET S1.1 FOR HOLDOWNS, ANCHOR BOLTS, AND SILL PLATE LOCATIONS.
- ALL FTG'S MUST REST ON NATURAL UNDISTURBED SOIL OR COMPACTED FILL PER SOILS ENGINEER AT LEAST 36" BELOW FINISHED GRADE.
- FOOTINGS ARE 16" x 8" UNLESS NOTED OTHERWISE.
- FIELD VERIFY GRADE WITH TOP OF WALL AND WALL STEPS AND COORDINATE WITH ENGINEER.




## 1ST LEVEL SLAB PLAN

scale: 1/4" = 1'-0"

PLAN NOTES:

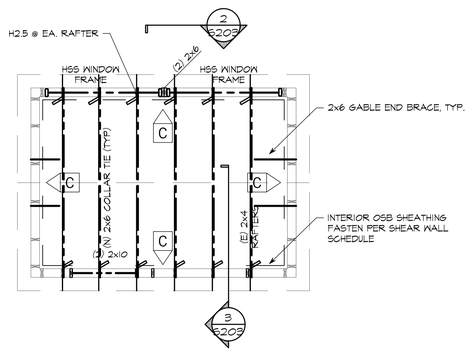
- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SQUASH BLOCKS OR ADDITIONAL RIM SECTION BELOW (2) 2x AND LARGER POSTS. TO TRANSFER LOADS FROM ABOVE THROUGH THE FLOOR SYSTEM TO FOUNDATION.

KEY

- POST BELOW (2) 2x4 OR (2) 2x6 MIN. POSTS TO MATCH WALL STUD SIZE U.N.O.
- POST FROM ABOVE
- INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16" O.C.

X

4
S0.1

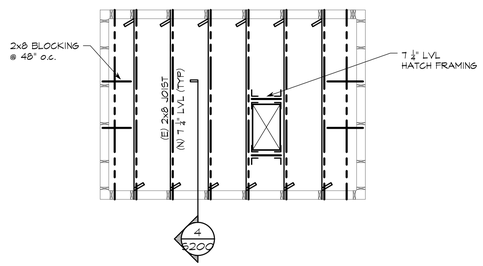



## ROOF FRAMING PLAN

scale: 1/4" = 1'-0"

ROOF NOTES:

- SEE SHEETS S0.1-S0.2 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SIMPSON H2.5 AT ALL TRUSSES AND RAFTERS.




## 1ST LEVEL FRAMING PLAN

scale: 1/4" = 1'-0"

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COLORADO REGISTERED PROFESSIONAL ENGINEER
MATTHEW KNIPE
37594
1/23/26

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WAREMBOURG TAP HOUSE PLANS

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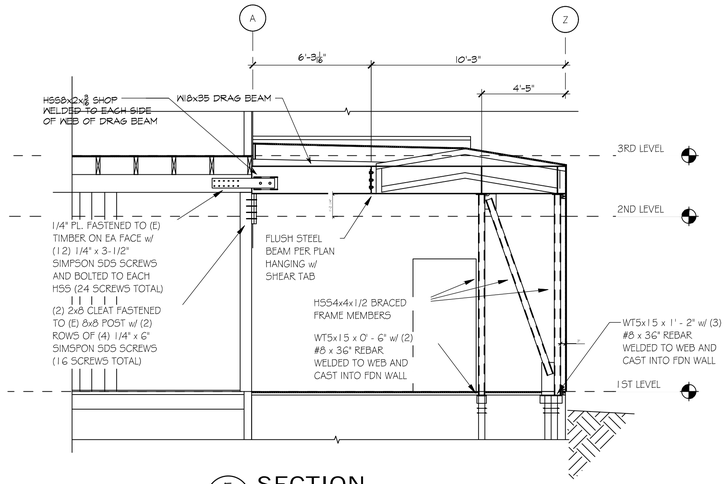
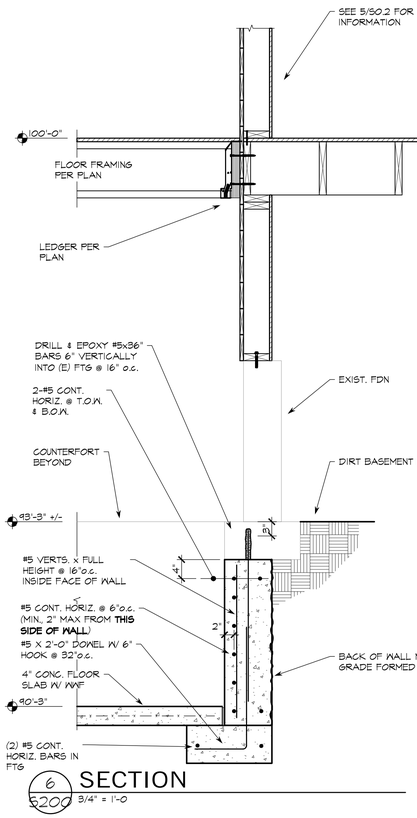
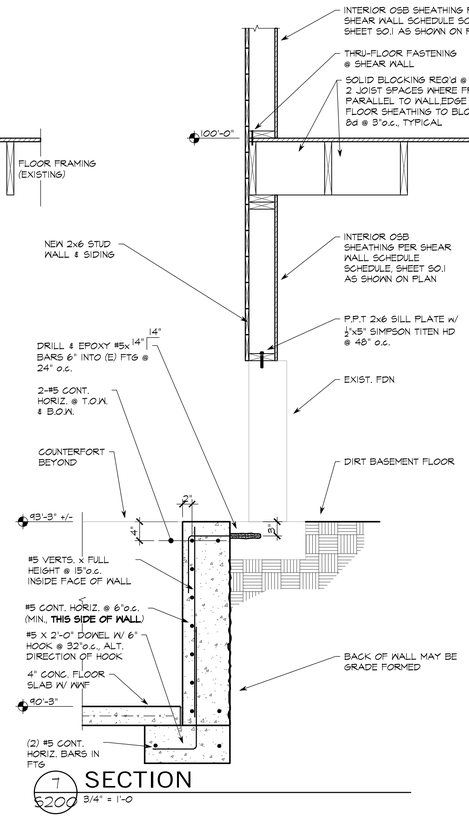
10 of 14 Sheets



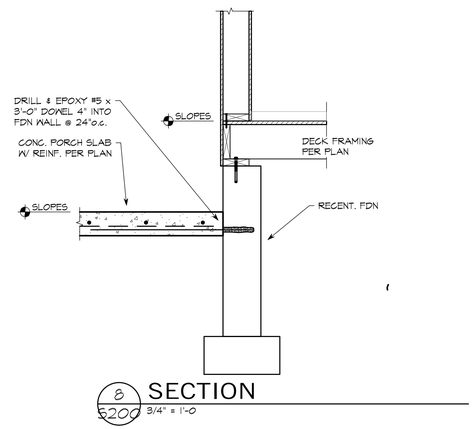

5 SECTION
S200 1/4" = 1'-0"




6 SECTION
S200 3/4" = 1'-0"

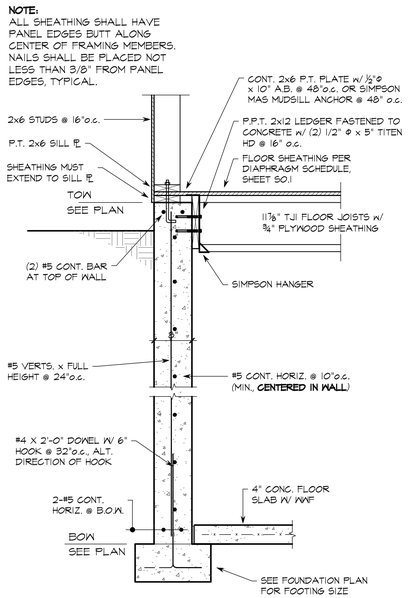



7 SECTION
S200 3/4" = 1'-0"

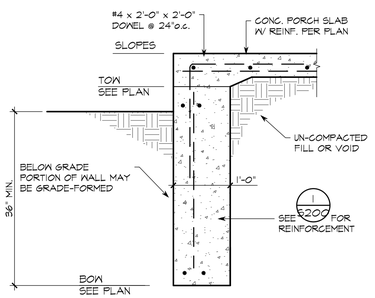



8 SECTION
S200 3/4" = 1'-0"

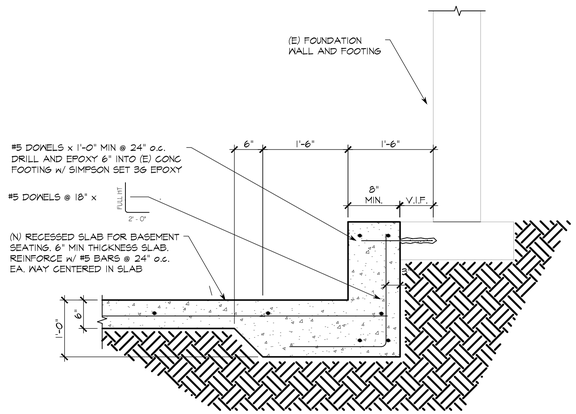
**NOTE:**
ALL SHEATHING SHALL HAVE PANEL EDGES BUTT ALONG CENTER OF FRAMING MEMBERS. NAILS SHALL BE PLACED NOT LESS THAN 3/8" FROM PANEL EDGES, TYPICAL.



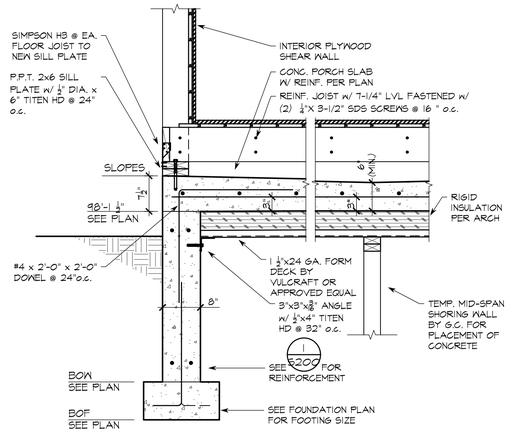

1 TYPICAL BASEMENT WALL
S200 3/4" = 1'-0"




2 TYP. PATIO FDN. WALL
S200 3/4" = 1'-0"




3 SECTION
S200 3/4" = 1'-0"




4 TAP HOUSE FDN. WALL
S200 3/4" = 1'-0"

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Renovation for THE GRAIN YARD
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Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO REGISTERED MATTHEW KNIGHT 37594 1/23/26 PROFESSIONAL ENGINEER

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SECTIONS

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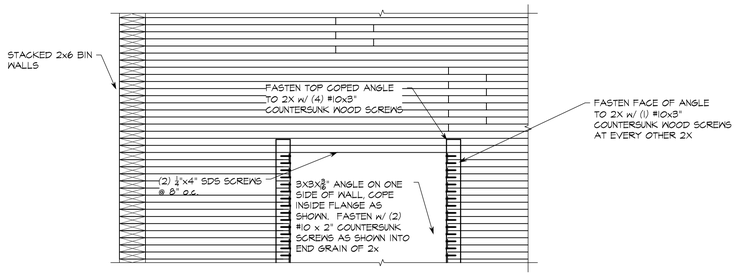
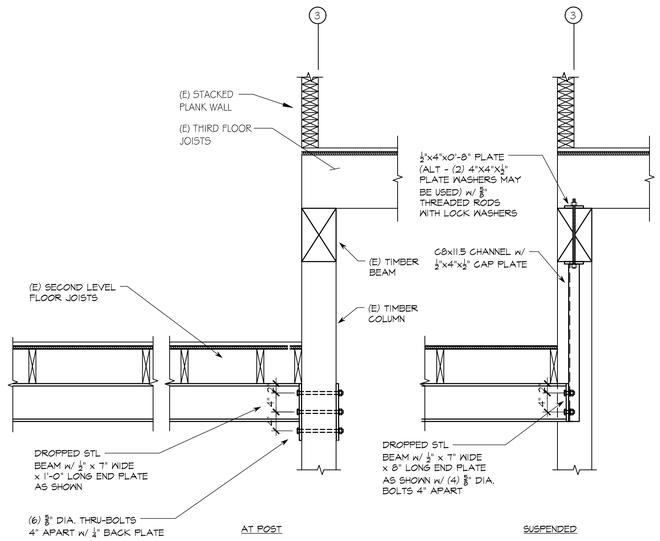
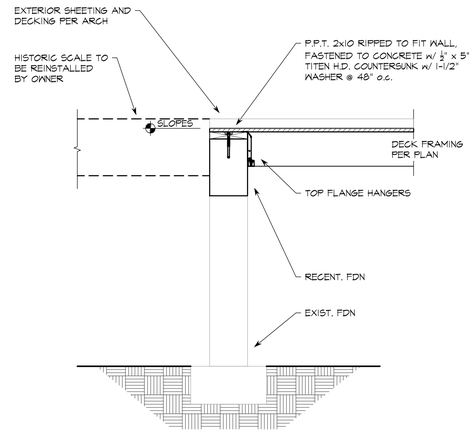


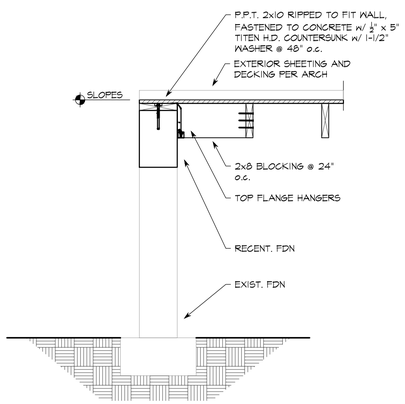

4 S201 BIN HEADER DETAIL
3/4" = 1'-0



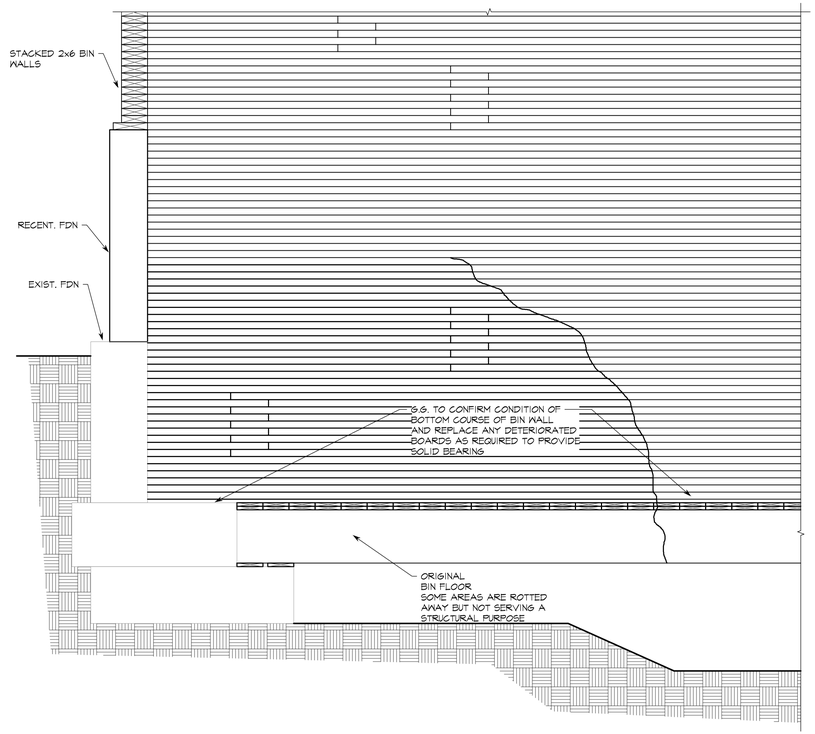

5 S201 SECTION
3/4" = 1'-0



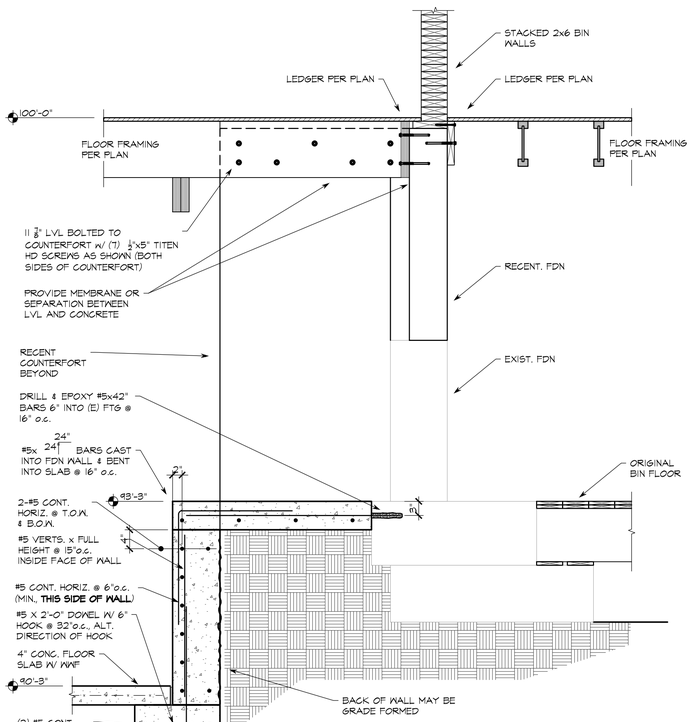

7 S201 SECTION
3/4" = 1'-0




1 S201 SECTION
3/4" = 1'-0




2 S201 SECTION
3/4" = 1'-0




3 S201 SECTION
3/4" = 1'-0

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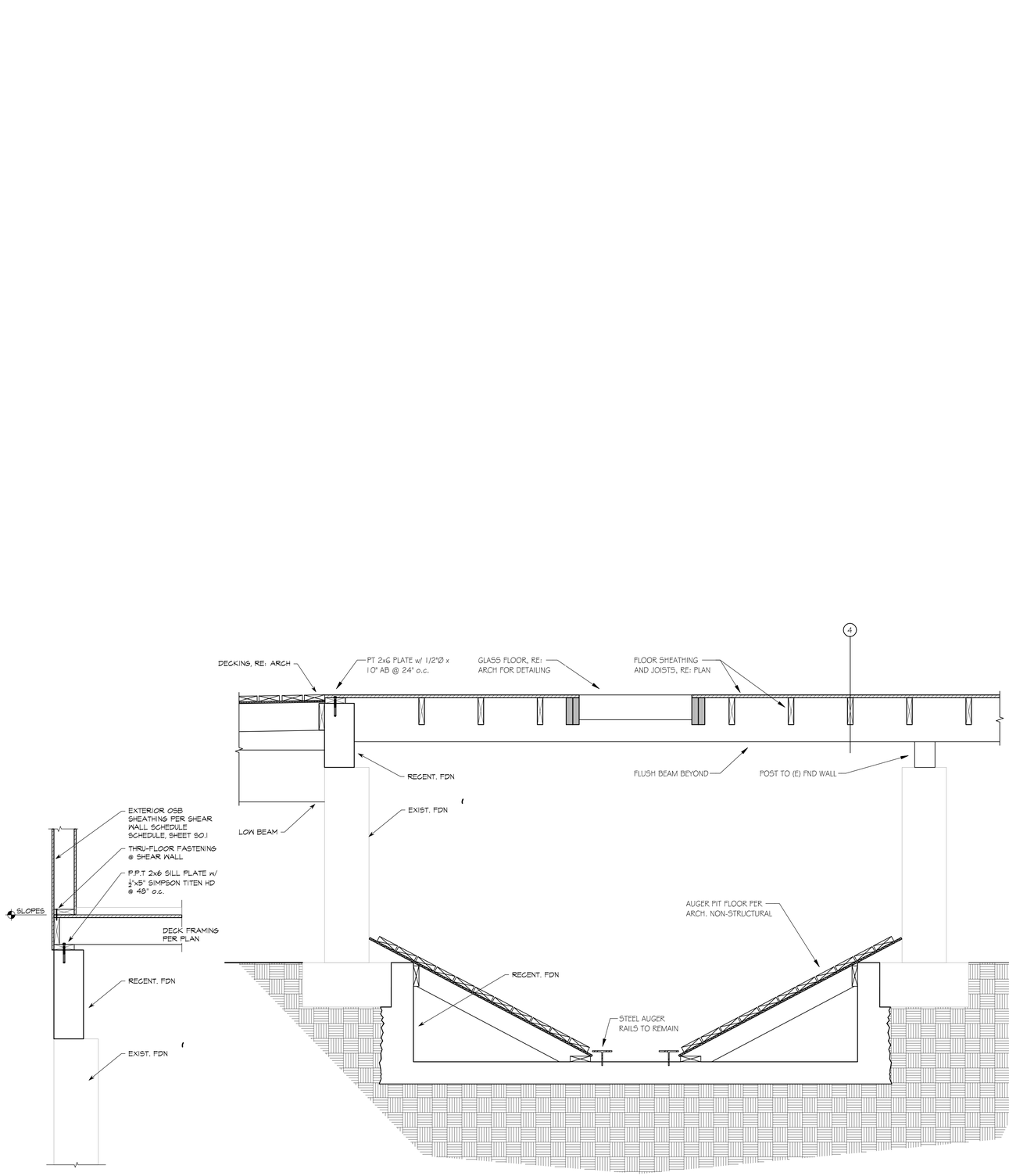


1 / S202 SECTION
3/4" = 1'-0

2 / S202 SECTION
3/4" = 1'-0

3 / S202 SECTION
3/4" = 1'-0

4 / S202 TYP. WALL OPENING
3/4" = 1'-0

CONSTRUCTION PHASE 5.0 – SECTION 1–5 REHABILITATION AND ADDITIONS + SITEWORK

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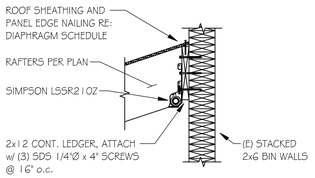
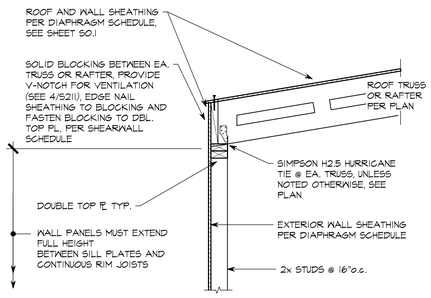
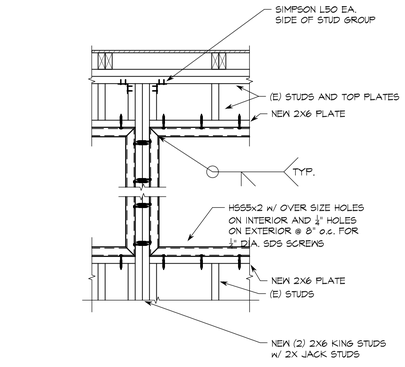


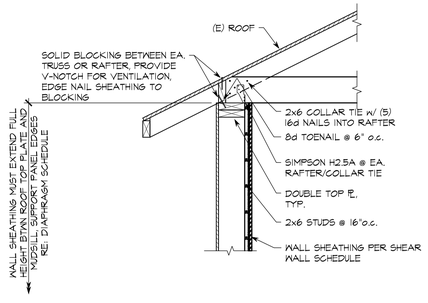

6 S203 SECTION
3/4" = 1'-0



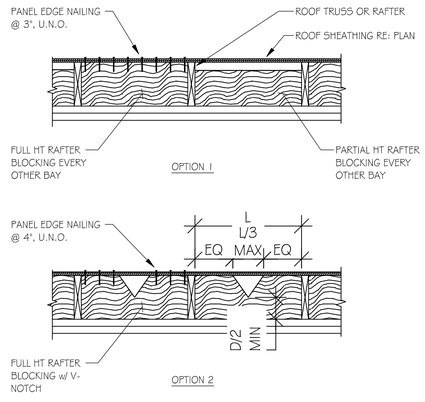

1 S203 TRUSS BEARING
3/4" = 1'-0




2 S203 TAP HOUSE FRAME
3/4" = 1'-0

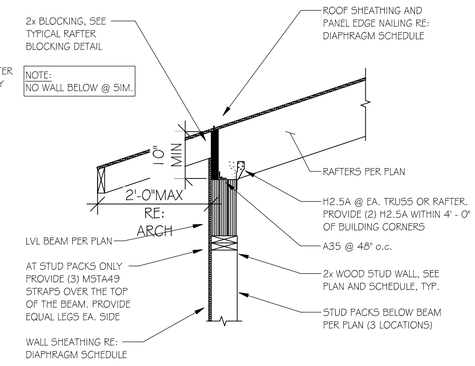



3 S203 TAP HOUSE RAFTER
3/4" = 1'-0




TYPICAL RAFTER BLOCKING AT HEEL

4 S203 SECTION
3/4" = 1'-0




5 S203 SECTION
3/4" = 1'-0

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PROFESSIONAL ENGINEER

PROJECT # 2025-0150
DATE: 12/5/2025
DRAWN BY: MKB
CHECKED BY: MKB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
PERMIT SUBMITTAL

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SECTIONS

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## POWER DEVICES

WALL MTD | CEILING MTD | FLOOR (BOX) MTD

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX (HALF-SWITCHED)
- DOUBLE DUPLEX RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE
- JUNCTION BOX
- COMBINATION FLOOR BOX *DEVICES AS INDICATED*

## EQUIPMENT

- 'C' — PANELBOARD *'C' INDICATES NAME*
- 'T-C' (T) — TRANSFORMER *'T-C' INDICATES NAME*
- 'X' — CONTROL PANEL *'X' INDICATES NAME OR TYPE*
- UTILITY METER OR METER STACK SECTION
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- COMBINATION DISCONNECT & STARTER
- EV — ELECTRIC VEHICLE CHARGING STATION
- PUSHBUTTON
- BANK OF (3) PUSHBUTTONS (UP/DOWN/STOP)
- EPO PUSHBUTTON, MANUAL RESET
- MOTOR
- M — MOTORIZED DAMPER
- T — CONTROL OR LIGHTING TRANSFORMER

## LIGHTING CONTROLS

- SWITCH, SINGLE-POLE UNLESS MARKED OTHERWISE
- 1 TYPE MARK (REFER TO BELOW)
- 2 SWITCH LEG OR CONTROL ZONE(S)

| TYPE MARK | DESCRIPTION |
|---|---|
| 2 | 2-POLE |
| 3 | 3-WAY |
| 4 | 4-WAY |
| D | DIMMER |
| H | HORSEPOWER RATED |
| K | KEYED |
| OV | MANUAL OVERRIDE |
| P | PILOT LIGHT INDICATION |
| T | TIMER |

- PC — PHOTOCELL
- RC — ROOM CONTROLLER
- TC — TIMECLOCK
- OST — OCCUPANCY SENSOR (WALL MTD) WITH (1) INTEGRAL SWITCH
- OSZ — OCCUPANCY SENSOR (WALL MTD) WITH (2) INTEGRAL SWITCHES
- OSD — OCCUPANCY SENSOR (WALL MTD) WITH (1) INTEGRAL DIMMING SWITCH
- OC1 — OCCUPANCY SENSOR (CEILING MTD)
- OC2 — OCCUPANCY SENSOR (CEILING MTD) WITH CORRIDOR SENSING PATTERN
- DP — DIMMER PACK
- PP RP — POWER PACK WITH RELAY PACK
- SS x — DIGITAL / LOW VOLTAGE LIGHTING CONTROL SWITCH STATION
- 'LCP' — LIGHTING CONTROL / RELAY PANEL

## LIGHTING

- RECESSED
- SURFACE MOUNTED
- WALL MOUNTED (SCONCE)
- SUSPENDED *PENDANT/LINEAR*
- WALL WASHER *RECESSED / SURFACE*
- SURFACE BOWL / DRUM / GLOBE
- VANITY
- TAPE OR STRING LIGHT
- TRACK WITH HEADS
- LIGHTING OUTLET
- CEILING FAN

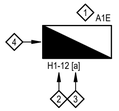
SITE

- POLE MOUNTED
- POST-TOP
- IN-GRADE (UP LIGHT)
- BOLLARD
- STEP LIGHT

EXIT & EMERGENCY

- EXIT SIGN *SHADING INDICATES ILLUMINATED FACE*
- EXIT SIGN WITH EGRESS HEADS
- EMERGENCY EGRESS
- INTEGRAL EMERGENCY BATTERY AND/OR EMERGENCY POWER

## LIGHTING FIXTURE NOTATION




1. FIXTURE TYPE *'E' SUFFIX INDICATES EMERGENCY TYPE OR OPERATION*
2. INDICATES PANEL & CIRCUIT NUMBER
3. LETTER OR NUMBER WITHIN BRACKETS INDICATES SWITCH LEG DESIGNATION OR CONTROL ZONE
4. DIAGONAL HATCH INDICATES BATTERY BACK-UP OR EMERGENCY POWER OPERATION

## CLASS 2 WIRING DEVICES

- SECURITY CAMERA
- CR — CARD READER / ACCESS CONTROL
- S — SPEAKER
- T — THERMOSTAT

## CIRCUITING & CONDUIT

- A-x — HOMERUN CIRCUIT; PANEL AND CIRCUIT NUMBER INDICATED
- CONCEALED CONDUIT
- UNDERGROUND/UNDERSLAB CONDUIT
- EXPOSED CONDUIT
- CONDUIT RUN TURNED DOWN
- CONDUIT RUN TURNED UP
- CONDUIT CONTINUATION MARK
- CONDUIT STUB-OUT

## DATA OUTLETS

WALL MTD | CEILING MTD | FLOOR (BOX) MTD

- DATA OUTLET
- TELEPHONE OUTLET
- TELEPHONE/DATA OUTLET
- TV — TELEVISION OUTLET
- D — DATA JUNCTION BOX
- AV — AUDIO/VISUAL OUTLET
- COMBINATION FLOOR BOX *DEVICES AS INDICATED*

## FIRE ALARM DEVICES

- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR (REMOTE)
- HORN
- STROBE
- COMBINATION HORN/STROBE
- F — PULL STATION
- SMOKE DAMPER
- COMBINATION FIRE/SMOKE DAMPER
- DH — MAGNETIC DOOR HOLDER
- SMOKE DETECTOR / ALARM
- CO — COMBINATION SMOKE/CO DETECTOR / ALARM
- HEAT DETECTOR

## SHEET DESIGNATIONS

- ABOVE OR BELOW
- CLEARANCE
- CONTROL OR INTERLOCK
- DEMOLISH
- EXISTING WORK
- FUTURE WORK
- MATCHLINE
- NEW WORK
- TEMPORARY
- POINT OF CONNECTION
- POINT OF DISCONNECTION
- NUMBER ON SHEET / SHEET NUMBER
- # — EQUIPMENT COORDINATION TAG
- # — KEY NOTE(S)
- # — DETAIL NOTE(S)
- TAG - # — PLUMBING/MECHANICAL EQUIPMENT TAG FOR REFERENCE

## ONE-LINE DIAGRAM

- POLE MOUNTED UTILITY TRANSFORMER (TO WEATHERHEAD)
- PAD MOUNTED UTILITY TRANSFORMER
- SECONDARY CONNECTION CABINET OR UTILITY PEDESTAL
- G — STANDBY/EMERGENCY GENERATOR
- MANUAL TRANSFER SWITCH
- AUTOMATIC TRANSFER SWITCH
- DRY-TYPE TRANSFORMER
- M — UTILITY METER
- M — UTILITY METER *INTEGRAL TO EQUIPMENT*
- CURRENT TRANFORMERS (CT'S)
- CT CABINET
- ####/### — FUSED SWITCH
- ####/### — CIRCUIT BREAKER
- CLASS * ####/### — PULL OR DRAW-OUT FUSED SWITCH
- PANEL 'A' — PANELBOARD
- NON-FUSED SWITCH
- FUSED SWITCH
- MOTOR
- BUSWAY
- GROUNDING ELECTRODES *ROD / UFER*
- BONDING OF BUILDING MATERIALS *WATER PIPE / BUILDING STEEL*
- G / N — NEUTRAL AND GROUND BUS BARS WITH MAIN BONDING JUMPER
- GROUNDING BUSBAR *WALL MOUNTED*
- kWH — KILOWATT-HOUR METER *SUBMETER*
- GFP — GROUND FAULT PROTECTION DEVICE
- LSIG — ELECTRONIC CIRCUIT BREAKER FUNCTIONS
- XXX — FEEDER SIZE TAG
- X F### — FAULT CALCULATION NODE

## ABBREVIATIONS

| | |
|---|---|
| x'-x" | MOUNTING HEIGHT (FEET-INCHES) |
| Δ | DELTA CONFIGURED |
| A / AMP | AMPERE |
| AC | ABOVE COUNTER |
| AF | AMPERE FRAME |
| AFC / Isc | AVAILABLE FAULT CURRENT [SHORT-CIRCUIT] |
| AFCI | ARC FAULT CIRCUIT INTERRUPTER |
| AFF | ABOVE FINISHED FLOOR |
| AG | ABOVE COUNTER GFCI DEVICE |
| AHJ | AUTHORITY HAVING JURISDICTION |
| AIC | AMPERES INTERRUPTING CAPACITY [FAULT CURRENT CAPACITY] |
| AL | ALUMINUM |
| AT | AMPERE TRIP |
| ATS | AUTOMATIC TRANSFER SWITCH |
| C | CONDUIT |
| CATV | COMMUNITY ANTENNA TELEVISION [OR CABLE] |
| CB | CIRCUIT BREAKER |
| CKT | CIRCUIT |
| CLG | CEILING |
| CT | CURRENT TRANSFORMER |
| CU | COPPER |
| DP | DISTRIBUTION PANEL |
| DW | DISHWASHER |
| (E) | EXISTING |
| E.C. | ELECTRICAL CONTRACTOR |
| EGC | EQUIPMENT GROUNDING CONDUCTOR |
| ELV | ELECTRONIC LOW VOLTAGE TRANSFORMER |
| EM | EMERGENCY |
| EOR | ENGINEER OF RECORD |
| EPO | EMERGENCY POWER OFF SWITCH |
| EUC | END USE CATEGORY |
| EV | ELECTRIC VEHICLE |
| EV-C | EV CAPABLE |
| EV-R | EV-READY |
| EVSE | ELECTRIC VEHICLE SERVICE EQUIPMENT |
| EWC | WATER COOLER |
| EXP | EXPLOSION PROOF |
| (F) | FUTURE |
| FC | FOOT-CANDLES |
| FLA | FULL LOAD AMPERES |
| G / GND | GROUND |
| G.C. | GENERAL CONTRACTOR |
| GD | GARBAGE DISPOSER |
| GEC | GROUNDING ELECTRODE CONDUCTOR |
| GFI | GROUND FAULT INTERRUPTER |
| GFP | GROUND FAULT PROTECTION |
| HP | HORSEPOWER |
| HPRS | HORSEPOWER RATED SWITCH |
| K | °KELVIN [COLOR TEMPERATURE] |
| kV | KILOVOLT |
| kVA | KILOVOLT-AMPERES |
| kW | KILOWATT |
| LCP | LIGHTING CONTROL PANEL |
| LSI | LONG/SHORT/INSTANTANEOUS TRIP |
| LSIG | LONG/SHORT/INSTANTANEOUS/GFP TRIP |
| M.C. | MECHANICAL CONTRACTOR |
| MCA | MINIMUM CIRCUIT AMPACITY |
| MCB | MAIN CIRCUIT BREAKER |
| MCC | MOTOR CONTROL CENTER |
| MDP | MAIN DISTRIBUTION PANELBOARD |
| MH | MANHOLE |
| MLO | MAIN LUGS ONLY |
| MLV | MAGNETIC LOW VOLTAGE TRANSFORMER |
| MOCP | MAXIMUM OVERCURRENT PROTECTION |
| MSB | MAIN SWITCHBOARD |
| MTD | MOUNTED |
| MTS | MANUAL TRANSFER SWITCH |
| MW | MICROWAVE |
| N | NEUTRAL |
| NC | NORMALLY CLOSED |
| NL | NITE LIGHTING |
| NO | NORMALLY OPEN |
| OCPD | OVERCURRENT PROTECTION DEVICE |
| P | POLE(S) |
| P.C. | PLUMBING CONTRACTOR |
| PH, ϕ | PHASE |
| PT | POTENTIAL TRANSFORMER |
| (R) | RELOCATE(D) |
| REF | REFRIGERATOR |
| RLA | RUNNING LOAD AMPERES |
| SPD | SURGE PROTECTIVE DEVICE |
| ST | SHUNT TRIP DEVICE |
| TS | THERMAL SWITCH |
| TTB | TELEPHONE TERMINAL BOARD |
| UG | UNDERGROUND |
| UNO | UNLESS NOTED OTHERWISE |
| V | VOLT(S) |
| VA | VOLT-AMPERE(S) |
| VFD | VARIABLE FREQUENCY DRIVE |
| W | WATT(S) |
| WG | WEATHERPROOF GFI |
| WP | WEATHERPROOF |
| Y | WYE CONFIGURED |

## CABLES & CONDUIT

| | |
|---|---|
| AC | ARMORED CABLE |
| MC | METAL-CLAD CABLE |
| MI | MINERAL-INSULATED, METAL-SHEATHED CABLE |
| NM(C) | NONMETALLIC-SHEATHED CABLE |
| SE / USE | SERVICE-ENTRANCE CABLE |
| UF | UNDERGROUND FEEER & BRANCH-CIRCUIT CABLE |
| EMT | ELECTRICAL METALLIC TUBING |
| ENT | ELECTRICAL NONMETALLIC TUBING |
| FMC | FLEXIBLE METAL CONDUIT |
| FMT | FLEXIBLE METALLIC TUBING |
| IMC | INTERMEDIATE METAL CONDUIT |
| LFMC | LIQUIDTIGHT FLEXIBLE METAL CONDUIT |
| LFNC | LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT |
| PVC | RIGID POLYVINYL CHLORIDE CONDUIT |
| RMC | RIGID METAL CONDUIT |

## CODES AND DESIGN CRITERIA

| | |
|---|---|
| JURISDICTION | LOUISVILLE, CO |
| ELECTRICAL CODE | 2023 NEC |
| ENERGY CODE | 2024 IECC |
| LOCAL CODES | 2025 LOUISVILLE MUNICIPAL CODE: CHAPTER 15 - BUILDINGS AND CONSTRUCTION |
| ELECTRIC UTILITY | XCEL ENERGY |

## ELECTRICAL SHEET LIST

| NUMBER | SHEET NAME |
|---|---|
| E0.01 | ELECTRICAL DESIGN CRITERIA, LEGENDS & SHEET LIST |
| E0.02 | ELECTRICAL SHEET SPECIFICATIONS |
| E0.03 | ELECTRICAL ONE-LINE DIAGRAM |
| E0.04 | ELECTRICAL SCHEDULES |
| E0.05 | ELECTRICAL SCHEDULES |
| E1.00 | ELECTRICAL SITE PLAN |
| E1.01 | BASEMENT FLOOR PLAN - POWER |
| E1.02 | FIRST FLOOR PLAN - POWER |
| E1.03 | SECOND/THIRD FLOOR PLAN - POWER |
| E1.04 | FOURTH/FIFTH FLOOR PLAN - POWER |
| E1.05 | SIXTH FLOOR PLAN - POWER |
| E1.07 | TAP HOUSE PLANS ELECTRICAL |
| E2.01 | BASEMENT FLOOR PLAN - LIGHTING |
| E2.02 | FIRST FLOOR PLAN - LIGHTING |
| E2.03 | SECOND/THIRD FLOOR PLAN - LIGHTING |
| E2.04 | FOURTH/FIFTH FLOOR PLAN - LIGHTING |
| E2.05 | SIXTH FLOOR PLAN - LIGHTING |
| E3.01 | ENLARGED ELECTRICAL PLANS |

SHEET TOTAL: 18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# LOUISVILLE HISTORIC GRAIN ELEVATOR
## Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED — BRETT A. BOLES — PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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ELECTRICAL DESIGN CRITERIA, LEGENDS & SHEET LIST

Sheet
E0.01
- of - Sheets


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Given Project # 25086

# LIGHTING CONTROLS NOTES:

1. ALL LIGHTING CONTROLS FOR THE PROJECT SHALL MEET THE REQUIREMENTS SECTION C405.2 OF THE 2024 IECC, AS WELL AS ANY APPLICABLE AMENDMENTS TO THE 2024 IECC MADE BY THE CITY OF LOUISVILLE, CO.

2. WHERE APPLICABLE, PROVIDE THE FOLLOWING FOR THE LIGHTING CONTROLS SYSTEM:
   - A. OCCUPANCY SENSORS IN THE COMMUNITY ROOM, BAR/LOUNGE SPACES, OFFICE, RESTROOMS & WATER CLOSETS, STORAGE ROOMS, CORRIDORS, AND OTHER SPACES THAT ARE 300 SQUARE FEET OR LESS THAT ARE ENCLOSED BY FLOOR-TO-CEILING HEIGHT WALLS.
   - B. TIME-SWITCH / CLOCK CONTROLS.
   - C. LIGHT REDUCTION / DIMMING CONTROLS.
   - D. DAYLIGHT CONTROLS.
   - E. SPECIFIC APPLICATION CONTROLS IN DISPLAY AREAS, TASK LIGHTING AT BAR WORK SPACES, STAGE LIGHTING.
   - F. MANUAL CONTROLS.
   - G. EXTERIOR LIGHTING CONTROLS UTILIZING PHOTO SENSORS.

3. THE FOLLOWING LIGHTING CONTROLS MATRIX SHALL BE THE BASIS OF THE OVERALL LIGHTING CONTROL SYSTEM(S) FOR THE PROJECT, VERIFY MODES AND TIME CLOCK SETTINGS WITH THE OWNER & TENANT PRIOR TO PROGRAMING:

Louisville Historic Grain Elevator
Lighting Zones

| ZONES | ROOM NAME | ROOM # | LIGHTING FUNCTIONS | DESCRIPTION | Timer | OS |
|---|---|---|---|---|---|---|
| A | Tower Level 1, Bar | 101, 102 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| B | Back Room | 103 | Night Light | Off hours, low level visuals | T vs OS | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| C | Bin 1, 2 | 104.1, 104.2, | Night Light | Off hours, low level visuals | T vs OS | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| | | | Gathering Level | Between daytime mode & evening mode, possible gathering spaces that need lighting but not as bright as Cleaning Mode | T | |
| C1 | Bin 3 Stair | 104.3 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| D | Bin 5, 6, Walk thru | 104.5, 104.6 | Night Light | Off hours, low level visuals in walkway | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| | | | Gathering Level | Between daytime mode & evening mode, possible gathering spaces that need work level lighting but not as bright as Bright Mode | T | |
| D2 | Bin 4 | 104, 4 | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Retail Mode | Retail Level - merchandise area | T | |
| E | Community Room | 105 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Community Level | Control panel for this space to be in the room, lockable. Customizable to accommodate presentations for study sessions, conference room level etc.. | | |

| ZONES | ROOM NAME | ROOM # | LIGHTING FUNCTIONS | DESCRIPTION | Timer | OS |
|---|---|---|---|---|---|---|
| F | Boxcar Seating | 108 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| F1 | Rest Room | 107 | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Restroom Level | Restroom level lighting, daytime same as evening | | OS |
| F2 | Ramp/Stair | 100 | Night Light | Off hours, low level visuals | T | |
| | | | Daytime Mode | Stair level | T | |
| G | Hallway, Office, Restroom | 005, 006, 007 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| H | Basement Seating | 1 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| I | 2nd Level Seating | 201 | Night Light | Off hours, low level visuals | T | |
| | | | Cleaning Mode | Bright lights for prepping/cleaning/back of house | T | |
| | | | Daytime Mode | Day lighting level | T | |
| | | | Dining/Evening/Bar Mode | Lower light level | T | |
| J | Tower Level 0, Boot Pit, Auger Chute, Wagon Scale Pit, Chute, Tower Level 3, Chute 1, 2, 3, 4, Bin Catwalk Level 5, Bin 1,2,3,4,5 | 002, 202, 203.1, 203.2, 203.3, 203.4 | Low Visual Mode | Non customer space, low lighting for visual effect | T | |
| J2 | Bin 1, 2, 3, 4, 5, 6, Crawl Space | 004.1, 004.2, 004.3, 004.4, 004.5, 004.5 | Manual Switch | Unoccupied Space | T | |
| K | Machine Room | 3 | Daytime Mode | Day lighting level | T | |
| L | 3rd Floor Level Bin 5, 6 | 204.5, 204.6 | Chandelier Mode | Pendent/Chandelier lighting used limited times of the year. One mode. | T | |
| M | Utility | | Manual Switch | | T | |

Note: All on will turn on Bright Mode, All Off will turn off all lights except Night Light

# ELECTRICAL SPECIFICATIONS

THIS SHEET SPECIFICATION SHALL GOVERN IN LIEU OF SEPARATE BOUND SPECIFICATIONS. IF BOUND SPECIFICATIONS ARE ALSO ISSUED WITH THE JOB, THEN THE MORE STRINGENT REQUIREMENT BETWEEN THE TWO SHALL PREVAIL. CONTACT ARCHITECT/ENGINEER AT THE TIME OF BID IF CLARIFICATION IS REQUIRED.

1. BASIC REQUIREMENTS

   A. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT LOCAL CODES, ORDINANCES, AND REGULATIONS, NATIONAL ELECTRIC CODE, LOCAL HEALTH DEPARTMENT REGULATIONS, AND APPLICABLE NFPA CODES. PAY FOR ALL FEES AND PERMITS AS ARE NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS INCLUDING UTILITY CHARGES. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS.

   B. PROJECT SHALL INCLUDE ALL ITEMS NECESSARY FOR COMPLETE AND FULLY OPERATIONAL TENANT AND BUILDING ELECTRICAL SYSTEMS. MAKE CONNECTIONS TO AND EXTEND SYSTEMS INSTALLED BY OTHERS AND/OR FURNISHED BY OTHERS. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR COMPLETE AND FULLY OPERATIONAL SYSTEMS WHETHER OR NOT SPECIFICALLY SPECIFIED AND/OR SHOWN ON THE PLANS.

   C. DO NOT SCALE FROM THESE DRAWINGS. REFER TO ARCHITECTURAL OR CIVIL DRAWINGS BY OTHERS FOR DIMENSIONS AND FOR ESTIMATING DISTANCES. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS RELATING TO THE JOB WETHER OR NOT INDICATED ON THESE DRAWINGS.

   D. ANY SCALE, DIMENSION OR QUANTITIES SHOWN ON THE DRAWINGS ARE FOR ENGINEERING CALCULATION PURPOSES ONLY. THE ELECTRICAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTIMATING AND DETERMINING ALL DISTANCES AND QUANTITIES RELATED TO THE PROJECT. REFER TO ARCHITECTURAL OR CIVIL DRAWINGS BY OTHERS AND VERIFY EXISTING CONDITIONS ON SITE FOR ALL ESTIMATING PURPOSES.

   E. COORDINATE WITH OTHER TRADES FOR A COORDINATED INSTALLATION WITHIN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXIST, PREPARE COORDINATION DRAWINGS SHOWING ALL TRADE CONFLICTS AND SUBMIT TO ARCHITECT FOR APPROVAL AND DIRECTION PRIOR TO ROUGH-IN AND/OR INSTALLATION. RELOCATION OF OUTLETS AND/OR DEVICES MADE PRIOR TO ROUGH-IN SHALL BE DONE AT NO ADDITIONAL COST.

   F. ALL WORK SHALL BE PERFORMED BY PROPERLY LICENSED ELECTRICIANS OR UNDER THEIR DIRECT SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF UL AND SHALL BEAR THE UL LABEL AS EVIDENCE THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT.

   G. SUBMIT MANUFACTURERS LITERATURE (SHOP DRAWINGS) FOR RACEWAYS AND FITTINGS, BOXES, WIRE, CABLES, WIRING DEVICES, NAME PLATES, LEGEND PLATES, LABELS, PANELBOARDS, FUSES, CIRCUIT BREAKERS, SWITCH GEAR, AND SAFETY SWITCHES. SUBMITTAL SHALL BEAR THE APPROVAL OF THE GENERAL CONTRACTOR FOR COMPLIANCE WITH COORDINATION AND THESE SPECIFICATIONS PRIOR TO SUBMITTAL TO ARCHITECT AND/OR HIS AGENCIES.

   H. ALL SWITCH BOARDS, DISTRIBUTION BOARDS, PANELBOARDS, DISCONNECT SWITCHES, TRANSFORMERS AND SIMILAR ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH ENGRAVED PLASTIC-LAMINATE LABELS INDICATING THE EQUIPMENT NAME SPECIFIED ON THE PLANS OR THE LOAD SERVED BY THE EQUIPMENT. ALL PANELBOARDS SHALL BE PROVIDED WITH REMOVEABLE, TYPED PANEL SCHEUDLES WITH CLEAR PLASTIC COVERS AFFIXED TO THE FACE OR INSIDE OF THE PANEL DOOR. PANEL SCHEDULES SHALL CLEARLY INDICATE THE SPECIFIC LOAD SERVED BY EACH INDIVIDUAL CIRCUIT BREAKER OR DISCONNECT SWITCH AND SHALL REFLECT THE FINAL, AS-BUILT CONDITIONS AT COMPLETION OF WORK. THE IDENTIFICATION SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS. SPARE POSITIONS SHALL BE LABELED ACCORDINGLY.

   I. CONTRACTOR SHALL THOROUGHLY REVIEW THE PLANS AND SPECIFICATIONS OF ALL DIVISIONS AND TRADES, ESPECIALLY THE ARCHITECTURAL DRAWINGS. ELECTRICAL REQUIREMENTS OF OTHER TRADES AND DIVISIONS INCLUDING PRODUCTS SPECIFIED, MOUNTING INSTRUCTIONS, AND MATERIAL SELECTIONS SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. IF A CONFLICT EXISTS, CONTRACTOR SHALL OBTAIN A CLARIFICATION AND DIRECTIONS FROM THE ARCHITECT PRIOR TO ROUGH IN OR PROCEEDING WITH THE WORK.

   J. FURNISHED EQUIPMENT.

      a. MAKE FINAL CONNECTIONS TO FURNISHED EQUIPMENT AS REQUIRED.

      b. RECEIVE AND COMPLETELY INSTALL FURNISHED EQUIPMENT, MATERIALS, AND APPARATUS FURNISHED BY OTHERS FOR INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM.

      c. REVIEW CONSTRUCTION DOCUMENTS AND INSTALLATION INSTRUCTIONS FOR MATERIALS AND EQUIPMENT FURNISHED FOR INSTALLATION BY THIS CONTRACTOR. INSTALL ALL EQUIPMENT AND APPARATUS IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AND SUGGESTED PRACTICES, PROVIDE SUPPLEMENTAL AND INCIDENTAL MATERIALS INCLUDING CORDS, PLUGS, AND RECEPTACLES AS MAY BE REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM.

      d. CONFIRM ALL CONNECTION REQUIREMENTS AND ROUGH-IN CONDITIONS PRIOR TO INSTALLATION. CERTAIN DATA IS GIVEN BUT NOT GUARANTEED. PROVIDE ROUGH-IN AND FINAL TERMINATION INCLUDING APPROPRIATE PLUGS AND DISCONNECTS AS MAY BE REQUIRED. PREPARE A DETAILED ROUGH-IN DRAWING FOR APPROVAL PRIOR TO ROUGH-IN.

   K. CONFIRM ACTUAL VOLTAGES, PHASE AND CHARACTERISTICS OF EXISTING EQUIPMENT AND APPARATUS AND EQUIPMENT AND APPARATUS FURNISHED BY TENANT, OTHER TRADES, AND/OR DIVISIONS. CONFIRM PRIOR TO ROUGH-IN. IF DISCREPANCIES ARE NOTED TO THE INSTRUCTIONS OF THESE PLANS AND SPECIFICATIONS, SUBMIT THE NOTED DISCREPANCIES TO THE ARCHITECT FOR DIRECTION PRIOR TO ROUGH-N OR PROCEEDING WITH THE WORK.

   L. ALL WORK IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED AS EXPOSED ON THE PLANS. PRIOR TO INSTALLATION OF ANY EXPOSED WORK THIS CONTRACTOR SHALL VERIFY AND OBTAIN ARCHITECTURAL APPROVAL OF LOCATION AND EXTENT.

   M. UNLESS OTHERWISE SPECIFIED ALL OUTLETS ARE 18" AFF. IF OUTLET IS SPECIFIED UNDER OR ABOVE COUNTER, CONFIRM HEIGHT WITH ARCHITECT.

   N. COORDINATE WITH MECHANICAL AND PLUMBING ENGINEERED DRAWINGS AND PROVIDE ELECTRICAL CONNECTIONS FOR ALL EQUIPMENT AS SCHEDULED, INCLUDING BUT NOT LIMITED TO ALL HVAC EQUIPMENT, PUMPS, WATER HEATERS, FIRE SMOKE DAMPERS, ETC.

2. ELECTRICAL SERVICE

   A. NEW 208Y/120 VOLT, 3 PHASE, 4 WIRE ELECTRICAL SERVICE IS REQUIRED.

   B. E.C. TO CONTACT THE LOCAL UTILITY TO VERIFY TRANSFORMER SIZE, LOCATION, CONNECTION LOCATION AND TYPE, AND TO COORDINATE INSTALLATION OF ALL UTILITY METERING AND SERVICE ENTRANCE EQUIPMENT PRIOR TO INSTALLATION OF EQUIPMENT.

   C. E.C. TO VERIFY SCOPE OF WORK REQUIREMENTS, INCLUDING BUT NOT LIMITED TO: CONDUIT, WIRE, CONNECTION CABINETS, PULLING OF WIRE AND HOUSE KEEPING PADS. E.C. TO PROVIDE SERVICE CO-ORDINATION AND APPLICATION.

3. DEMOLITION AND CONTINUITY OF SERVICE

   A. UNLESS NOTED OTHERWISE, ALL UNUSED ELECTRICAL RACEWAYS, DEVICES, DEVICE APPLICATIONS, WIRE AND CABLE LOCATED IN THE AREA TO BE RENOVATED SHALL BE REMOVED. **REFER TO DRAWING NOTES FOR ADDITIONAL INFORMATION AND DIRECTION.** INFORMATION ON EXISTING ELECTRICAL EQUIPMENT, PANELS WIRING, AND DEVICES INDICATED AS BEING REUSED IN THIS PROJECT IS AS ACCURATE AS COULD BE OBTAINED FROM A CURSORY SURVEY. THE ACCURACY OF THIS INFORMATION IS NOT GUARANTEED AND IS FOR THE INFORMATIONAL GUIDANCE OF THE PREDICATIONS AND LOCAL CODES. THIS CONTRACTOR SHALL MAKE NECESSARY CORRECTIONS TO EXISTING SYSTEMS AS ARE REQUIRED FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM. SHOULD INSUFFICIENT CAPACITY, CAPABILITY, OR INCOMPATIBLE ELECTRICAL TERMINATIONS BE PRESENT THIS CONTRACTOR SHALL SUBMIT THE NOTED DISCREPANCIES TO THE ARCHITECT FOR DIRECTION PRIOR TO ROUGH-IN OR PROCEEDING WITH THE WORK.

   B. ELECTRICAL SERVICE TO THE BUILDING MAY BE INTERRUPTED ONLY AT A TIME COORDINATED WITH AND APPROVED BY THE BUILDING MANAGER. IN GENERAL THIS WILL BE ALLOWED DURING OFF HOURS AND ON WEEKENDS FOR LIMITED PERIODS OF TIME.

4. BASIC MATERIALS

   A. RACEWAYS AND FITTINGS: RACEWAYS EMBEDDED IN CONCRETE OR MASONRY WALLS SHALL BE IN EMT OR PVC; IN HOLLOW NON MASONRY WALLS AND ABOVE CEILINGS SHALL BE EMT OR MC CABLE; RACEWAY EXPOSED TO SEVERE PHYSICAL DAMAGE SHALL BE RGS; AND RACEWAYS BETWEEN VIBRATING EQUIPMENT SHALL BE FMT. MC CABLE IS NOT ALLOWED FOR BRANCH CIRCUIT HOMERUN CONDUITS FROM LAST DEVICE OR JUNCTION BOX TO PANELBOARD. CONDUITS IN OR BELOW SLAB ON GRADE OR IN CONTACT WITH BARE EARTH SHALL BE PVC OR RGS.

   B. CONDUCTORS: ALL CONDUCTORS SHALL BE COPPER RATED FOR 600 VOLTS AND HAVE MINIMUM 75 DEGREES C INSULATION. MINIMUM SIZE SHALL BE #12 AWG. ALL BUILDING WIRING SHALL BE THHN/THWN. EXTERIOR WIRING SHALL BE XHHW. ALUMINUM CONDUCTORS ARE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS RATED 100 AMPERES AND GREATER. INCREASE CONDUCTOR SIZE TO MAINTAIN A MAXIMUM 3% VOLTAGE DROP ON ANY FEEDER OR BRANCH CIRCUIT, OR A MAXIMUM OF 5% TOTAL VOLTAGE DROP. ALL WIRES ON THE SAME LEG OR PHASE SHALL HAVE THE SAME COLOR CODE.

   C. EXISTING ALUMINUM CONDUCTORS: WHERE CONNECTIONS ARE MADE TO EXISTING ALUMINUM CONDUCTORS BEING REUSED IN THIS PROJECT, CONNECTIONS SHALL BE MADE WITH LOCALLY APPROVED UL LISTED COPPER TO ALUMINUM CONNECTIONS.

   D. TYPE NM OR NMC CABLES ARE PERMITTED IN CONSTRUCTION TYPES III, IV, & V AS ALLOWED BY NEC 334 AND APPROVED BY OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION CHANGES DUE TO THESE CABLES USE IN LIEU OF CONDUIT.

   E. PROVIDE SEPARATE (DEDICATED) NEUTRAL CONDUCTOR FOR EACH DEDICATED EQUIPMENT CIRCUIT; SHARED NEUTRAL CONDUCTORS ARE NOT PERMITTED FOR DEDICATED CIRCUITS. WHERE PERMITTED, SHARED NEUTRAL CONDUCTORS SHALL BE COPPER NO. 10 AWG MINIMUM.

   F. PROVIDE METALLIC OUTLET, PULL AND JUNCTION BOXES AS REQUIRED. ALL POWER, CONTROL, OR INSTRUMENTATION, WIRING GREATER THAN 24 VOLTS SHALL BE IN CONDUIT. CLASS 2 LOW VOLTAGE WIRING SHALL BE PLENUM RATED WHERE INSTALLED WITHIN ENVIRONMENTAL AIR PLENUMS.

   G. PROVIDE RECEPTACLES, GFI RECEPTACLES, SPECIAL PURPOSE RECEPTACLES AND SWITCHES OF ONE MANUFACTURER. PROVIDE COMMERCIAL GRADE DIMMERS FOR CIRCUITS INDICATED. STAB-IN CONNECTION WILL NOT BE APPROVED. SEE ARCHITECTURAL DRAWINGS FOR SPECIAL MOUNTING LOCATIONS, ORIENTATION, AND COLORS. CONFIRM RECEPTACLE, SPECIAL RECEPTACLE AND SWITCH MOUNTING HEIGHT AND ORIENTATION WITH ARCHITECT PRIOR TO ROUGH-IN. WHERE NEW OUTLETS AND DEVICES ARE INSTALLED, MAINTAIN ADA MOUNTING HEIGHTS AND REQUIREMENTS UNLESS SPECIFICALLY DIRECTED OTHERWISE.

   H. PANELBOARDS AND SAFETY SWITCHES SHALL BE OF ONE MANUFACTURER AND SHALL BE COMPLETE WITH PROTECTIVE DEVICES, ENCLOSURES, BUSSES, GROUNDS, ISOLATED GROUND BUS, AND NEUTRAL BARS AS REQUIRED.

   I. SWITCHBOARDS ARE TO BE PROVIDED WITH FULLY RATED HORIZONTAL BUS THROUGHOUT ENTIRE LENGTH OF GEAR. PROVIDE MEANS FOR INSTALLATION OF FUTURE SECTIONS (FUTURE BUS EXTENSIONS). PROVIDE SPACE FOR INSTALLATION OF FUTURE OVERCURRENT DEVICES, EQUAL TO 20% OF AMPERE RATING OF GEAR.

   J. PROVIDE ARC FLASH HAZARD WARNING LABELS ON ALL ELECTRICAL EQUIPMENT PER NEC 110.16.

5. GROUNDING

   A. PROVIDE COPPER GROUNDING CONDUCTORS AND COPPER CLAD STEEL MADE ELECTRODES IN ACCORDANCE WITH THE NEC. BARE COPPER OR GREEN INSULATED WIRE IS ACCEPTABLE.

   B. ALL EQUIPMENT SHALL BE CONTINUOUSLY GROUNDED. AN EQUIPMENT GROUNDING CONDUCTOR IS TO BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.

   C. MAIN BONDING JUMPER SHALL BE SUPPLIED BY EQUIPMENT MANUFACTURER AND CONNECTED PER NEC 250.28.

   D. PIPING SYSTEMS AND EXPOSED STRUCTURAL METAL: BONDING JUMPER SHALL BE SUPPLIED, SIZED, AND CONNECTED PER NEC 250.104(B).

   E. SUPPLY SIDE BONDING JUMPER SHALL BE SUPPLIED BY EQUIPMENT MANUFACTURER AND CONNECTED PER NEC 250.102(C).

6. LIGHTING

   A. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. FOR RECESSED FIXTURES, PROVIDE PLASTER FRAMES AND FLANGES SUITABLE FOR CEILING. CLEAN AND SERVICE FIXTURES. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR FIXTURES FURNISHED BY OTHERS FOR INSTALLATION.

   B. FINAL LOCATION OF ALL FIXTURES SHALL BE AS INDICATED ON ARCHITECTURAL REFLECTED CEILING PLANS AND/OR ELEVATIONS AND DETAILS.

   C. INSTALL ACCESSORIES AND MODIFY FIXTURES AS REQUIRED FOR COMPLIANCE WITH REQUIREMENTS OF LOCAL DEPARTMENT OF HEALTH. OBTAIN ARCHITECTURAL APPROVAL FOR ANY SUBSTITUTION OR MODIFICATION TO FIXTURES GIVEN.

   D. PROVIDE TENTING OR OTHER SUITABLE MEANS TO KEEP NON-IC RATED FIXTURES A MINIMUM OF 3" (OR MANUFACTURER REQUIRED DISTANCE) FROM INSULATION.

   E. ALL EXIT SIGNS AND EMERGENCY LIGHTING BATTERY UNITS SHALL BE WIRED AHEAD OF ANY CONTROL DEVICES; FED FROM AN UNSWITCHED CIRCUIT.

7. TELEPHONE/DATA PROVISIONS

   A. INSTALL OUTLET BOX WITH CONDUIT TO ABOVE THE CEILING. INSTALL CABINET AND/OR FIXTURE OUTLETS IN COORDINATION WITH ARCHITECTURAL AND MILLWORK DETAILS WITH CONDUITS OR RACEWAYS TO ABOVE NEW FINISHED CEILING.

   B. PROVIDE PULL BOXES WITH PULL WIRE (ROPE) IN ALL OUTLETS.

   C. PROVIDE COVER PLATES FOR ALL OUTLETS. COLOR SELECTED BY ARCHITECT. CONFIRM ALL MOUNTING HEIGHTS AND ORIENTATIONS WITH ARCHITECT PRIOR TO ROUGH-IN.

8. FIRE ALARM SYSTEM

   A. THESE DRAWINGS ARE NOT INTENDED TO SPECIFY FIRE ALARM SYSTEM REQUIREMENTS. FIRE ALARM SYSTEM REQUIREMENTS SHALL BE DETERMINED BY OTHERS.

   B. FIRE ALARM SYSTEM SHALL BE DESIGNED, SIGNED AND SEALED BY A FIRE ALARM PROFESSIONAL AND BE APPROVED BY THE LOCAL FIRE DISTRICT.

   C. FURNISH AND INSTALL ALL DUCT SMOKE DETECTORS AS MAY BE REQUIRED.

   D. FURNISH AND INSTALL ALL FIRE ALARM HORNS AND LIGHTS AND STROBES AS MAY BE REQUIRED.

-END-


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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
GRETTA A. BOLLENBACHER
PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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ELECTRICAL SHEET SPECIFICATIONS

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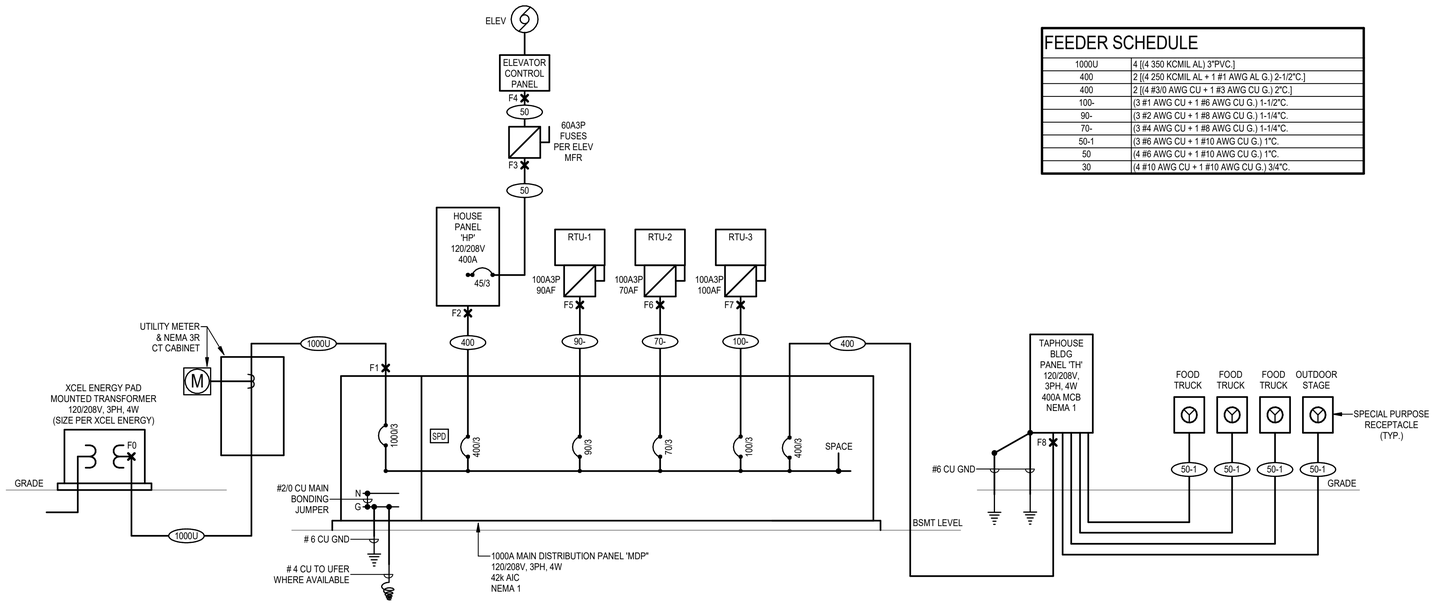


1 ELECTRICAL ONE-LINE DIAGRAM
N.T.S.

| FEEDER SCHEDULE | |
|---|---|
| 1000U | 4 [(4 350 KCMIL AL) 3"PVC.] |
| 400 | 2 [(4 250 KCMIL AL + 1 #1 AWG AL G.) 2-1/2"C.] |
| 400 | 2 [(4 #3/0 AWG CU + 1 #3 AWG CU G.) 2"C.] |
| 100- | (3 #1 AWG CU + 1 #6 AWG CU G.) 1-1/2"C. |
| 90- | (3 #2 AWG CU + 1 #8 AWG CU G.) 1-1/4"C. |
| 70- | (3 #4 AWG CU + 1 #8 AWG CU G.) 1-1/4"C. |
| 50-1 | (3 #6 AWG CU + 1 #10 AWG CU G.) 1"C. |
| 50 | (4 #6 AWG CU + 1 #10 AWG CU G.) 1"C. |
| 30 | (4 #10 AWG CU + 1 #10 AWG CU G.) 3/4"C. |

## DRAWING NOTES:

1. ALL ELECTRICAL EQUIPMENT AND DEVICES LOCATED OUTDOORS, ON ROOFS, OR ON BUILDING EXTERIORS SHALL BE RATED NEMA 3R, OR LOCATED WITHIN NEMA 3R RATED ENCLOSURES. PROVIDE WHILE-IN-USE COVERS FOR ALL OUTDOOR RECEPTACLES.
2. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH XCEL ENERGY FOR THE INSTALLATION OF THE ELECTRICAL SERVICE AND UTILITY TRANSFORMER. ALL ELECTRICAL SERVICE CONDUITS, CONDUCTORS AND EQUIPMENT SHALL BE INSTALLED PER XCEL ENERGY CURRENT INSTALLATION STANDARDS.

| THE GRAIN YARD | | FAULT SOURCE | SOURCE | E | FEEDER PROPERTIES | | | | | | | | CALCULATED* | FAULT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NODE | FAULT LOCATION | SOURCE NODE | Isc | (VOLTS) | NO. SETS | WIRE SIZE | MATERIAL | C VALUE | LENGTH (FT) | f | M | | Isc | POINT |
| F0 | SERVICE | UTILITY | INF | - | - | - | - | - | - | - | - | | 42,300 A | F0 |
| F1 | MAIN SWITCH / MDP | F0 | 42,300 A | 208 | 4 | #350 | ALUMINUM | 15484 | 39 | 0.222 | 0.000 | | 34,621 A | F1 |
| F2 | PANEL HP | F1 | 34,621 A | 208 | 4 | #350 | ALUMINUM | 15484 | 25 | 0.116 | 0.000 | | 31,012 A | F2 |
| F3 | ELEVATOR FUSED DISCONNECT | F2 | 31,012 A | 208 | 1 | #6 | COPPER | 2425 | 16 | 1.704 | 0.000 | | 11,470 A | F3 |
| F4 | ELEVATOR CONTROLLER | F3 | 11,470 A | 208 | 1 | #6 | COPPER | 2425 | 5 | 0.197 | 0.000 | | 9,583 A | F4 |
| F5 | RTU-1 | F1 | 34,621 A | 208 | 1 | #2 | COPPER | 5907 | 24 | 1.171 | 0.000 | | 15,945 A | F5 |
| F6 | RTU-2 | F1 | 34,621 A | 208 | 1 | #4 | COPPER | 3806 | 63 | 4.772 | 0.000 | | 5,998 A | F6 |
| F7 | RTU-3 | F1 | 34,621 A | 208 | 1 | #1 | COPPER | 7293 | 28 | 1.107 | 0.000 | | 16,433 A | F7 |
| F8 | PANEL TP | F1 | 34,621 A | 208 | 2 | #250 | ALUMINUM | 12862 | 142 | 1.591 | 0.000 | | 13,360 A | F8 |

* SERVICE TRANSFORMER Isc (AVAILABLE FAULT CURRENT) AS PUBLISHED BY UTILITY COMPANY.
** REFER TO UNIT PANEL TABLE.

C = CABLE CONDUCTANCE FACTOR
E = LINE TO LINE VOLTAGE
Vp = TRANSFORMER PRIMARY LINE TO LINE VOLTAGE

M = 1/(1+f)
f = 1.732 x L x Isc / ( C x n x E )

Vs = TRANSFORMER SECONDARY LINE TO LINE VOLTAGE
Z = TRANSFORMER IMPEDANCE
Isc = AVAILABLE FAULT CURRENT (FROM SOURCE)
Isc = SHORT CIRCUIT CURRENT
Isc = Vp x M x 1so/Vs
A 300 KVA, 3-PH PAD MOUNTED TRANSFORMER IS ASSUMED FOR THIS CALCULATION

| SERVICE LOAD SUMMARY | | | |
|---|---|---|---|
| AMPS | 1,000 A | | |
| VOLTS | 208 | | |
| PHASE | 3 | | |
| LARGEST MOTOR | 6,016 VA | | |
| | | | |
| **Load Description** | **Connected** | **DF** | **Demand** |
| (1) LIGHTING | 5,847 VA | 1.25 | 7,309 VA |
| (2) RECEPTACLES | 17,541 VA | 10k + 0.5 | 13,771 VA |
| (3) MOTORS | 25,000 VA | 1 + 0.25 | 26,504 VA |
| (4) KITCHEN | 60,000 VA | 1 | 60,000 VA |
| (5) MISCELLANEOUS | 30,000 VA | 1 | 30,000 VA |
| (6) HVAC EQUIPMENT | 70,164 VA | 1.00 | 70,164 VA |
| (7) ELECT. WATER HTG | 36,000 VA | 1.25 | 45,000 VA |
| (8) FOOD TRUCKS | 41,600 VA | 1.00 | 18,640 VA |
| (9) ELEVATOR | 6,016 VA | 1 | 6,016 VA |
| (10) EV CHARGING | 43,200 VA | 1.25 | 54,000 VA |
| **TOTAL SERVICE DEMAND (VA)** | | | **331,403 VA** |
| **TOTAL SERVICE AMPS (A)** | | | **921 A** |


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LOUISVILLE HISTORIC GRAIN ELEVATOR
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COLORADO LICENSED BRETT A. BOLECEK PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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ELECTRICAL ONE-LINE DIAGRAM

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## MDP LOAD SUMMARY

**VOLTAGE** 120/208 WYE
**PHASE** 3
**WIRES** 4
**SERVICE SIZE** 1000 A

| CIRCUIT | CIRCUIT DESCRIPTION |
|---|---|
| 1 | PANEL 'HP' |
| 2 | RTU-1 |
| 3 | RTU-2 |
| 4 | RTU-3 |
| 5 | PANEL 'TP' |
| 6 | SPACE |

| LOAD DESCRIPTION | CONNECTED (VA) | DEMAND FACTOR | DEMAND (VA) |
|---|---|---|---|
| LIGHTING | 7512 | 125.00% | 9390 |
| RECEPTACLES | 23580 | 71.20% | 16790 |
| MOTORS | 20110 | 114.92% | 23110 |
| KITCHEN | 31760 | 65.00% | 20644 |
| MISCELLANEOUS | 11000 | 100.00% | 11000 |
| ELECTRIC HEAT | 20700 | 100.00% | 20700 |
| ELECTRIC WATER HEATING | 29000 | 125.00% | 36250 |
| HVAC | 113104 | 100.00% | 113104 |
| EV CHARGING | 21600 | 125.00% | 27000 |

**TOTAL SERVICE DEMAND (VA):** 277988 VA
**TOTAL SERVICE DEMAND AMPS (A):** 772 A

## PANEL: HP

**VOLTAGE:** 120/208 WYE
**PHASE:** 3
**WIRES:** 4
**ENCLOSURE:** NEMA 1
**SUPPLY FROM:** MDP
**MOUNTING:**
**FEED-THROUGH LUGS:** NO
**AIC RATING:** 35,000A
**MAINS TYPE:** MLO
**MAINS RATING:** 400
**MCB RATING:** -

| CIRCUIT DESCRIPTION | CB RATING | CB TYPE | CKT | A | B | C | CKT | CB TYPE | CB RATING | CIRCUIT DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| LIGHTING - BASEMENT + EF-3-1, EF3-1-2 | 20 | 1 | 1 | 749 4000 | | | 2 | | | |
| LIGHTING - BASEMENT SEATING | 20 | 1 | 3 | | 751 4000 | | 4 | | 3 45 | ELEVATOR CONTROLLER |
| LIGHTING | 20 | 1 | 5 | | | 1167 4000 | 6 | | | |
| LIGHTING | 20 | 1 | 7 | 889 300 | | | 8 | | 1 15 | ELEVATOR CAB LIGHTS & FAN |
| LIGHTING | 20 | 1 | 9 | | 1009 214 | | 10 | | 1 20 | ELEV PIT LT & RECEPT |
| LIGHTING - EXTERIOR BLDG MOUNTED | 20 | 1 | 11 | | | 1194 214 | 12 | | 1 20 | ELEV HOISTWAY LT & RECEP |
| LIGHTING 2ND FLOOR | 20 | 1 | 13 | 232 1176 | | | 14 | | 1 20 | ELEVATOR SUMP PUMP |
| RECEPTACLES - BSMNT - CRAWLSPACES | 20 | 1 | 15 | | 1260 1000 | | 16 | | 2 20 | EUH-1-1, EUH-1-2 |
| RECEPTACLES - BSMNT - 005-007 | 20 | 1 | 17 | | | 1260 1000 | 18 | | | |
| RECEPTACLES - BSMNT - 001/003 + CP-1 | 20 | 1 | 19 | 1080 5460 | | | 20 | | 3 60 | FCU-1-1 |
| RECEPTACLES - CONV - 1ST FLR | 20 | 1 | 21 | | 720 5460 | | 22 | | | |
| RECEPTACLES - CONV - 1ST FLR + EF-2-1 | 20 | 1 | 23 | | | 1416 5460 | 24 | | | |
| RECEPTACLES - CONV - 1ST FLR | 20 | 1 | 25 | 1260 1667 | | | 26 | | 3 30 | ELECTRIC WATER HEATING |
| RECEPTACLES - WG - EXTERIOR | 20 | 1 | 27 | | 900 1667 | | 28 | | | |
| RECEPTACLES - AG - BAR | 20 | 1 | 29 | | | 1080 1667 | 30 | | | |
| RECEPTACLES - 2ND FLR | 20 | 1 | 31 | 720 1000 | | | 32 | | 2 20 | EUG-1-4, EUH-1-5 |
| RECEPTACLES | 20 | 1 | 33 | | 720 1000 | | 34 | | | |
| RECEPTACLES | 20 | 1 | 35 | | | 1080 1500 | 36 | | 2 20 | EUH-1-6, EUH-1-7, EUH-1-8 |
| FIRE/SMOKE DAMPERS | 20 | 1 | 37 | 120 1500 | | | 38 | | | |
| RECEPTACLES AT RTUS | 20 | 1 | 39 | | 360 1000 | | 40 | | 2 20 | EUH-1-3, EUH-1-12 |
| RECEPTACLE LV 6 + EF-1-1 | 20 | 1 | 41 | | | 1044 1000 | 42 | | | |
| SUMP PUMP - SP-1 | 20 | 1 | 43 | 1176 1500 | | | 44 | | 2 20 | EUH-1-9, EUH-1-10, EUH-1-11 |
| SUMP PUMP - SP-2 | 20 | 1 | 45 | | 1176 1500 | | 46 | | | |
| SUMP PUMP - SP-3 | 20 | 1 | 47 | | | 1176 1800 | 48 | | 2 20 | EUH-2-1 |
| SUMP PUMP - SP-4 | 20 | 1 | 49 | 1176 1800 | | | 50 | | | |
| RECEPTACLES - BAR TV/PROJECTORS | 20 | 1 | 51 | | 720 3068 | | 52 | | 2 30 | HP-1 |
| RECEPTACLES - BAR TV/PROJECTORS | 20 | 1 | 53 | | | 900 3068 | 54 | | | |
| RECEPTACLES - BAR TV/PROJECTORS | 20 | 1 | 55 | 180 1800 | | | 56 | | 2 20 | EUH-2-2 |
| RECEPTACLES - BAR TV/PROJECTORS | 20 | 1 | 57 | | 1080 1800 | | 58 | | | |
| RECEPTACLES - CONV - 1ST FLR | 20 | 1 | 59 | | | 540 100 | 60 | | 1 20 | KIT - E1 - KEG COOLER LTG |
| DEDICATED RECEPTACLE - IT | 20 | 1 | 61 | 180 2000 | | | 62 | | 2 30 | KIT - E2 - KEG COOLER COMPRESSOR |
| SUMP PUMP SP-5 | 20 | 1 | 63 | | 1176 2000 | | 64 | | | |
| BSMT RECEPT, CIRC PUMP CP-1 | 20 | 1 | 65 | | | 570 500 | 66 | | 2 20 | KIT - E3 - KEG COOLER EVAP |
| RECEPTACLES - TELE TERM. BOARD | 20 | 1 | 67 | 720 500 | | | 68 | | | |
| RECEPTACLES - COMMUNITY ROOM | 20 | 1 | 69 | | 900 960 | | 70 | | 1 20 | KIT - E4 - ICE MACHINE |
| | | | 71 | | | 960 | 72 | | 1 20 | KIT - E5 - REFRIGERATOR |
| | | | 73 | 960 | | | 74 | | 1 20 | KIT - E6 - FREEZER |
| | | | 75 | | 960 | | 76 | | 1 20 | KIT - E7 - ICE COOLER |
| | | | 77 | | | 180 | 78 | | 1 20 | KIT - E8 - DISHWASHER |
| | | | 79 | 4000 | | | 80 | | 2 50 | KIT - E9 - T-OVEN |
| | | | 81 | | 4000 | | 82 | | | |
| | | | 83 | | | 960 | 84 | | 1 20 | KIT - E10 - ESPRESSO MACHINE |
| **TOTAL CONNECTED VOLT-AMPS PER PHASE** | | | | 36144 | 39401 | 33836 | | | | |
| **TOTAL CONNECTED AMPS PER PHASE** | | | | 301 | 328 | 282 | | | | |
| **TOTAL ESTIMATED DEMAND AMPS PER PHASE** | | | | 294 | 321 | 276 | | | | |

| PHASE IMBALANCE | LOAD CLASSIFICATION | CONNECTED LOAD (VA) | DEMAND FACTOR | DEMAND LOAD (VA) | PANEL TOTALS | |
|---|---|---|---|---|---|---|
| | LIGHTING | 6419 | 125.00% | 8023 | | |
| **PHASE A** 1 % | RECEPTACLES | 17640 | 78.34% | 13820 | **TOTAL CONNECTED LOAD (VA):** | 109381 VA |
| **PHASE B** 8 % | MOTORS | 20110 | 114.92% | 23110 | **TOTAL DEMAND (VA):** | 106935 VA |
| **PHASE C** 7 % | KITCHEN | 12800 | 65.00% | 8320 | **TOTAL CONNECTED LOAD (AMPS):** | 304 A |
| | MISCELLANEOUS | 5000 | 100.00% | 5000 | **TOTAL DEMAND (AMPS):** | 297 A |
| | ELECTRIC HEAT | 19200 | 100.00% | 19200 | | |
| | ELECTRIC WATER HEATING | 5000 | 125.00% | 6250 | | |
| | HVAC | 23212 | 100.00% | 23212 | | |
| | EV CHARGING | 0 | 0.00% | 0 | | |

**BREAKER TYPE ABBREVIATIONS:**
A - AFCI; G - GFCI; AG - COMBINATION AFCI/GFCI; ET - ELECTRONIC TRIP; LK - LOCKING PROVISIONS; ST - SHUNT TRIP

**NOTES:**

## PANEL: TP

**VOLTAGE:** 120/208 WYE
**PHASE:** 3
**WIRES:** 4
**ENCLOSURE:** NEMA 1
**SUPPLY FROM:** MDP
**MOUNTING:**
**FEED-THROUGH LUGS:** NO
**AIC RATING:** 22,000A
**MAINS TYPE:** MLO
**MAINS RATING:** 400
**MCB RATING:** -

| CIRCUIT DESCRIPTION | CB RATING | CB TYPE | CKT | A | B | C | CKT | CB TYPE | CB RATING | CIRCUIT DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| LIGHTING - TAP HOUSE | 20 | 1 | 1 | 287 3600 | | | 2 | | 2 50 | READY / CAPABLE EV DUAL CHARGER NORTH |
| FOOD TRUCK RECEPTACLE | 50 | 2 | 3 | | 3000 3600 | | 4 | | | |
| | | | 5 | | | 3000 3600 | 6 | | 2 50 | READY / CAPABLE EV DUAL CHARGER SOUTH |
| FOOD TRUCK RECEPTACLE | 50 | 2 | 7 | 3000 3600 | | | 8 | | | |
| | | | 9 | | 3000 3600 | | 10 | | 2 50 | EVSE (INSTALLED) CHARGER EAST |
| FOOD TRUCK RECEPTACLE | 50 | 2 | 11 | | | 3000 3600 | 12 | | | |
| | | | 13 | 3000 8000 | | | 14 | | | |
| STAGE RECEPTACLE | 50 | 2 | 15 | | 3000 8000 | | 16 | | 3 90 | ELECTRIC WATER HEATING |
| | | | 17 | | | 3000 8000 | 18 | | | |
| RECEPTACLE AT STAGE | 20 | 1 | 19 | 360 1080 | | | 20 | | 1 20 | RECEPT - COURTYARD FENCE POSTS |
| STRING LTG RECS AT TREE (XMAS) | 20 | 1 | 21 | | 900 1080 | | 22 | | 1 20 | RECEPT - COURTYARD FENCE POSTS |
| LIGHTING - SITE - OUTLOT 'A' | 20 | 1 | 23 | | | 806 1080 | 24 | | 1 20 | RECEPT - COURTYARD FENCE POSTS |
| RECEPTACLES - TAP HOUSE | 20 | 1 | 25 | 720 | | | 26 | | | |
| RECEPTACLES - TAP HOUSE | 20 | 1 | 27 | | 720 | | 28 | | | |
| KIT - E11 - TAP HOUSE REFRIGERATOR | 20 | 1 | 29 | | | 960 | 30 | | | |
| ELECTRIC HEATER - CRAWL SPACE | 20 | 1 | 31 | 1500 | | | 32 | | | |
| | | | 33 | | | | 34 | | | |
| | | | 35 | | | | 36 | | | |
| | | | 37 | | | | 38 | | | |
| | | | 39 | | | | 40 | | | |
| | | | 41 | | | | 42 | | | |
| **TOTAL CONNECTED VOLT-AMPS PER PHASE** | | | | 25147 | 26900 | 27046 | | | | |
| **TOTAL CONNECTED AMPS PER PHASE** | | | | 210 | 224 | 225 | | | | |
| **TOTAL ESTIMATED DEMAND AMPS PER PHASE** | | | | 230 | 247 | 248 | | | | |

| PHASE IMBALANCE | LOAD CLASSIFICATION | CONNECTED LOAD (VA) | DEMAND FACTOR | DEMAND LOAD (VA) | PANEL TOTALS | |
|---|---|---|---|---|---|---|
| | LIGHTING | 1093 | 125.00% | 1366 | | |
| **PHASE A** 5 % | RECEPTACLES | 5940 | 100.00% | 5940 | **TOTAL CONNECTED LOAD (VA):** | 79093 VA |
| **PHASE B** 2 % | MOTORS | 0 | 0.00% | 0 | **TOTAL DEMAND (VA):** | 86974 VA |
| **PHASE C** 3 % | KITCHEN | 18960 | 80.00% | 15168 | **TOTAL CONNECTED LOAD (AMPS):** | 220 A |
| | MISCELLANEOUS | 6000 | 100.00% | 6000 | **TOTAL DEMAND (AMPS):** | 241 A |
| | ELECTRIC HEAT | 1500 | 100.00% | 1500 | | |
| | ELECTRIC WATER HEATING | 24000 | 125.00% | 30000 | | |
| | HVAC | 0 | 0.00% | 0 | | |
| | EV CHARGING | 21600 | 125.00% | 27000 | | |

**BREAKER TYPE ABBREVIATIONS:**
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**NOTES:**


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Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED BRETT A. BOLENBAUGH PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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ELECTRICAL SCHEDULES

Sheet
E0.04
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## TRADE CONNECTION SCHEDULE - ELECTRICAL

REMARKS:

(1) ONE CONNECTION PROVIDES POWER SUPPLY FOR ....

(2) UTILIZE ONE DUPLEX RECEPTACLE FOR CONNECTION OF CABINETS AND FILTER PUMP.

(3) PROVIDE NEMA L15-20P PLUG TO FIELD INSTALL ON MANUFACTURE CORD AS REQUIRED.

(4) HOOD CONNECTIONS PROVIDED THROUGHT COMMON DCV CONTROLLER LOCATED IN REMOTE CABINET.....

(5) *&*#

| PLAN MARK | Description | Voltage | Phase | Watts | FullLoadAmps | CircuitBreakerSize | OutletType | ConnectionType | Panel | Feeder | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BAR | | | | | | | | | | | |
| E4 | ICE MACHINE | 120V | 1 | 960W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E5 | REFRIGERATOR | 120V | 1 | 960W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E6 | FREEZER | 120V | 1 | 960W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E7 | ICE COOLER | 120V | 1 | 960W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E8 | DISHWASHER | 120V | 1 | 180W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E9 | T-OVEN | 120V | 1 | 8000W | | | | | | (2#6AWG, 1#10AWG GND.) 1" C. | |
| E10 | ESPRESSO MACHINE | 120V | 1 | 960W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| BUILDING EQUIPMENT | | | | | | | | | | | |
| E1 | KEG COOLER LIGHTING | 120V | 1 | 100W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E2 | KEG COOLER COMPRESSOR | 208V | 1 | 1000W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| E3 | KEG COOLER EVAPORATOR | 208V | 1 | 1000W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |
| TAP HOUSE | | | | | | | | | | | |
| E11 | TAP HOUSE REFIGERATOR | 120V | 1 | 360W | | | | | | (2#12AWG, 1#12AWG GND.) 3/4" C. | |

## EQUIPMENT CONNECTION SCHEDULE

GENERAL NOTES:

A. PROVIDE DISCONNECTING MEANS FOR EACH PIECE OF EQUIPMENT AS INDICATED IN THE 'DISC' COLUMN.

REMARKS:

1. [3#2AWG CU+1#8AWG CU G. 1-1/4"C.]

| PLAN MARK | DESCRIPTION | VOLT | PHASE | ELECTRIC HEAT WATTS | SINGLE MOTOR | | UNIT EQUIPMENT | | | OVERCURRENT PROTECTION | | | | FEEDER | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | WATTS | HP | WATTS | FLA | MCA | MOCP (A) | CB | DISC (A) | FUSE (A) | | |
| SP-5 | PUMP | 120 V | 1 | | | 0.5 | - | 9.8 | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| SP-4 | PUMP | 120 V | 1 | | | 0.5 | - | 9.8 | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| SP-3 | PUMP | 120 V | 1 | | | 0.5 | - | 9.8 | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| SP-2 | PUMP | 120 V | 1 | | | 0.5 | - | 9.8 | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| SP-1 | PUMP | 120 V | 1 | | | 0.5 | - | 9.8 | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| RTU-3 | ROOF TOP UNIT | 208 V | 3 | 18,000 | | | | | 96 | 100A | 100A3P | 100A3P | 100A | [3#1AWG CU+1#6AWG CU G 1-1/2"C]. | |
| RTU-2 | ROOF TOP UNIT | 208 V | 3 | 12,000 | | | | | 64 | 70A | 70A3P | 100A3P | 70A | [3#4AWG CU+1#8AWG CU G. 1-1/4"C.] | |
| RTU-1 | DEDICATED OUTDOOR AIR UNIT | 208 V | 3 | | | | | 24 | 89.7 | 90A | 90A3P | 100A3P | 90A | [3#2AWG CU+1#8AWG CU G. 1-1/2"C.] | |
| HP-1 | CONDENSING UNIT | 208 V | 1 | | | | 6136 | 29.5 | 29.5 | 30A | 30A2P | 30A | 30A | [3#10AWG+1#12AWG GND 3/4"C] | |
| EF-3-1 | EXHAUST FAN | 120 V | 1 | | 14 | - | 20 | | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| EF-3-2 | EXHAUST FAN | 120 V | 1 | | 14 | - | 20 | | | | 20A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |
| EF-2-1 | EXHAUST FAN | 120 V | 1 | | - | 1/4 | 696 | 5.8 | 7.25 | 20A | 20A1P | HPRS | -- | [2#12AWG+1#12AWG GND 3/4"C] | |
| EF-1-1 | FAN | 120 V | 1 | | - | 1/3 | 864 | 7.2 | 7.2 | 20A | 20A1P | HPRS | -- | [2#12AWG+1#12AWG GND 3/4"C] | |
| EWH-2 | ELECTRIC WATER HEATER | 208 V | 3 | | | | 24,000 | 66.7 | 83.3 | | 90A3P | | | [3#2AWG CU+1#8AWG CU G. 1-1/4"C.] | |
| EWH-1 | ELECTRIC WATER HEATER | 208 V | 3 | | | | 30,000 | 83.3 | 104 | 110A | 110A3P | 200A3P | | [3#1 AWG+1#6 AWG GND 1-1/2"C] | |
| EUH-3-1 | ELECTRIC UNIT HEATER | 120 V | 1 | 1500 | | | | 8.3 | 10.4 | 20 | 20A1P | HPRS | -- | [2#12AWG+1#12AWG GND 3/4"C] | |
| EUH-2-1 | ELECTRIC UNIT HEATER | 208 V | 1 | 3,600 | -- | -- | -- | 17.3 | 17.3 | 20A | 20A3P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-2-2 | ELECTRIC UNIT HEATER | 208 V | 1 | 3,600 | -- | -- | -- | 17.3 | 17.3 | 20A | 20A3P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-1 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-2 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-3 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-4 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-5 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-6 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-7 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-8 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-9 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-10 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-11 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| EUH-1-12 | BASEBOARD HEATER | 208 V | 1 | 1,000 | -- | -- | -- | 4.8 | 6 | 20A | 20A2P | HPRS | -- | [3#12AWG+1#12AWG GND 3/4"C] | |
| CP-1 | CIRCULATION PUMP | 120 V | 1 | | | - | 6 | | | 15A | 15A1P | HPRS | | [2#12AWG+1#12AWG GND 3/4"C] | |

## LUMINAIRE SCHEDULE

REMARKS:

1. CONTRACTOR TO PROVIDE 120V, LED REPLACMENT LAMPS, 3000K. REFER TO APPROVED LIGHTING SUBMITTAL FOR ADDITIONAL INFORMATION.
2. WET LOCATION RATED.
3. FIXTURE TO BE EQUIPPED WITH INTEGRAL BATTERY BACK-UP.
4. BLACK FINISH, VERIFY WITH ARCHITECT / OWNER.
5. CONTRACTOR TO VERIFY GREEN OR RED LETTERING WITH LOCAL AHJ PRIOR TO PROCUREMENT.
6. DAMP LOCATION RATED.
7. PROVIDE MANUFACTURER'S RECOMMENDED EXTERNAL DRIVERS AS REQUIRED.
8. PROVIDE REMOTE BATTERY BACK-UP VIA REMOTE INVERTER LOCATED NEARBY ON THE INSIDE OF THE BUILDING.

| TAG | MOUNTING | DESCRIPTION | MANUFACTURER | MODEL | VOLT | LAMP | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | QTY | WATTS | SOURCE | TEMP (K) | LUMENS | DIMMING | |
| BACK-OF-HOUSE | | | | | | | | | | | | |
| L | CEILING, SURFACE | BOH STRIP LIGHT | LITHONIA | CXL L48 3000LM SEF WDL MVOLT GZ10 35K 80CRI | 120 V | 1 | 19 | LED | 3500K | 2500 | 0-10V | |
| U | WALL, SURFACE | ELEVATOR SHAFT LIGHT | LITHONIA | CSVT L48 4000LM MVOLT 35K 80CRI | 120 V | 1 | 34 | LED | 3500K | 4065 | | |
| EGRESS | | | | | | | | | | | | |
| EM1 | WALL, SURFACE | INTERIOR EMERGENCY EGRESS LIGHT | EVENLITE | NYC-EST-2LED-7.5WRC-BLK | 120 V | MULTIPLE | 2 | LED | -- | -- | -- | 3, 4, 6 |
| EM2 | WALL, SURFACE | EXTERIOR EMERGENCY EGRESS LIGHT | BASELITE LIGHTING | BEH1-41-LED10W-3K-LDM120-CL3 | 120 V | 1 | 10 | LED | 3000K | 1280 | -- | 2, 4, 8 |
| EX | UNIVERSAL | SINGLE/DOUBLE FACE EXIT SIGN | LITHONIA | LQM-S-3-R/G-120/277 | 120 V | MULTIPLE | 2 | LED | -- | -- | -- | 3, 4, 5, 6 |
| INTERIOR | | | | | | | | | | | | |
| A | CEILING, SUSPENDED | LARGE PENDANT | TRANS GLOBE LIGHTING | PND-2233 | 120 V | 1 | 10 | E26 LED | 3000K | 800 | | 1 |
| A2 | CEILING, SUSPENDED | LARGE PENDANT | TRANS GLOBE LIGHTING | PND-2228 | 120 V | 1 | 10 | E26 LED | 3000K | 800 | | 1 |
| B | CEILING, SUSPENDED | MASON JAR PENDANT | BASELITE | MJL/FINISH/MOUNTING | 120 V | 1 | 10 | E26 LED | 3000K | 800 | | 1 |
| B2 | CEILING, SUSPENDED | WIRE-CAGE PENDANT | BASELITE | S3.WG6.WH1 | 120 V | 1 | 10 | E26 LED | 3000K | 800 | | 1 |
| C | WALL, SURFACE | DIRECT INDIRECT WALL SCONCE | BROWNLEE | 1575D-08-FINISH-C17-30K- | 120 V | 1 | 16 | LED | 3000K | 1365 | 0-10V | |
| D | UNDER COUNTER, SURFACE | TAPE LIGHTS | LED LINEAR | VARIOLED LUMINARIS-LD05-W8-30 1210-1263-1279-1283 A E LENGTH | 120 V | 13/FT | 1.7/FT | LED | 3000K | 152/FT | 0-10V | 7 |
| E | UNDER COUNTER, SURFACE | TAPE LIGHTS | LED LINEAR | VARIOLED LUMINARIS-LD05-W8-30 1210-1263-1279-1280 A E LENGTH | 120 V | 13/FT | 1.7/FT | LED | 3000K | 152/FT | 0-10V | 7 |
| F | WALL, SURFACE | TAPE LIGHTS | LED LINEAR | VARIOLED LUMINARIS-LD05-W8-30 1210-1263-1279-1280 A E LENGTH | 120 V | 13/FT | 1.7/FT | LED | 3000K | 152/FT | 0-10V | 7 |
| G | CEILING, SURFACE | SQUARE CYLINDER DOWNLIGHT | GOTHAM | IVO4SQCYL SC D 10LM 30K 80CRI 20D MIN1 MVOLT ZT L5 JBXCC P FINISH | 120 V | 1 | 9.8 | LED | 3000K | 1041 | 0-10V | |
| H | WALL, SURFACE | RESTROOM WALL SCONCE | LITHONIA | FMVCSL 24IN MVOLT 30K 90CRI FINISH | 120 V | 1 | 18 | LED | 3000K | 1300 | | |
| JP | CEILING, SUSPENDED | LARGE PENDANT DOWNLIGHT | TRANS GLOBE LIGHTING | 70824 JACKSON | 120 V | 1 | 10 | E26 LED | 3000K | 800 | | 1 |
| JS | CEILING, SURFACE | LARGE SURFACE DOWNLIGHT | TRANS GLOBE LIGHTING | 70824 JACKSON | 120 V | 1 | 10 | E26 LED | 3000K | 600 | | 1 |
| N | CEILING, SURFACE | SQUARE CYLINDER WALLWASH | GOTHAM | IVO4SQCYL SC WW 10LM 30K 80CR MIN1 MVOLT ZT L5 JBX LW FINISH | 120 V | 1 | 9.8 | LED | 3000K | 1041 | 0-10V | |
| Q | CEILING, SUSPENDED | DECORATIVE PENDANT | BASELITE | 16WEP.FINISH.16-60INC | 120 V | 16 | 10 | E26 LED | 3000K | 800 | | 1 |
| R | UNDER COUNTER, SURFACE | TAPE LIGHTS | KELVIX | CH0404-2-WH-EC UNI1-TL-I-100-30K-24V | 120 V | 42/FT | 1.1/FT | LED | 3000K | 100/FT | 0-10V | 7 |
| S | CEILING, SURFACE | SURFACE DOWNLIGHT | LITHONIA | OLVTCM | 120 V | 1 | 8 | LED | 4000 | 600 | | |
| T | TRACK | 5 HEAD TRACK LIGHT | WAC | H-LED201-30-BK | 120 V | 5 | 15 | LED | 3000K | 750 / LAMP | ELV | |
| SITE | | | | | | | | | | | | |
| AA | WALL, SURFACE | EXTERIOR WALL SCONCE | BASELITE LIGHTING | BEH1-41-LED10W-3K-LDM120-CL3 | 120 V | | 10 | LED | 3000K | 1280 | | 2, 4 |
| AAE | WALL, SURFACE | EXTERIOR WALL SCONCE W/ BATTERY BACKUP | BASELITE LIGHTING | BEH1-41-LED10W-3K-LDM120-CL3 | 120 V | | 10 | LED | 3000K | 1280 | | 2, 4, 8 |
| BB | WALL, SURFACE | SURFACE MOUNTED LUMINAIRES | WAG LIGHTING | WS-W14911-XX | 120 V | 1 | 7.0 | LED | 3000K | 353 | ELV | |
| CC | WALL, SURFACE | SCOPO 3 SPOTLIGHT | LUMINIS | SC355-L1L10-FLD-40K | 120 V | | 13 | LED -BXRC | 3000K | 922 | | |
| DD | STRING LIGHT, SUSPENDED | FESTOON STRING LIGHTS | TIVOLI | LSL2-B-12-V-30-O | 120 V | | 1/FT | LED | 3000K | 63/FT | | |
| EE | CEILING, SURFACE | CANOPY LIGHT | JUNO LIGHTING | JSFSQ 7IN 10LM SWW5 90CRI MVOLT ZT WH | 120 V | | 12 | LED | 3000K | 1251 | | |
| FF | TBD | STAGE LIGHT LUMENFACADE | LUMENPULSE | LFP-120-277-24-3.75W-30K-30X30-CL-NO+LV | 120 V | | 7.2 | LED | 3000K | 603 | | |


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Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
BRETT A. BOLES
PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/27/26 ADDENDUM 2 - PERMIT SUBMITTAL


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ELECTRICAL SCHEDULES

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NORTH

1 ELECTRICAL SITE PLAN
1" = 20'-0"

## DRAWING NOTES:

1. ALL ELECTRICAL EQUIPMENT AND DEVICES LOCATED OUTDOORS, ON ROOFS, OR ON BUILDING EXTERIORS SHALL BE RATED NEMA 3R, OR LOCATED WITHIN NEMA 3R RATED ENCLOSURES. PROVIDE WHILE-IN-USE COVERS FOR ALL OUTDOOR RECEPTACLES.
2. COORDINATE INSTALLATION REQUIREMENTS FOR EXTERIOR BUILDING FACADE LIGHTING WITH OWNER AND PROVIDE ALL FINAL CONNECTIONS AND ACCESSORIES AS REQUIRED.
3. COORDINATE EXACT LOCATIONS OF UTILITY EQUIPMENT WITH XCEL ENERGY.
4. UNLESS NOTED OTHERWISE, ALL EXISTING WIRING AND CONDUCTORS IN THE BUILDING SHALL BE DEMOLISHED. INSPECT THE CONDITION OF ALL EXISTING ELECTRICAL DEVICES, BOXES, CONDUIT, ETC. EXISTING ELECTRICAL DEVICES, BOXES, CONDUITS, ETC. SHALL BE DEMOLISHED TO THE EXTENT POSSIBLE. ABANDON IN PLACE IF ANY DAMAGE TO THE EXISTING STRUCTURE OR WALLS WILL BE CAUSED BY DEMOLITION. VERIFY AND COORDINATE WITH ARCHITECT PRIOR TO ANY DEMOLITION WORK.
5. UNLESS NOTED OTHERWISE, LIGHTING CONTROL PANELS AND EQUIPMENT FOR THE SITE AND OUT-LOT 'A' TO BE LOCATED AT THE TAP HOUSE.
6. UNLESS NOTED OTHERWISE, ALL NEW ELECTRICAL AND LOW VOLTAGE BOXES, CONDUITS AND DEVICES SHALL BE SURFACE MOUNTED. VERIFY AND COORDINATE CONDUIT ROUTING WITH ARCHITECT PRIOR TO ROUGH-IN. REFER TO LOW VOLTAGE PLANS AND DETAILS FOR ADDITIONAL INFORMATION.

## KEY NOTES:

1. ELECTRICAL & LOW VOLTAGE CONDUITS, AND PLUMBING PIPING SERVING THE TAP HOUSE AND COURTYARD SHALL BE ROUTED UNDERGROUND IN A COMMON TRENCH. PRIOR TO CONSTRUCTION AND ROUGH-IN, CONTRACTOR SHALL COORDINATE WITH ALL TRADES. LOW VOLTAGE CONDUITS TO INCLUDE (1) 2" PVC CONDUIT WITH PULL CORD(S) ROUTED FROM A/V HEAD-END EQUIPMENT, U/G TO TAP HOUSE. REFER TO ARCHITECTURAL, CIVIL, LOW VOLTAGE AND PLUMBING PLANS FOR ADDITIONAL INFORMATION. VERIFY CONDUIT SIZES AND QUANTITIES PRIOR TO ROUGH-IN.
2. PROVIDE LEVEL 2, EVSE (INSTALLED), WALL MOUNTED, DUAL CHARGING STATION AT THIS LOCATION. CHARGER TO BE MOUNTED AT 48" AFG.
3. PROVIDE WEATHERPROOF IN-GRADE JUNCTION BOX WITH ONE 208V/1-PH POWER CONNECTION AS NOTED FOR SHARED, LEVEL 2, EV READY / CAPABLE DUAL STATION CHARGER. CIRCUIT BREAKER AND (2 #6 AWG CU + 1 #8 AWG CU GND) TO BE INSTALLED DURING CONSTRUCTION (EV READY), CHARGING EQUIPMENT TO BE INSTALLED IN THE FUTURE.
4. PROVIDE WEATHERPROOF JUNCTION BOX WITH 208V/1-PH POWER CONNECTION NOTED, L6-50 OUTLET AND WHILE-IN-USE COVER FOR FOOD TRUCK POWER. J-BOX TO BE MOUNTED 24" AFG ON A 4" X 4" WOOD POST LOCATED TIGHT TO FENCE, VERIFY LOCATION WITH ARCHITECT PRIOR ROUGH-IN. POWER CONNECTION TO BE ROUTED UNDERGROUND TO SOURCE PANEL. GFCI PROTECTION TO BE PROVIDED AT THE CIRCUIT BREAKER.
5. PROVIDE POLE / POST PER ARCHITECT'S SPECIFICATIONS FOR SUPPORT OF TYPE D FESTOON LIGHTING.
6. PROVIDE WEATHERPROOF JUNCTION BOX WITH 208V/1-PH POWER CONNECTION NOTED, L6-50 OUTLET AND WHILE-IN-USE COVER FOR STAGE POWER. J-BOX TO BE MOUNTED 24" AFG ON A 4" X 4" WOOD POST LOCATED TIGHT TO FENCE, VERIFY LOCATION WITH ARCHITECT PRIOR ROUGH-IN. POWER CONNECTION TO BE ROUTED UNDERGROUND TO SOURCE PANEL. GFCI PROTECTION TO BE PROVIDED AT THE CIRCUIT BREAKER.
7. PROPOSED ROUTING OF ELECTRICAL SERVICE FEEDER CONDUITS, REFER TO ONE-LINE DIAGRAM.
8. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE MOUNTED AT 18" AFG ON LANDSCAPING STAKE FOR PORTABLE HOLIDAY STRING LIGHTING. COORDINATE WITH ARCHITECTURAL AND LANDSCAPE PLANS FOR EXACT LOCATION.
9. COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECT.
10. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX / BACK-BOX AT 48" AFG. STUB 3/4"C WILL PULL CORD AND ANTI-SHORT GROMMETS TO A/V HEAD-END EQUIPMENT. VERIFY BOX LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 SWEEPS.
11. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE AND WEATHERPROOF DATA BACK-BOX MOUNTED ON FENCE POST AT 48" AFG. STUB 1" PVC WITH PULL CORDS IN BETWEEN DATA J-BOXES. DATA DEVICES AND CABLING BY OTHERS, REFER TO LOW VOLTAGE PLANS FOR CONDUIT ROUTING AND ADDITIONAL INFORMATION.
12. STUB THE FOLLOWING PVC CONDUITS EACH WITH PULL CORDS FROM THE MAIN TELEPHONE TERMINAL BOARD IN BASEMENT, UNDERGROUND IN THE COMMON TRENCH TO OUTLOT A / COURTYARD:
    1. (2) 4" TO THE LOW VOLTAGE PEDESTAL AT COUNTY ROAD (VERIFY LOCATION AND REQUIREMENTS WITH THE LOW VOLTAGE SERVICE PROVIDER)
    2. 1" CONDUITS TO THE TAP HOUSE, FESTOON LTG POST & STAGE, NEAREST FENCE MOUNTED DATA BACK BOX, AND THEN IN BETWEEN BACK BOXES AS NOTED ABOVE AND SHOWN IN THE PLAN.


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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED BRETT A. BOLEYN PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
01/16/26 ADDENDUM 1
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ELECTRICAL SITE PLAN

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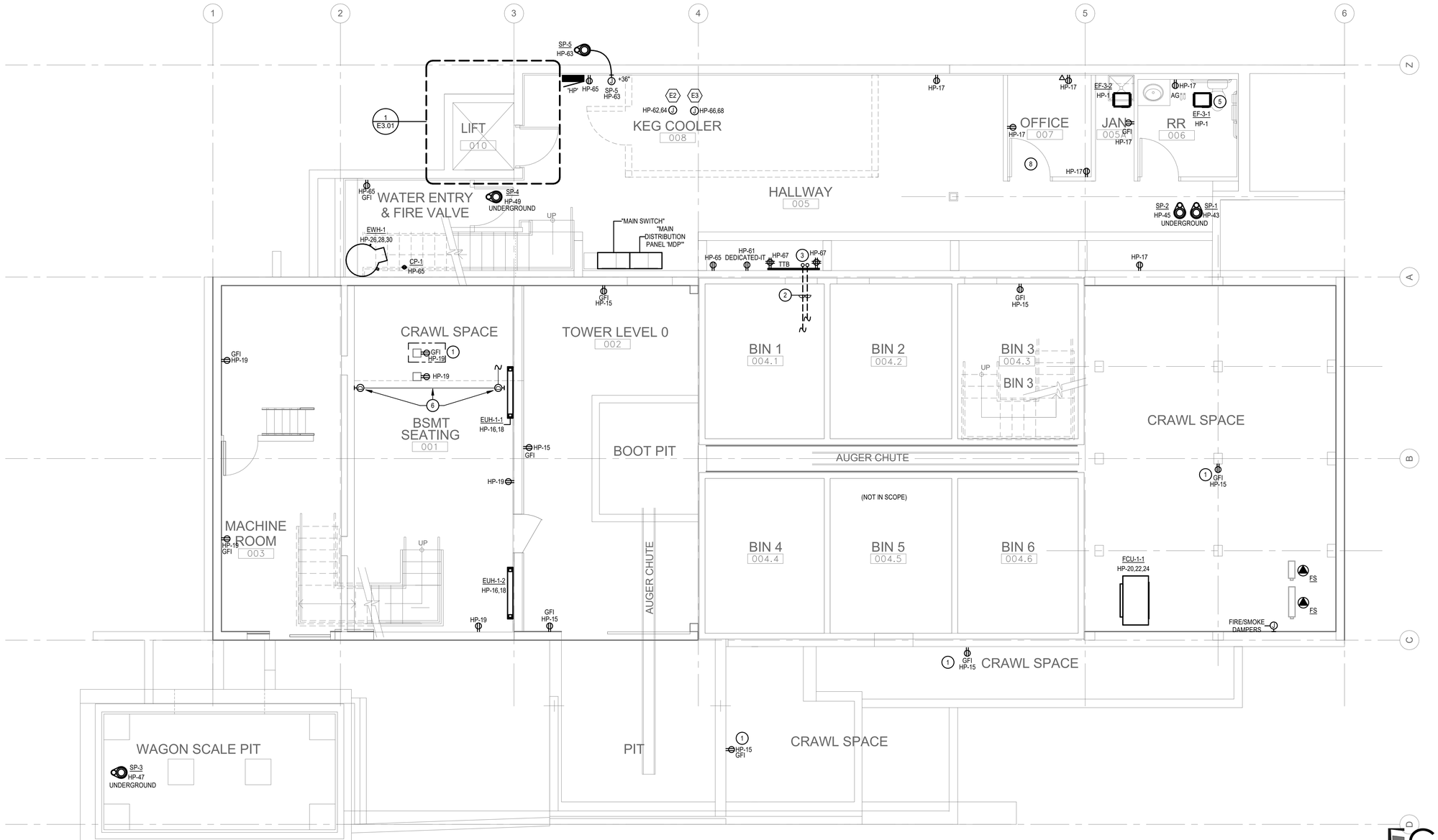
## KEY NOTES:

1. PROVIDE GFI RECEPTACLES IN CRAWL SPACE AREAS, BELOW THE BASEMENT LEVEL. COORDINATE LOCATIONS WITH OWNER / ARCHITECT PRIOR TO ROUGH-IN.
2. PROVIDE (2) 4" PVC CONDUITS FOR INCOMING TELECOM / LOW VOLTAGE CABLING SERVING THE BUILDING. ROUTE CONDUIT FROM TELECOM PEDESTAL TO DEMARCATION POINT IN BUILDING. CONDUITS TO BE ROUTED IN COMMON TRENCH SHOWN ON ELECTRICAL SITE PLAN. VERIFY LOCATION OF INCOMING SERVICE AND CABLING PRIOR TO ROUGH-IN, REFER TO LOW VOLTAGE PLANS FOR ADDITIONAL INFORMATION.
3. PROVIDE 4'X8' FLAME RETARDANT TELEPHONE BOARD FOR MOUNTING A/V AND TELECOM EQUIPMENT. MOUNT DOUBLE DUPLEX POWER RECEPTACLES ON OR IMMEDIATELY ADJACENT TO TELEPHONE BOARD. COORDINATE EXACT LOCATIONS WITH TELECOM AND A/V PROVIDERS.
4. NOT USED.
5. CIRCUIT EXHAUST FANS WITH LIGHT FIXTURE AND LIGHTING CONTROLS IN ROOM.
6. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX / BACK-BOX AT 48" AFG. STUB 3/4"C WILL PULL CORD AND ANTI-SHORT GROMMETS TO A/V HEAD-END EQUIPMENT. VERIFY BOX LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 SWEEPS.
7. PROVIDE 120V POWER CONNECTION AS NOTED FOR PERIMETER SUMP PUMP. STUB 3/4" CONDUIT THROUGH FOUNDATION WALL AND ROUTE UNDERGROUND TO PUMP CONTROL PANEL. VERIFY ELECTRICAL REQUIREMENTS WITH EQUIPMENT TO BE INSTALLED PRIOR TO ROUGH-IN, REFER TO APPROVED EQUIPMENT SUBMITTAL FOR ADDITIONAL INFORMATION.
8. PROVIDE AUTOMATIC RECEPTACLE CONTROL FOR ALL RECEPTACLES IN THE OFFICE PER 2024 IECC, SECTION C405.12. CONNECT RECEPTACLES TO THE OCCUPANCY SENSOR, PROVIDE POWER AND RELAY PACKS AS REQUIRED.

## DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUN #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBERS INDICATE CIRCUITING.
3. VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT AND COORDINATE WITH MECHANICAL DUCTWORK AS REQUIRED PRIOR TO ROUGH-IN.
4. COORDINATE LOCATIONS FO ALL TELEPHONE, CATV OUTLETS AND REQUIREMENTS WITH OWNER / ARCHITECT.
5. REFER TO MEHCANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
6. COORDINATE INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT PROVIDED BY OTHER TRADES, AND PROVIDE ALL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. REFER TO EQUIPMENT CONNECTION SCHEDULES FOR FEEDER, DISCONNECT, AND CIRCUIT BREAKER SIZES FOR MECHANICAL & PLUMBING EQUIPMENT.
8. NO EQUIPMENT, DEVICES, FURNITURE, OR THE LIKE SHALL BE INSTALLED OR PLACED IN FRONT OF ELECTRICAL PANELS OR EQUIPMENT THAT WOULD VIOLATE CODE REQUIREMENTS FOR WORKING CLEARANCE.




NORTH

1 BASEMENT FLOOR PLAN - POWER
1/4" = 1'-0"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# LOUISVILLE HISTORIC GRAIN ELEVATOR
## Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED BETTY A. BOLEK PROFESSIONAL ENGINEER
01/27/2026

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BASEMENT FLOOR PLAN - POWER

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Given Project # 25086

## KEY NOTES:

1. PROPOSED LOCATION OF FIRE ALARM CONTROL PANEL (FACP), VERIFY WITH LOCAL AHJ PRIOR TO ROUGH-IN. PROVIDE 120V POWER CONNECTION AND TELEPHONE/DATA CONNECTION PER LOCAL FIRE DEPARTMENT'S REQUIREMENTS.
2. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX / BACK-BOX FOR DATA AND/OR TV OUTLETS. STUB 3/4"C WILL PULL CORD AND ANTI-SHORT GROMMETS IN BETWEEN BOXES AND TO A/V HEAD-END EQUIPMENT. VERIFY BOX LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 SWEEPS.

## DRAWING NOTES:

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2. ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBERS INDICATE CIRCUITING.
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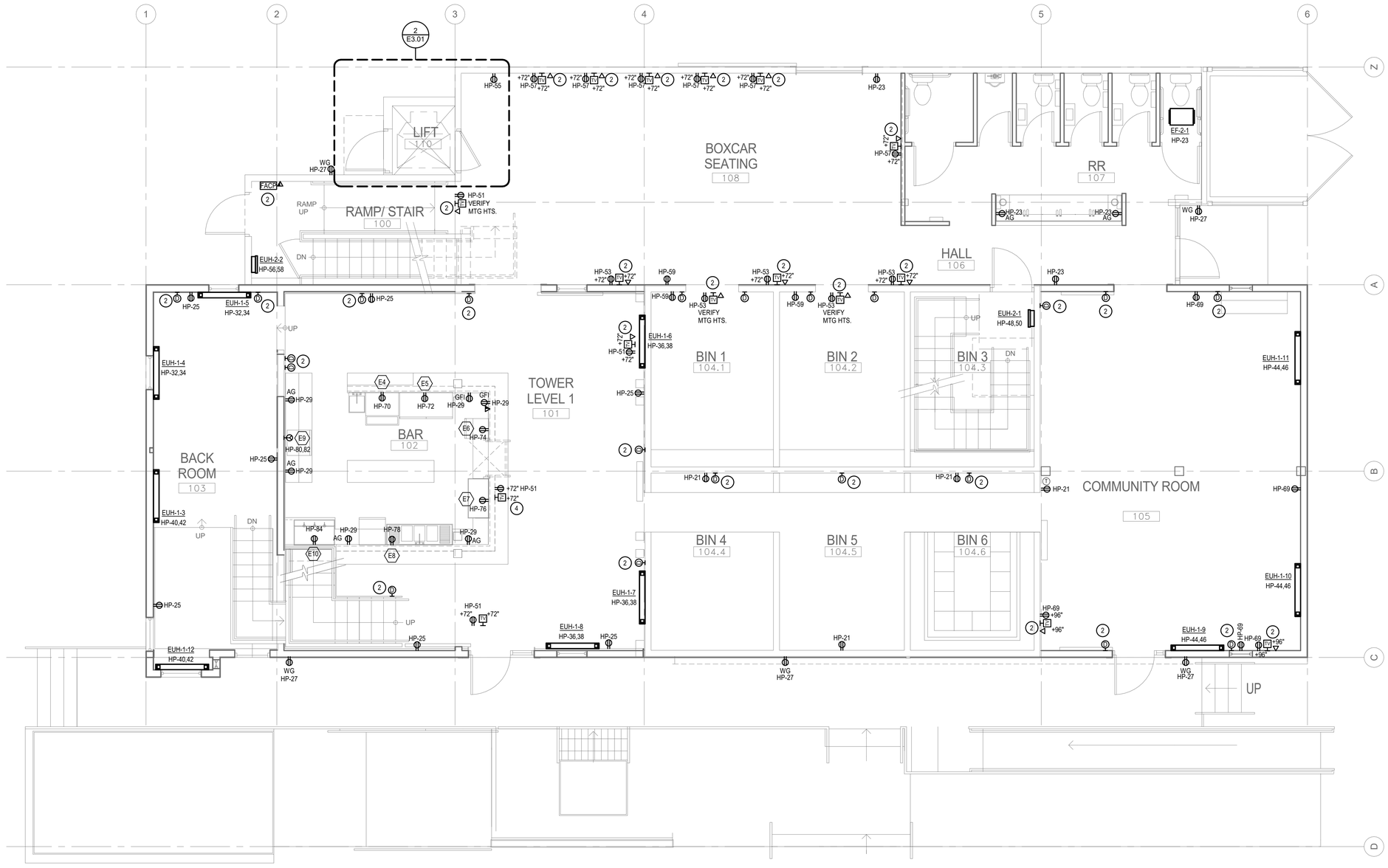


NORTH

1 FIRST LEVEL FLOOR PLAN - POWER
1/4" = 1'-0"


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FIRST FLOOR PLAN - POWER

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## KEY NOTES:

1. PROVIDE CONNECTIONS IN ACCORDANCE WITH EQUIPMENT CONNECTION SCHEDULE.
2. FIELD VERIFY AT LEAST ONE RECEPTACLE IS PROVIDED WITHIN 25FT OF MECHANICAL EQUIPMENT FOR MAINTENANCE PURPOSES.
3. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX / BACK-BOX AT 48" AFG. STUB 3/4"C WILL PULL CORD AND ANTI-SHORT GROMMETS TO A/V HEAD-END EQUIPMENT. VERIFY BOX LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 SWEEPS.

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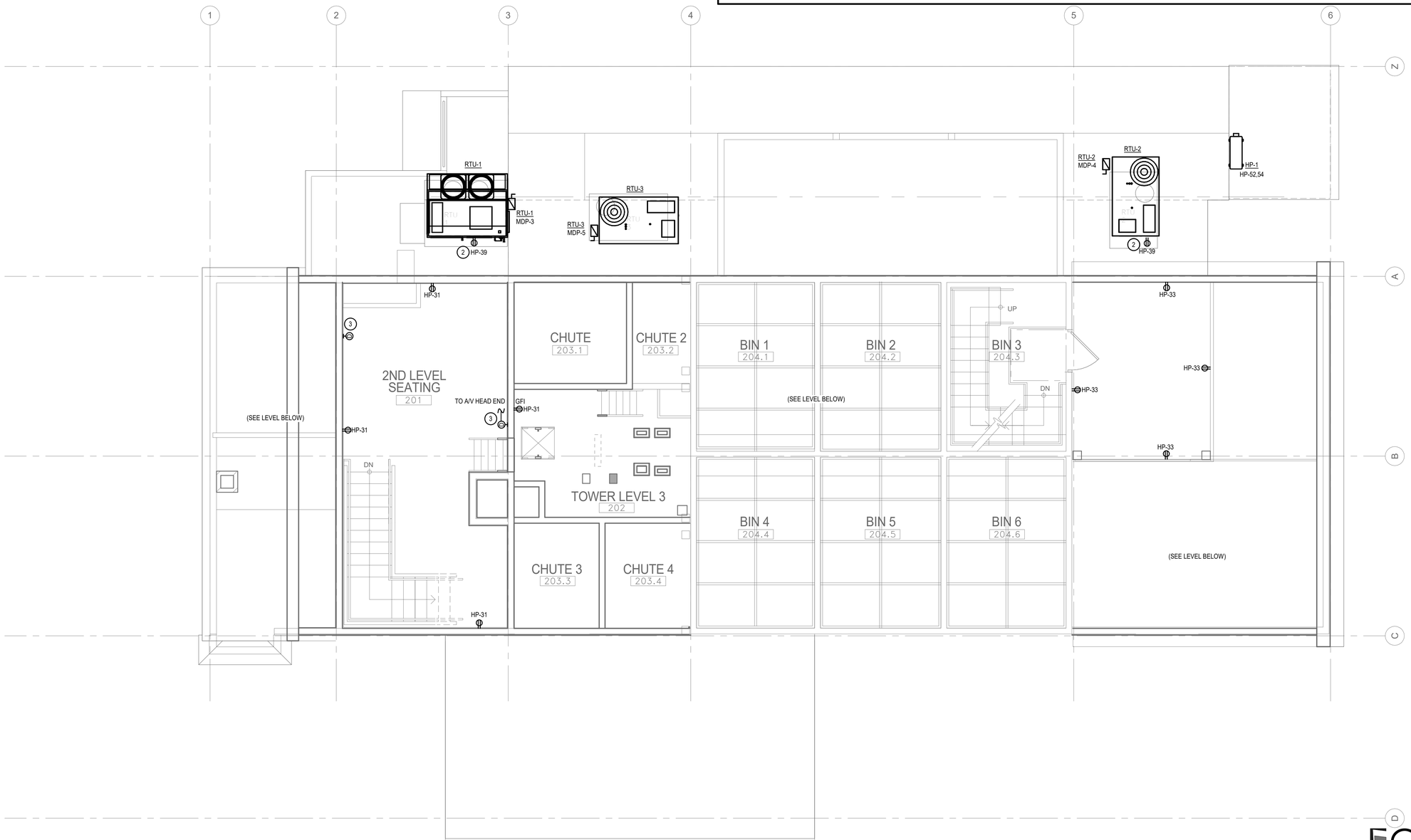


NORTH

1 SECOND/THIRD LEVEL FLOOR PLAN - POWER

1/4" = 1'-0"


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COLORADO LICENSED
BRETT A. ROLLEY
PROFESSIONAL ENGINEER
01/27/2026

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SECOND/THIRD FLOOR PLAN - POWER

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## DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUN #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBERS INDICATE CIRCUITING.
3. VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT AND COORDINATE WITH MECHANICAL DUCTWORK AS REQUIRED PRIOR TO ROUGH-IN.
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5. REFER TO MEHCANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
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8. NO EQUIPMENT, DEVICES, FURNITURE, OR THE LIKE SHALL BE INSTALLED OR PLACED IN FRONT OF ELECTRICAL PANELS OR EQUIPMENT THAT WOULD VIOLATE CODE REQUIREMENTS FOR WORKING CLEARANCE.




NORTH

1 FOURTH/FIFTH LEVEL FLOOR PLAN - POWER
1/4" = 1'-0"


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FOURTH/FIFTH FLOOR PLAN - POWER

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## KEY NOTES:

1. PROVIDE CONNECTIONS IN ACCORDANCE WITH EQUIPMENT CONNECTION SCHEDULE.
2. FIELD VERIFY AT LEAST ONE RECEPTACLE IS PROVIDED WITHIN 25FT OF MECHANICAL EQUIPMENT FOR MAINTENANCE PURPOSES.

## DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUN #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
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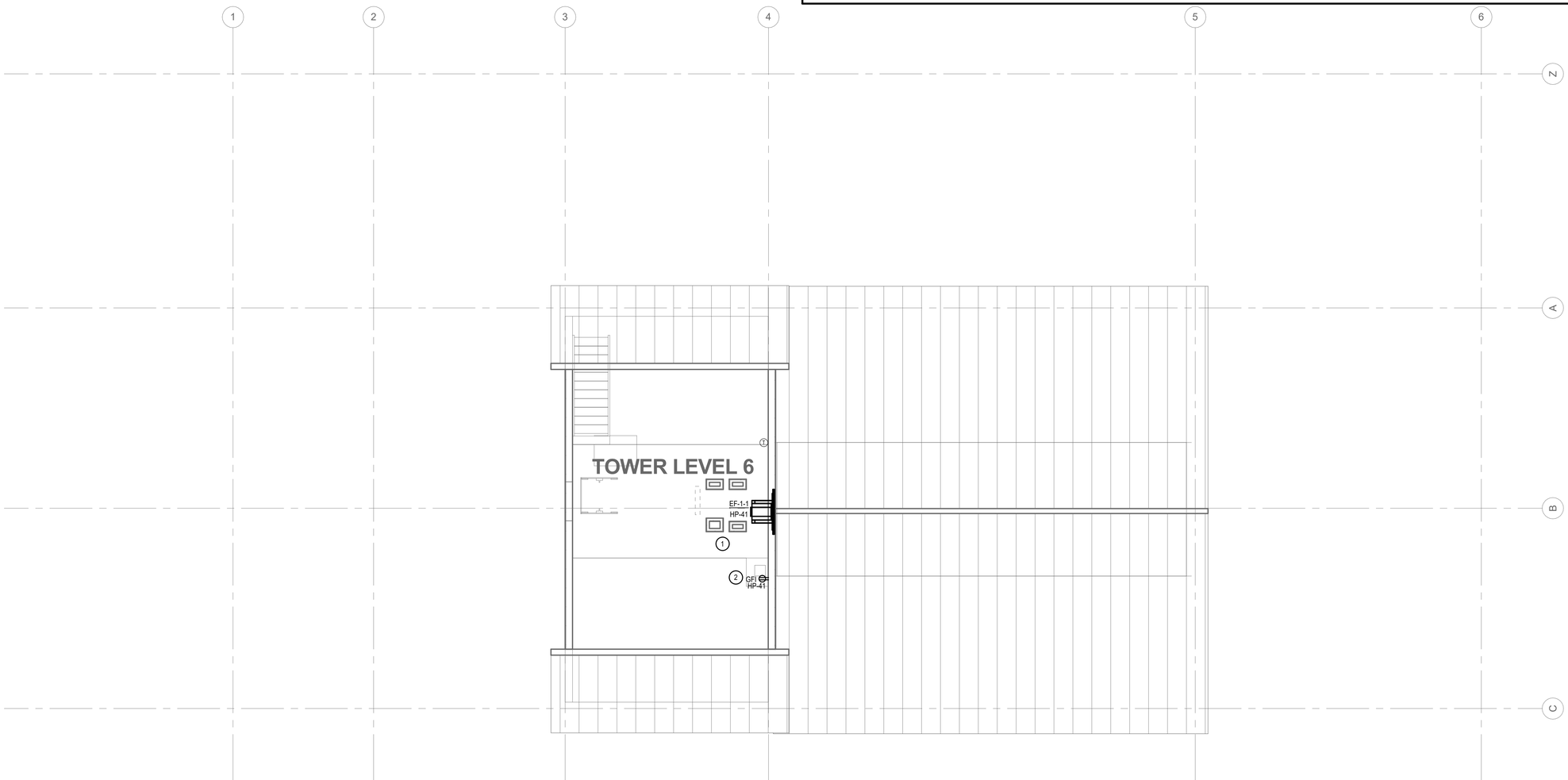


NORTH

1 SIXTH LEVEL FLOOR PLAN - POWER
1/4" = 1'-0"


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COLORADO LICENSED
BRETT A. BOVEE
PROFESSIONAL ENGINEER
12/19/25
01/27/2026

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SIXTH FLOOR PLAN - POWER

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## PANEL: TP

**VOLTAGE:** 120/208 WYE
**PHASE:** 3
**WIRES:** 4

**ENCLOSURE:** NEMA 1
**SUPPLY FROM:** MDP
**MOUNTING:**
**FEED-THROUGH LUGS:** NO

**AIC RATING:** 22,000A
**MAINS TYPE:** MLO
**MAINS RATING:** 400
**MCB RATING:** -

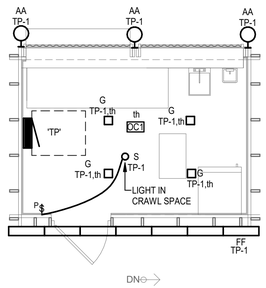
| CIRCUIT DESCRIPTION | CB RATING | | CB TYPE | CKT | A | | B | | C | | CKT | CB TYPE | CB RATING | | CIRCUIT DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LIGHTING - TAP HOUSE | 20 | 1 | | 1 | 287 | 3600 | | | | | 2 | | 2 | 50 | READY / CAPABLE EV DUAL CHARGER NORTH |
| FOOD TRUCK RECEPTACLE | 50 | 2 | | 3 | | | 3000 | 3600 | | | 4 | | | | |
| | | | | 5 | | | | | 3000 | 3600 | 6 | | 2 | 50 | READY / CAPABLE EV DUAL CHARGER SOUTH |
| FOOD TRUCK RECEPTACLE | 50 | 2 | | 7 | 3000 | 3600 | | | | | 8 | | | | |
| | | | | 9 | | | 3000 | 3600 | | | 10 | | 2 | 50 | EVSE (INSTALLED) CHARGER EAST |
| FOOD TRUCK RECEPTACLE | 50 | 2 | | 11 | | | | | 3000 | 3600 | 12 | | | | |
| | | | | 13 | 3000 | 8000 | | | | | 14 | | | | |
| STAGE RECEPTACLE | 50 | 2 | | 15 | | | 3000 | 8000 | | | 16 | | 3 | 90 | ELECTRIC WATER HEATING |
| | | | | 17 | | | | | 3000 | 8000 | 18 | | | | |
| RECEPTACLE AT STAGE | 20 | 1 | | 19 | 360 | 1080 | | | | | 20 | | 1 | 20 | RECEPT - COURTYARD FENCE POSTS |
| STRING LTG RECS AT TREE (XMAS) | 20 | 1 | | 21 | | | 900 | 1080 | | | 22 | | 1 | 20 | RECEPT - COURTYARD FENCE POSTS |
| LIGHTING - SITE - OUTLOT 'A' | 20 | 1 | | 23 | | | | | 806 | 1080 | 24 | | 1 | 20 | RECEPT - COURTYARD FENCE POSTS |
| RECEPTACLES - TAP HOUSE | 20 | 1 | | 25 | 720 | | | | | | 26 | | | | |
| RECEPTACLES - TAP HOUSE | 20 | 1 | | 27 | | | 720 | | | | 28 | | | | |
| KIT - E11 - TAP HOUSE REFRIGERATOR | 20 | 1 | | 29 | | | | | 960 | | 30 | | | | |
| ELECTRIC HEATER - CRAWL SPACE | 20 | 1 | | 31 | 1500 | | | | | | 32 | | | | |
| | | | | 33 | | | | | | | 34 | | | | |
| | | | | 35 | | | | | | | 36 | | | | |
| | | | | 37 | | | | | | | 38 | | | | |
| | | | | 39 | | | | | | | 40 | | | | |
| | | | | 41 | | | | | | | 42 | | | | |
| **TOTAL CONNECTED VOLT-AMPS PER PHASE** | | | | | 25147 | | 26900 | | 27046 | | | | | | |
| **TOTAL CONNECTED AMPS PER PHASE** | | | | | 210 | | 224 | | 225 | | | | | | |
| **TOTAL ESTIMATED DEMAND AMPS PER PHASE** | | | | | 230 | | 247 | | 248 | | | | | | |

| PHASE IMBALANCE | | LOAD CLASSIFICATION | CONNECTED LOAD (VA) | DEMAND FACTOR | DEMAND LOAD (VA) |
|---|---|---|---|---|---|
| | | LIGHTING | 1093 | 125.00% | 1366 |
| PHASE A | 5 % | RECEPTACLES | 5940 | 100.00% | 5940 |
| PHASE B | 2 % | MOTORS | 0 | 0.00% | 0 |
| PHASE C | 3 % | KITCHEN | 18960 | 80.00% | 15168 |
| | | MISCELLANEOUS | 6000 | 100.00% | 6000 |
| | | ELECTRIC HEAT | 1500 | 100.00% | 1500 |
| | | ELECTRIC WATER HEATING | 24000 | 125.00% | 30000 |
| | | HVAC | 0 | 0.00% | 0 |
| | | EV CHARGING | 21600 | 125.00% | 27000 |

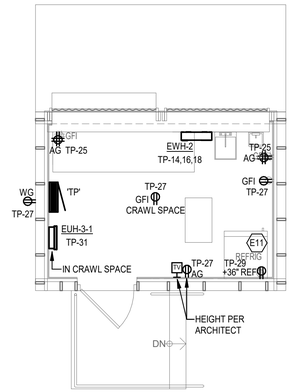
| PANEL TOTALS | |
|---|---|
| **TOTAL CONNECTED LOAD (VA):** | 79093 VA |
| **TOTAL DEMAND (VA):** | 86974 VA |
| **TOTAL CONNECTED LOAD (AMPS):** | 220 A |
| **TOTAL DEMAND (AMPS):** | 241 A |

**BREAKER TYPE ABBREVIATIONS:**
A - AFCI; G - GFCI; AG - COMBINATION AFCI/GFCI; ET - ELECTRONIC TRIP; LK - LOCKING PROVISIONS; ST - SHUNT TRIP

**NOTES:**




## 2 TAP HOUSE FLOOR PLAN - LIGHTING
1/4" = 1'-0"




## 1 TAP HOUSE FLOOR PLAN - POWER
1/4" = 1'-0"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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
BRETT A. BOVEE
PROFESSIONAL ENGINEER
12/18/25
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2
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TAP HOUSE
PLANS
ELECTRICAL

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## KEY NOTES:

1. PROVIDE TYPE 'S' FIXTURES AND LOCAL RATED SWITCH CONTROL IN CRAWL SPACE AREAS, BELOW THE BASEMENT LEVEL. COORDINATE LOCATIONS WITH OWNER / ARCHITECT PRIOR TO ROUGH-IN.
2. PROVIDE ROOM CONTROLLER LIGHTING CONTROLS WITH MULTIPLE PRESET LIGHTING CONTROLS FOR THE BAR / SEATING / BOXCAR AREAS IN LEVELS BASEMENT, ONE AND TWO. ALL FIXTURES IN THESE AREAS SHALL HAVE DIMMING CAPABILITIES VIA THE ROOM CONTROLLER.
3. LIGHT FIXTURES IN THIS AREA / ON THIS SWITCH LEG / IN THIS SWITCH ZONE SHALL BE CONTROLLED VIA TIME-CLOCK WITH LOCAL MANUAL SWITCH OR OCCUPANCY SENSOR CAPABLE OF OVERRIDING TIME-CLOCK TO TURN FIXTURES ON.

## DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUN #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL EXIT SIGNS AND EGRESS LIGHTS SHALL BE CONNECTED TO LIGHTING CIRCUIT IN AREA AND WIRED TO AN UN-SWITCHED HOT LEG.
3. ALL OCCUPANCY SENSORS AND WALL OCCUPANCY SENSOR SWITCHES SHALL BE PROGRAMMED FOR MANUAL ON AND AUTOMATIC OFF OPERATION WITH A MAXIMUM DELAY OF 20 MINUTES. PROVIDE ALL NECESSARY COMPONENTS IN EACH SPACE WITH OCCUPANCY SENSOR CONTROL FOR A COMPLETE AND OPERATIONAL SYSTEM.
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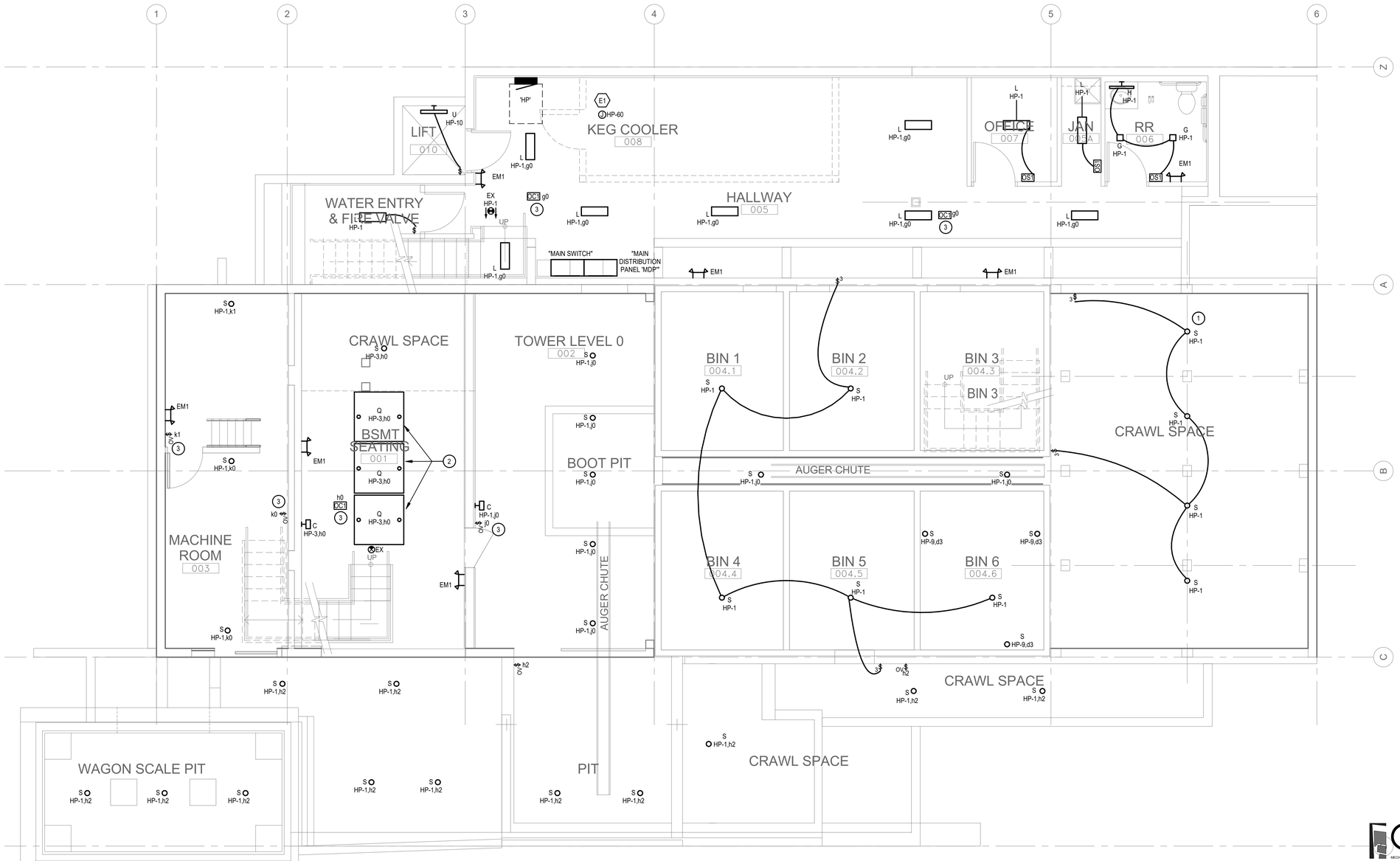


1 BASEMENT FLOOR PLAN - LIGHTING
1/4" = 1'-0"


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Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED PROFESSIONAL ENGINEER
BRETT A. BOLESKI
01/27/2026

PROJECT # 1252.50
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CHECKED BY: BAB
REVISIONS:
1. 01/16/26 ADDENDUM 1
2. 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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BASEMENT FLOOR PLAN - LIGHTING


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Given Project # 25086


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## KEY NOTES:

1. PROVIDE ROOM CONTROLLER LIGHTING CONTROLS WITH MULTIPLE PRESET LIGHTING CONTROLS FOR THE BAR / SEATING / BOXCAR AREAS IN LEVELS BASEMENT, ONE AND TWO. ALL FIXTURES IN THESE AREAS SHALL HAVE DIMMING CAPABILITIES VIA THE ROOM CONTROLLER.
2. PROVIDE ROOM CONTROLLER LIGHTING CONTROLS WITH MULTIPLE PRESET LIGHTING CONTROLS FOR COMMUNITY ROOM AND MEZANINE AREAS. ALL FIXTURES IN THESE AREAS SHALL HAVE DIMMING CAPABILITIES VIA THE ROOM CONTROLLER.
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4. PROVIDE MAIN LIGHTING CONTROL PANEL (LPC) WITH TIME-CLOCK AT THE LOCATION INDICATED ON PLAN. FIXTURES NOT CONTROLLED BY INDIVIDUAL ROOM CONTROLLERS SHALL BE CONTROLLED FROM THIS LOCATION. REFER TO LIGHTING CONTROL MATRIX FOR MORE INFORMATION.

## DRAWING NOTES:

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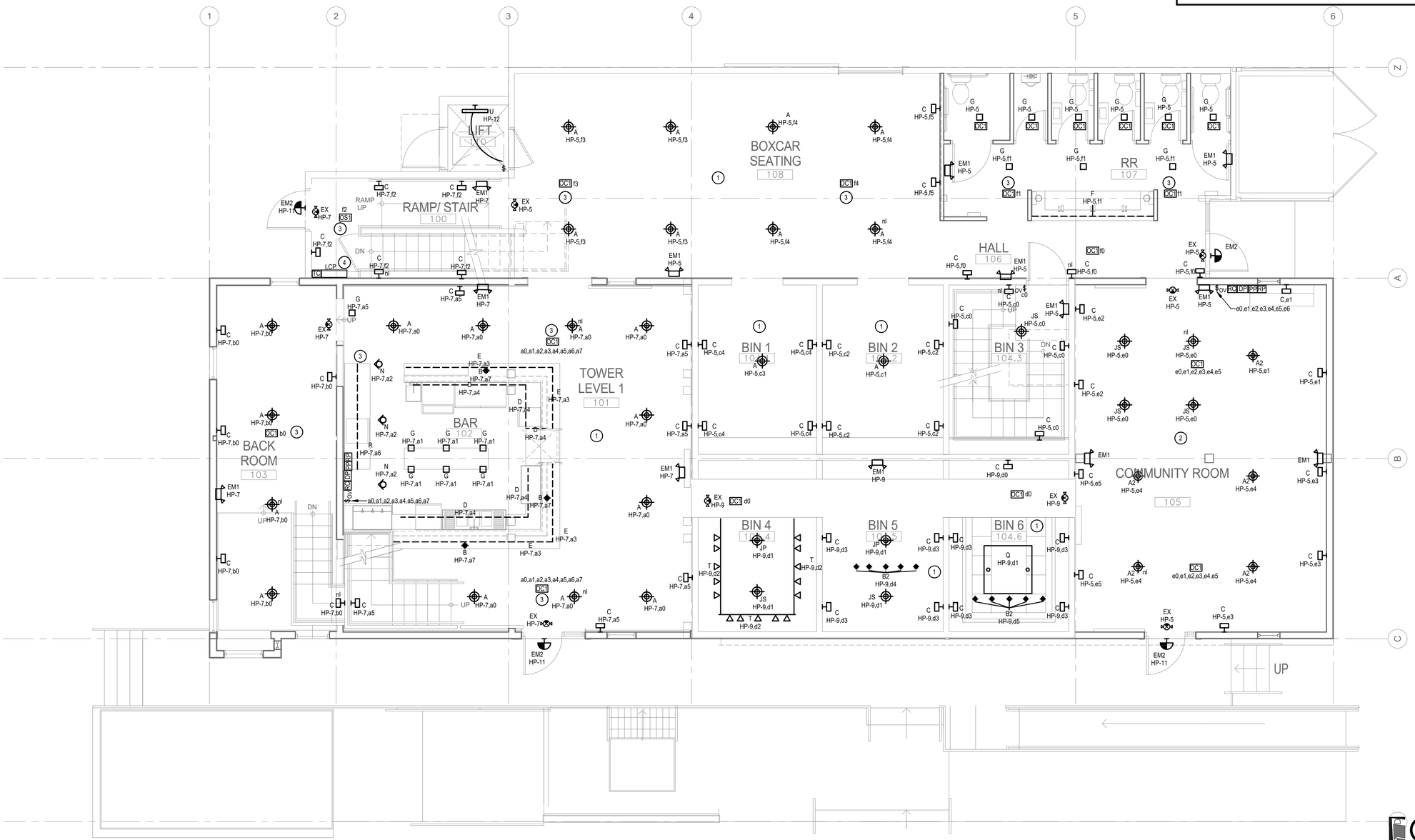


1 FIRST LEVEL FLOOR PLAN - LIGHTING
1/4" = 1'-0"


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FIRST FLOOR PLAN - LIGHTING

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Given Project # 25086

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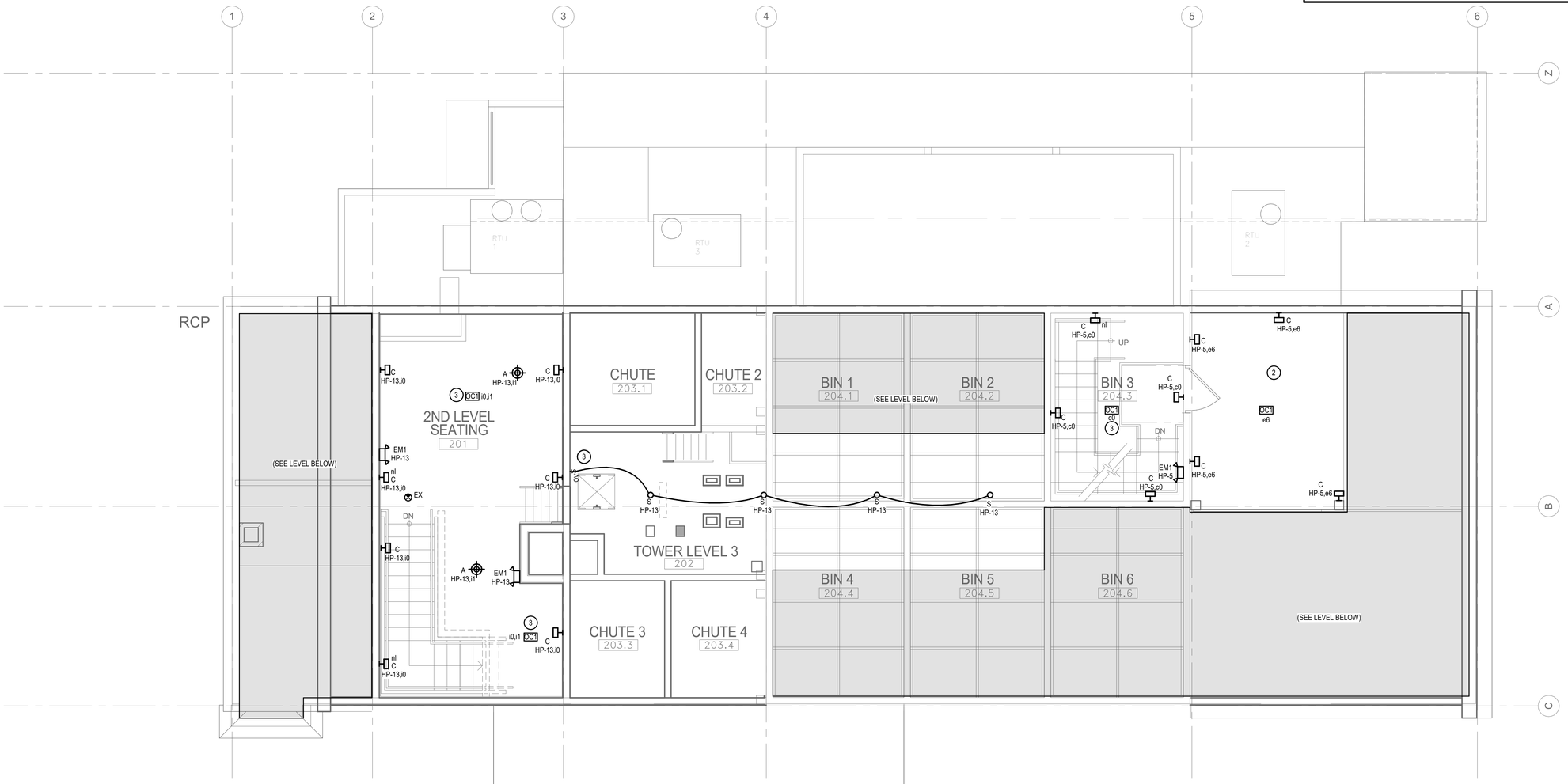


NORTH

1 SECOND/THIRD LEVEL FLOOR PLAN - LIGHTING

1/4" = 1'-0"


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# LOUISVILLE HISTORIC GRAIN ELEVATOR
## Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
BRETT A. BOLEY
PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
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REVISIONS:
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SECOND/THIRD FLOOR PLAN - LIGHTING

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## DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUN #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
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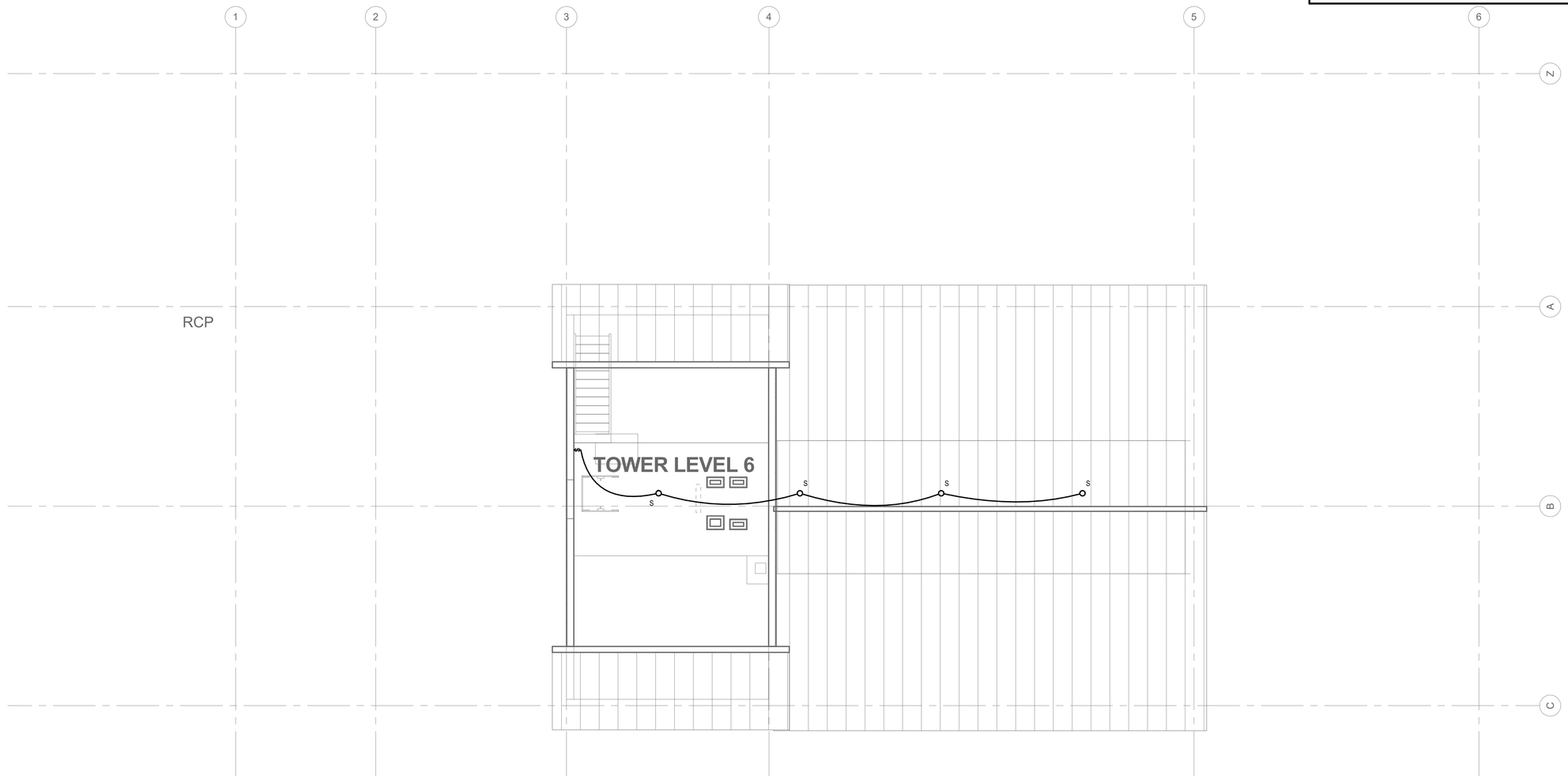


NORTH

1 FOURTH/FIFTH LEVEL FLOOR PLAN - LIGHTING
1/4" = 1'-0"


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BRETT A. BOVEE
PROFESSIONAL ENGINEER
12/18/25
01/27/2026

| | |
|---|---|
| PROJECT # | 1252.50 |
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FOURTH/FIFTH FLOOR PLAN - LIGHTING

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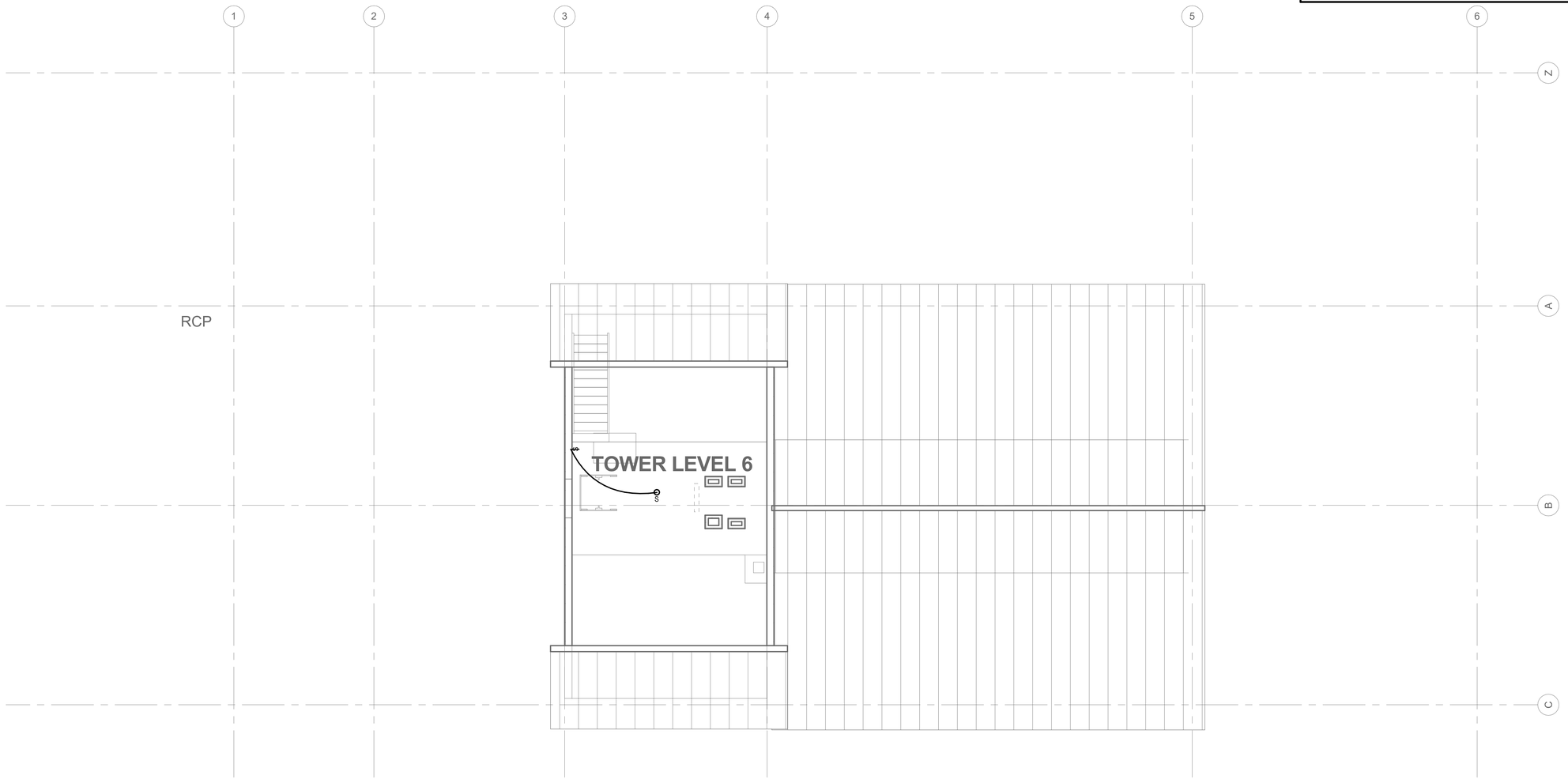


NORTH

1 SIXTH LEVEL FLOOR PLAN - LIGHTING
1/4" = 1'-0"


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SIXTH FLOOR PLAN - LIGHTING

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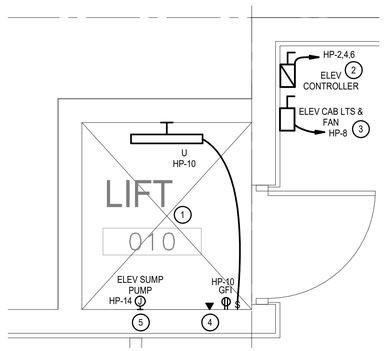
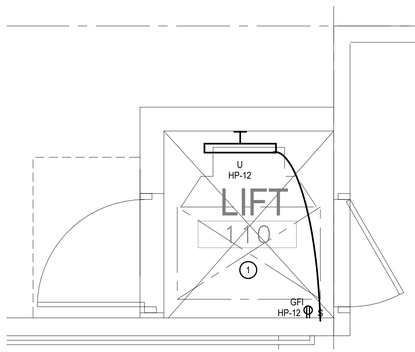



1 ELEVATOR PIT ELECTRICAL PLAN
1/2" = 1'-0"




2 ELEVATOR HOISTWAY ELECTRICAL PLAN
1/2" = 1'-0"

## DRAWING NOTES:

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2. ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBERS INDICATE CIRCUITING.
3. VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT AND COORDINATE WITH MECHANICAL DUCTWORK AS REQUIRED PRIOR TO ROUGH-IN.
4. COORDINATE LOCATIONS FO ALL TELEPHONE, CATV OUTLETS AND REQUIREMENTS WITH OWNER / ARCHITECT.
5. REFER TO MEHCANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
6. COORDINATE INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT PROVIDED BY OTHER TRADES, AND PROVIDE ALL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. REFER TO EQUIPMENT CONNECTION SCHEDULES FOR FEEDER, DISCONNECT, AND CIRCUIT BREAKER SIZES FOR MECHANICAL & PLUMBING EQUIPMENT.
8. NO EQUIPMENT, DEVICES, FURNITURE, OR THE LIKE SHALL BE INSTALLED OR PLACED IN FRONT OF ELECTRICAL PANELS OR EQUIPMENT THAT WOULD VIOLATE CODE REQUIREMENTS FOR WORKING CLEARANCE.

## KEY NOTES:

1. COORDINATE ALL HOISTWAY AND PIT DEVICE LOCATIONS WITH ELEVATOR MANUFACTURER.
2. PROVIDE 45A3P FUSED DISCONNECT SWITCH AND POWER CONNECTION WITH (3 #6 AWG CU + 1 #10 AWG CU GND, 1"C, AND FUSES PER ELEVATOR MANUFACTURER'S REQUIREMENTS FOR ELEVATOR CONTROLLER. VERIFY REQUIREMENTS WITH APPROVED ELEVATOR EQUIPMENT SUBMITTAL AND SHOP DRAWINGS PRIOR TO ROUGH-IN.
3. PROVIDE 15A1P NON-FUSED DISCONNECT FOR ELEVATOR CAB LIGHTS & FAN. VERIFY REQUIREMENTS WITH APPROVED ELEVATOR EQUIPMENT SUBMITTAL AND SHOP DRAWINGS PRIOR TO ROUGH-IN.
4. PROVIDE TELEPHONE / DATA OUTLET IN ELEVATOR HOISTWAY FOR CONNECTION TO ELEVATOR CONTROLLER. VERIFY LOCATION WITH ELEVATOR INSTALLER.
5. PROVIDE 120V POWER CONNECTION IN ELEVATOR PIT FOR ELEVATOR SUMP PUMP.


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ENLARGED ELECTRICAL PLANS

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## Compliance Certificate

### Project Information

| | |
|---|---|
| Energy Code: | 2024 IECC |
| Project Title: | The Grain Yard |
| Location: | Louisville, Colorado |
| Climate Zone: | 5b |
| Project Type: | Alteration |
| Project No: | 74937 |
| Project Sub Type: | Substantial Alteration |
| All Electric: | true |
| Is Renewable: | false |
| Has Battery: | false |
| Has Charger: | true |
| Has Heat Pump | true |

| Construction Site: | Owner/Agent: | Designer/Contractor: |
|---|---|---|
| 540 County Road<br>Louisville , Colorado 80027 | Erik Hartronft<br>Hartronft Associates<br>Louisville , Colorado 80027<br>303.673.9304 | Arlen Flax<br>Given & Associates, Inc.<br>Lakewood , Colorado 80228<br>720-638-6582<br>arlenf@givenandassociates.com |

**Notes:**

### Energy Credits

| Description | Credit |
|---|---|
| L06 Reduced lighting power | 8.0 |
| H02 More efficient HVAC equipment heating performance | 36.6 |
| H03 More efficiency HVAC cooling equipment and fan performance | 2.9 |
| W06 Thermostatic balancing valves | 1.0 |
| L03 Increase occupancy sensor | 1.0 |

**Credits: 72.0 Required 49.5 Proposed**

### Renewable energy

| | |
|---|---|
| Number of Floors: | 1 |
| Area of Three Largest Floors: | 5847 |
| Proposed Capacity: | 0 |
| Required Capacity: | 0 |
| Proposed Off-site Energy: | 0 |
| Required Off-site Energy: | 0 |
| Exception: | None |

**Renewables Pass**



### Building Area

| Description | Floor Area |
|---|---|
| 1-Dining: Bar Lounge/Leisure (Dining: Bar Lounge/Leisure) : Nonresidential | 5847 |



## Interior Lighting Compliance Certificate

### Project Information

| | |
|---|---|
| Energy Code: | 2024 IECC |
| Project Title: | The Grain Yard |
| Location: | Louisville, Colorado |
| Climate Zone: | 5b |
| Project Type: | Alteration |

| Construction Site: | Owner/Agent: | Designer/Contractor: |
|---|---|---|
| 540 County Road<br>Louisville , Colorado 80027 | Erik Hartronft<br>Hartronft Associates<br>Louisville , Colorado 80027<br>303.673.9304 | Arlen Flax<br>Given & Associates, Inc.<br>Lakewood , Colorado 80228<br>720-638-6582<br>arlenf@givenandassociates.com |

### Allowed Interior Lighting Power

| A | B | C | D |
|---|---|---|---|
| Area Category | Floor Area (ft2) | Allowed Watts / ft2 | Allowed Watts |
| 1-Restrooms (Common Space Types:Restrooms) | 314 | 0.74 | |
| 2-Office (Common Space Types:Office - enclosed) | 51 | 0.73 | |
| 3-Circulation-Stairs, Corridor, Lift (Common Space Types:Corridor <8 ft wide) | 1442 | 0.44 | |
| 4-Bar, Seating, Gathering (Common Space Types:Dining area in bar/lounge or leisure dining) | 2478 | 0.76 | |
| 5-House, Back-of-House, Utility (Common Space Types:Storage room) | 5256 | 0.35 | |
| Total Allowed Watts: | | | 4627 |

### Proposed Interior Lighting Power

| A | B | C | D |
|---|---|---|---|
| Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | # of Fixture | Fixture Watt. | (B X C) |
| 1-Restrooms (Common Space Types:Restrooms) | | | |
| G: G: LED: | 11 | 10 | 110 |
| H: H: LED: | 1 | 18 | 18 |
| F: F: LED: | 1 | 23 | 23 |
| 2-Office (Common Space Types:Office - enclosed) | | | |
| L: L: LED: | 1 | 19 | 19 |
| 3-Circulation-Stairs, Corridor, Lift (Common Space Types:Corridor <8 ft wide) | | | |
| C: C: LED: | 16 | 16 | 256 |
| L: L: LED: | 6 | 19 | 114 |
| U: U: LED: | 2 | 34 | 68 |
| 4-Bar, Seating, Gathering (Common Space Types:Dining area in bar/lounge or leisure dining) | | | |
| A: A: LED: | 23 | 10 | 230 |
| B: B: LED: | 3 | 10 | 30 |



| A | B | C | D |
|---|---|---|---|
| Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | # of Fixture | Fixture Watt. | (B X C) |
| C: C: LED: | 28 | 16 | 448 |
| A2: A2: LED: | 5 | 10 | 50 |
| JS: JS: LED: | 4 | 10 | 40 |
| N: N: LED: | 3 | 10 | 30 |
| D: D: LED: | 2 | 23 | 46 |
| E: E: LED: | 2 | 23 | 46 |
| R: R: LED: | 1 | 60 | 60 |
| G: G: LED: | 7 | 10 | 70 |
| Q: Q: LED: | 3 | 160 | 480 |
| 5-House, Back-of-House, Utility (Common Space Types:Storage room) | | | |
| C: C: LED: | 22 | 16 | 352 |
| S: S: LED: | 40 | 8 | 320 |
| L: L: LED: | 2 | 19 | 38 |
| Q: Q: LED: | 1 | 160 | 160 |
| B2: B2: LED: | 10 | 10 | 100 |
| T: T: LED: | 3 | 75 | 225 |
| JP: JP: LED: | 2 | 10 | 20 |
| JS: JS: LED: | 2 | 10 | 20 |
| Total Proposed Watts: | | | 3373 |

### Proposed Interior Lighting Controls

| Fixture | Lighting Control |
|---|---|
| 1-Restrooms (Common Space Types:Restrooms) | |
| G: G: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| H: H: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| F: F: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| 2-Office (Common Space Types:Office - enclosed) | |
| L: L: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| 3-Circulation-Stairs, Corridor, Lift (Common Space Types:Corridor <8 ft wide) | |
| C: C: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| L: L: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| U: U: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| 4-Bar, Seating, Gathering (Common Space Types:Dining area in bar/lounge or leisure dining) | |
| A: A: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| B: B: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| C: C: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| A2: A2: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| JS: JS: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |



| Fixture | Lighting Control |
|---|---|
| N: N: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| D: D: LED: | Interior Timeswitch, Manual Control |
| E: E: LED: | Interior Timeswitch, Manual Control |
| R: R: LED: | Interior Timeswitch, Manual Control |
| G: G: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| Q: Q: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| 5-House, Back-of-House, Utility (Common Space Types:Storage room) | |
| C: C: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| S: S: LED: | Interior Timeswitch, Manual Control |
| L: L: LED: | Interior Timeswitch, Manual Control |
| Q: Q: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| B2: B2: LED: | Interior Timeswitch, Manual Control |
| T: T: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| JP: JP: LED: | Occupancy Sensor, Interior Timeswitch, Manual Control |
| JS: JS: LED: | |

**Interior Lighting TBD: The sum of the space floor areas entered in the interior lighting section exceeds the floor area of the building area.**

## Exterior Lighting Compliance Certificate

### Project Information

| | |
|---|---|
| Energy Code: | 2024 IECC |
| Project Title: | The Grain Yard |
| Location: | Louisville, Colorado |
| Climate Zone: | 5b |
| Project Type: | Alteration |
| Exterior Lighting Zone: | Residential mixed use area (LZ2) |

| Construction Site: | Owner/Agent: | Designer/Contractor: |
|---|---|---|
| 540 County Road<br>Louisville , Colorado 80027 | Erik Hartronft<br>Hartronft Associates<br>Louisville , Colorado 80027<br>303.673.9304 | Arlen Flax<br>Given & Associates, Inc.<br>Lakewood , Colorado 80228<br>720-638-6582<br>arlenf@givenandassociates.com |

### Allowed Exterior Lighting Power

| A | B | C | D | E |
|---|---|---|---|---|
| Area/Surface Category | Quantity | Allowed Watts / ft2 | Tradable Wattage | Allowed Watts (B X C) |
| Main Entry Canopy (Entry canopy) | 370 ft2 | 0.13 | No | 48.1 |
| Outlot A / Courtyard (Special feature area) | 6714 ft2 | 0.05 | No | 335.70000000000005 |
| Total Tradable Watts (a): | | | | 375.606 |



| A | B | C | D | E |
|---|---|---|---|---|
| Area/Surface Category | Quantity | Allowed Watts / ft2 | Tradable Wattage | Allowed Watts (B X C) |
| Base Site Allowance (b): | | | | 280 |
| Total Allowed Watts: | | | | 655.606 |

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A base site allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

### Proposed Exterior Lighting Power

| A | B | C | D | E |
|---|---|---|---|---|
| Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | Lamps/Fixture | # of Fixture | Fixture Watt. | (C X D) |
| Main Entry Canopy (Entry canopy, 370 ft2): Tradeable Wattage | | | | |
| EE: EE: LED: | 0 | 3 | 12 | 36 |
| AAE: AAE: LED: | 0 | 1 | 10 | 10 |
| FF: FF: LED: | 0 | 3 | 96 | 288 |
| Outlot A / Courtyard (Special feature area, 6714 ft2): Tradeable Wattage | | | | |
| CC: CC: LED: | 0 | 4 | 13 | 52 |
| BB: BB: LED: | 0 | 15 | 7 | 105 |
| FF: FF: LED: | 0 | 1 | 96 | 96 |
| DD: DD: LED: | 0 | 8 | 50 | 400 |
| Total Tradable Proposed Watts: | | | | 987 |

### Proposed Exterior Lighting Controls

| Fixture | Lighting Control |
|---|---|
| Main Entry Canopy (Entry canopy, 370 ft2) | |
| EE: EE: LED: | Daylight Shutoff, Exterior Timeswitch |
| AAE: AAE: LED: | Daylight Shutoff, Exterior Timeswitch |
| FF: FF: LED: | Daylight Shutoff, Exterior Timeswitch |
| Outlot A / Courtyard (Special feature area, 6714 ft2) | |
| CC: CC: LED: | Daylight Shutoff, Exterior Timeswitch |
| BB: BB: LED: | Daylight Shutoff, Exterior Timeswitch |
| FF: FF: LED: | Daylight Shutoff, Exterior Timeswitch |
| DD: DD: LED: | Daylight Shutoff, Exterior Timeswitch |

**Exterior Lighting FAILS**

## Inspection Checklist

Energy Code: 2024 IECC

Requirements: 95% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.



### Plan Review

| Section # & Req.ID | Plan Review | Complies? | Comments/Assumptions |
|---|---|---|---|
| C105.2 [PR3][1] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C105.2 [PR4][1] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |

**Additional Comments/Assumptions:**

| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|---|---|---|---|---|



### Rough-In Electrical Inspection

| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C405.2.1, C405.2.1.1 [EL7][1] | Occupancy sensors installed in classrooms/lecture/training rooms, computer rooms/data center, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, medical supply rooms, enclosed offices, laundry areas, open plan office areas, restrooms, storage rooms, telemedicine rooms, locker rooms, corridors, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C405.2.8.1 [EL16][1] | Demand responsive lighting controls capable of reducing lighting load to <=80% of full load upon receipt of a demand reponse signal. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C405.2.9 [EL17][1] | Interior parking area lighting controlled by occupancy sensors or time switch control. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | |
| C405.7 [EL3][2] | Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C405.8 [EL4][2] | Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist). | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C405.10 [EL1][2] | Total voltage drop across the combination of feeders and branch circuits <= 5%. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C405.10.1, C405.10.2 [EL5][2] | Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C405.12, C405.12.1 [EL6][2] | 50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C405.2.1.2 [EL8][1] | Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more within 20 minutes of when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. Lights not turned off by occupant sensors is done so by time-switch. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply.<br>**Location on plans/spec:** DOES NOT APPLY |



| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C405.2.1.3 [EL9][1] | Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C405.2.10, C405.2.10.1, C405.2.10.2 [EL10][1] | Sleeping or dwelling units provided with lighting controls | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** DOES NOT APPLY |
| C405.2.2, C405.2.2.1 [EL11][2] | Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C405.2.3.1 [EL12][1] | Spaces required to have dimming controls have a manual control that allows the occupant to reduce the connected lighting load to 10% of full power. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C405.2.4, C405.2.4.1, C405.2.4.2 [EL13][2] | Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Sidelit zones on first floor in Group A-2 and M occupancies. |
| C405.2.5 [EL14][1] | Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C405.2.7 [EL15][1] | Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |

**Additional Comments/Assumptions:**

| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|---|---|---|---|---|



### Final Inspection

| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C405.5.1 [FI26][1] | Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | *See the Exterior Lighting fixture schedule for values* |
| C406.2.3.3 [FI36][1] | Service water heating energy credit measure W06 has been selected for energy credit - thermostatic balancing valves installed in hot water recirculation systems. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** P0.03, P1.01 THROUGH P1.07 |
| C406.2.5.3 [FI43][1] | Lighting energy credit measure L03 has been selected for energy credit - increased occupancy sensor control in accordance with C406.2.5.3.1 through C406.2.5.3.3. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E0.05, E1.00, E2.01 THROUGH E2.05, E3.01 |
| C408.1.1 [FI58][1] | Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | |
| C408.2.5 [FI76][3] | Furnished as-built drawings for electric power systems within 90 days of system acceptance. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | |
| C408.3 [FI4][1] | Lighting systems and receptacle controls have been tested to ensure proper calibration, adjustment, programming, and operation in accordance with C408.3.1.1 through C408.3.1.6. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** E1.01 |
| C408.3.2.2 [FI77][3] | Furnished O&M instructions for systems and equipment to the building owner or designated representative. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | |

**Additional Comments/Assumptions:**

| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|---|---|---|---|---|



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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
BRETT A. BOLESKI
PROFESSIONAL ENGINEER
01/27/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/16/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL

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LIGHTING ENERGY COMPLIANCE DOCUMENTATION

Sheet
E6.01
- of - Sheets

# MECHANICAL SHEET SPECIFICATIONS

THIS SHEET SPECIFICATION SHALL GOVERN IN LIEU OF SEPARATE BOUND SPECIFICATIONS. UPON ISSUANCE SHOULD CONFLICTS ARISE BETWEEN THE SHEET AND THE BOUND SPECIFICATION, THEN THE MORE STRINGENT OF THE TWO SHALL PREVAIL.

1. BASIC REQUIREMENTS

A. MECHANICAL PLANS MAY INCLUDE SCOPE INFORMATION FOR OTHER TRADES. GENERAL CONTRACTOR TO FACILITATE COORDINATION OF PERTINENT INFO TO REQUIRED CONTRACTORS. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO BID TO CONFIRM A COMPLETE SYSTEM IS INCLUDED.

B. MECHANICAL DESIGN SHALL CONFORM TO ADOPTED CODES AND LOCAL AMENDMENTS. PROJECT SHALL BE COORDINATED WITH BUILDING SERVICES AND SHALL INCLUDE ITEMS NECESSARY FOR COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEMS. MAKE CONNECTIONS TO AND EXTEND SYSTEMS INSTALLED BY OTHERS AND/OR FURNISHED BY OTHERS. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM WHETHER OR NOT SPECIFICALLY SPECIFIED AND/OR SHOWN ON THE PLANS.

C. DO NOT SCALE FROM THESE DRAWINGS. REFER TO ARCHITECTURAL, STRUCTURAL OR CIVIL DRAWINGS BY OTHER DESIGN PROFESSIONALS FOR DIMENSIONS AND FOR ESTIMATING DISTANCES. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH RELEVANT DRAWINGS AND SPECIFICATIONS RELATING TO THE JOB WHETHER OR NOT INDICATED ON THESE DRAWINGS.

D. SCALES, DIMENSIONS OR QUANTITIES SHOWN ON THE DRAWINGS ARE FOR ENGINEERING CALCULATION PURPOSES ONLY. DESIGN IS DIAGRAMMATIC IN NATURE AND IS PROVIDED TO CONVEY DESIGN INTENT ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTIMATING AND DETERMINING DISTANCES AND QUANTITIES RELATED TO THE PROJECT. REFER TO DRAWINGS BY OTHERS AND VERIFY EXISTING CONDITIONS ON SITE PRIOR TO BID FOR ESTIMATING PURPOSES.

E. COORDINATE WITH OTHER TRADES FOR A COORDINATED INSTALLATION WITHIN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXIST, PREPARE COORDINATION DRAWINGS SHOWING TRADE CONFLICTS AND SUBMIT TO ARCHITECT/ENGINEER FOR APPROVAL AND DIRECTION PRIOR TO ROUGH-IN AND/OR INSTALLATION. RELOCATION OF WORK MADE PRIOR TO ROUGH-IN SHALL BE DONE AT NO ADDITIONAL COST. PROVIDE OFFSETS AT CHANGES OF DIRECTION AND TO AVOID OBSTRUCTIONS AT NO ADDITIONAL COST TO OWNER.

F. WORK SHALL BE PERFORMED BY PROPERLY LICENSED CONTRACTORS OR UNDER THEIR DIRECT SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF UL, ASTM, ETC. AND SHALL BEAR THE LABEL AS EVIDENCE THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT.

G. CONFIRM ACTUAL VOLTAGES, PHASE AND CHARACTERISTICS OF EQUIPMENT AND APPARATUS FURNISHED BY CONTRACTOR, TENANT, OTHER TRADES, DIVISIONS AND/OR EXISTING. CONFIRM PRIOR TO ROUGH-IN. IF DISCREPANCIES ARE NOTED TO THE INSTRUCTIONS OF THESE PLANS AND SPECIFICATIONS, SUBMIT THE NOTED DISCREPANCIES TO THE ARCHITECT/ENGINEER FOR DIRECTION PRIOR TO PROCEEDING.

H. INSTALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND DETAILS UNLESS OTHERWISE NOTED IN THESE PLANS. IF DISCREPANCIES EXIST CONTACT THE ARCHITECT/ENGINEER PRIOR TO ORDERING EQUIPMENT AND ROUGH-IN.

I. CONTRACTOR TO ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM STARTUP SERVICES ON ALL EQUIPMENT AND PROVIDE ALL NECESSARY ADJUSTMENTS FOR PROPER OPERATION.

J. SUBMIT MANUFACTURER'S LITERATURE (SHOP DRAWINGS) FOR MATERIALS AND EQUIPMENT. SUBMITTAL SHALL INCLUDE EQUIPMENT PERFORMANCE DATA AT ELEVATION AND/OR LOCAL CONDITIONS. EQUIPMENT CUTSHEETS OR CATALOG COPIES ARE NOT ACCEPTABLE. SUBMITTAL SHALL BEAR THE APPROVAL OF THE GENERAL CONTRACTOR FOR COMPLIANCE WITH COORDINATION AND THESE SPECIFICATIONS PRIOR TO SUBMITTAL TO ARCHITECT AND/OR THEIR AGENCIES. ANY SUBSTITUTED EQUIPMENT FROM SCHEDULED SHALL BE EQUAL TO THAT SCHEDULED IN CONTROLS, ACCESSORIES, AND PERFORMANCE REGARDLESS OF MANUFACTURER. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE SUBSTITUTED EQUIPMENT REALIZED BY OTHER CONTRACTORS OR THE DESIGN TEAM.

K. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE NEW EQUIPMENT, DUCT SYSTEMS, AND DEVICES IN A LIKE NEW STATE AT TIME OF PROJECT CLOSEOUT. PROTECT EQUIPMENT AND DEVICES AS REQUIRED AGAINST PHYSICAL DAMAGE, DEBRIS, RAIN, SNOW, WIND, DIRT, SUN FADING, RUST, CORROSION OR ANY OTHER DEGRADATION. CONTRACTOR TO REPAIR OR REPLACE ANY EQUIPMENT OR DEVICES AS REQUIRED.

L. FOR COMMERCIAL SPACES, AFTER COMPLETING SYSTEM INSTALLATION AND INSPECTION, CLEAN DUCT SYSTEMS AND AIR-MOVING EQUIPMENT IN ACCORDANCE WITH NATIONAL AIR DUCT CLEANERS' ASSOCIATION (NADCA) SPECIFICATIONS. THE CLEANING AGENCY SHALL BE A CERTIFIED MEMBER OF NADCA OR SHALL BE CERTIFIED BY A NATIONALLY RECOGNIZED PROGRAM AND ORGANIZATION.

2. BASIC MATERIALS

A. PROVIDE MECHANICAL SYSTEM CONTROLS, CONTROLLERS, CONTROL TRANSFORMERS, DISCONNECTS, STARTERS, CONTROL WIRING, ASSOCIATED CONTROL POWER WIRING, AND ALL WORK NECESSARY FOR A COMPLETE AND OPERATIONAL MECHANICAL SYSTEM. CONTRACTOR IS REQUIRED TO COORDINATE WITH OTHER TRADES OR RETAIN SUB-CONTRACTORS AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM PRIOR TO BID.

B. PROVIDE SUPPLEMENTAL STEEL AND SUPPORTS AS REQUIRED FOR INSTALLATION OF MECHANICAL MATERIALS, EQUIPMENT, AND APPARATUS.

C. PROVIDE VIBRATION ISOLATION ON MECHANICAL EQUIPMENT.

D. ALL WORK IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED AS EXPOSED ON THE PLANS. PRIOR TO THE INSTALLATION OF ANY EXPOSED WORK THE CONTRACTOR SHALL VERIFY AND OBTAIN ARCHITECTURAL APPROVAL OF LOCATION, ELEVATION, EXTENT, MATERIAL, AND FINISH.

E. UTILIZE AN INDEPENDENT BALANCER WITH NEBB AND/OR AABC CERTIFICATION. MECHANICAL SYSTEM SHALL BE BALANCED TO 10% DISCREPANCY OF THE VALUES INDICATED ON THE PLANS. IF THERE IS A DISCREPANCY GREATER THAN 10%, BALANCE CONTRACTOR SHALL CONTACT ENGINEER. A BALANCING METHOD MUST BE PROVIDED FOR ALL EQUIPMENT. PROVIDE A FINAL COPY OF THE BALANCE REPORT TO THE BUILDING DEPARTMENT AND ENGINEER OF RECORD UPON COMPLETION OF THE HVAC SYSTEM. RESIDENTIAL UNITS SHALL BE PROVIDED WITH A PROJECT SPECIFIC BALANCING PLAN AS REQUIRED BY THE RESPECTIVE ENERGY PROGRAM AND AUTHORITY HAVING JURISDICTION.

F. FIRE STOP ALL PIPING, DUCTING, AND WIRING MATERIALS PASSING THROUGH RATED STRUCTURES OR ASSEMBLIES USING U.L. LISTED PRODUCTS FOR ALL APPLICABLE PENETRATIONS IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.

G. PROVIDE DUCT SMOKE DETECTORS FOR AUTOMATIC EQUIPMENT SHUTOFF IN AIR-MOVING SYSTEMS THAT RETURN IN EXCESS OF 2,000 CFM TO ENCLOSED SPACES WITHIN BUILDINGS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE AIR HANDLING UNIT AUTOMATIC SHUT-DOWN WIRING AND DUCT/SMOKE DETECTOR WIRING WHEN REQUIRED, DETECTORS SHALL BE COMPATIBLE WITH BUILDING FIRE ALARM SYSTEM.

H. WHERE ROOFTOP HVAC EQUIPMENT OR DUCTWORK PENETRATES A RATED CEILING/ROOF STRUCTURE THEN THE MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO PROVIDE MEMBRANE EXTENSIONS UP TO THE ROOF DECK AT TIME OF BID. IF IMPRACTICAL OR COST PROHIBITIVE THEN FIRE DAMPERS MAY BE USED, AND COORDINATED AT TIME OF BID, AT THE MEMBRANE PENETRATION IN WHICH CASE THE MECHANICAL CONTRACTOR AND GENERAL CONTRACTOR SHALL COORDINATE PROPER ACCESS FOR DAMPER MAINTENANCE.

I. THE CONTRACTOR SHALL LOCATE AND FURNISH FOR INSTALLATION BY OTHERS, ALL ACCESS PANELS AS REQUIRED FOR ACCESS TO VALVES, DAMPERS, MOTORS, ETC AND THE PROPER SERVICING OF EQUIPMENT INSTALLED UNDER THIS CONTRACT. AT TIME OF BID THE MECHANICAL CONTRACTOR AND GENERAL CONTRACTOR SHALL COORDINATE TO ENSURE THAT ALL ACCESS PANELS (INCLUDING FIRE AND/OR SMOKE RATED MODELS) ARE INCLUDED. IN LIEU OF ACCESS PANELS IN HARD LID ARCHITECTURAL CEILINGS, PROVIDE REMOTE CABLE DAMPERS FOR BALANCING DEVICES.

J. PROVIDE SEISMIC AND/OR WIND LOADING SECUREMENT DETAILS AS REQUIRED BY THE LOCAL JURISDICTION. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE EQUIPMENT AND/OR CURB SUPPLIER(S) TO OBTAIN THE DRAWINGS AND INSTALL THE SYSTEM AS REQUIRED BY THE MANUFACTURER. MECHANICAL CONTRACTOR TO SELECT ATTACHMENT AND MOUNTING SYSTEM(S) BASED ON ATTACHING TO THE DESIGNED SUBSTRATE AND STRUCTURE WITHOUT REQUIRING ADDITIONAL REINFORCEMENT BY OTHERS. IF ANY SUBSTRATE AND/OR STRUCTURE IS REQUIRED FOR PROPER REINFORCEMENT, MECHANICAL CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR FOR ALL POTENTIAL REQUIREMENTS PRIOR TO BID.

K. PROVIDE PRE-ENGINEERED DUCT STAND SYSTEMS WITH A PROFESSIONAL ENGINEER STAMP & SIGNATURE THAT CERTIFIES DUCT STAND SYSTEM COMPLIES WITH ASCE7/SBC WIND LOADING BUILDING CODE REQUIREMENTS. REFER TO WIND LOADING REQUIREMENTS PER STRUCTURAL DESIGN CRITERIA. IF DUCT STAND MANUFACTURER REQUIRES AN ADDITIONAL FEE FOR WIND LOADING DESIGN, THIS FEE SHALL BE INCLUDED IN CONTRACTOR'S BID. SHOP DRAWINGS OF ROOFTOP DUCT SYSTEM AND DUCT STAND LAYOUT WITH ENGINEER STAMP TO BE SUBMITTED TO ARCHITECT/ENGINEER OF RECORD FOR REVIEW.

L. FIELD LABEL ALL MECHANICAL EQUIPMENT AND PIPING AS INDICATED ON THE PLANS PER MECHANICAL AND LOCAL CODE REQUIREMENTS. INDICATE DIRECTION OF FLOW ON PIPING.

M. TAG ALL ZONE VALVES WITH CONSECUTIVE NUMBERING ON PERMANENT HARD PLASTIC OR METAL TAB AND PROVIDE SCHEDULE LISTING ITEMS, AREA SERVED, SIZE AND VALVE TYPE. SUBMIT FINAL VALVE SCHEDULE FOR REVIEW.

N. PROVIDE 2" DEEP AUXILIARY DRAIN PAN WITH SEPARATE DRAIN LINE UNDER HEATING AND COOLING COILS (AIR HANDLING UNITS, FAN COIL UNITS, INLINE PUMPS, ETC) AND PROVIDE A WATER-LEVEL MONITORING DEVICE ON ALL DOWNFLOW EQUIPMENT WITHOUT A SECONDARY COIL WHERE CONDENSATION OR LEAKAGE CAN OCCUR. ALTERNATELY, IF ALLOWED IN LOCAL JURISDICTION, PROVIDE A UL 508 OVERFLOW CONDENSATE KILL SWITCH.

O. PROVIDE MANUFACTURERS RECOMMENDED MODIFICATIONS (SUCH AS HEAT TRACE AND ROUTING CHANGES) TO CONDENSING GAS FIRED EQUIPMENT LOCATED IN POTENTIAL FREEZING SPACES (SUCH AS ATTICS). COORDINATE WITH ELECTRICAL CONTRACTOR FOR HEAT TRACE CIRCUITING & INSTALLATION.

P. ALL PROVIDED MATERIALS LOCATED IN A RETURN AIR PLENUM SHALL HAVE A FLAME SPREAD OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS AS DETERMINED BY AN INDEPENDENT TESTING LAB. CONTRACTOR SHALL COORDINATE AT TIME OF BID WITH OTHER TRADES.

3. PIPING

A. PIPING MATERIALS, FITTINGS, VALVES, AND SPECIALTIES SHALL BE PROVIDED PER THE SYSTEM, MAXIMUM PRESSURE AT LOWEST POINT IN PIPING SYSTEM, AND SIZE UNLESS NOTED OTHERWISE:

B. REFRIGERANT PIPING 1-3/8" AND SMALLER SHALL BE ASTM B280 ACR OR ASTM B88 TYPE K ACR, ANNEALED COPPER TUBE WITH WROUGHT COPPER FITTINGS AND SILVER ALLOY (BAg-1) BRAZED JOINTS.

C. CONDENSATE DRAIN PIPING MATERIALS SHALL BE:
   A. TYPE M COPPER WITH SOLDERED JOINTS OR
   B. CPVC PER MANUFACTURER'S REQUIREMENTS.

D. PROVIDE EXPANSION LOOPS, SWING JOINTS, OR MECHANICAL EXPANSION COMPENSATING DEVICES AS REQUIRED TO ACCOUNT FOR THERMAL EXPANSION OF ALL PIPING SYSTEMS. EXPANSION SYSTEM SIZING SHALL BE IN ACCORDANCE WITH MATERIALS DATA SHEETS AND MANUFACTURER RECOMMENDATIONS.

E. SYSTEMS INSTALLED WITH DIS-SIMILAR MATERIALS MUST BE JOINED WITH DIELECTRIC FITTINGS PER MANUFACTURERS' REQUIREMENTS TO PREVENT GALVANIC CORROSION.

F. SLEEVES MUST BE PROVIDED FOR PIPING SYSTEMS ROUTED THROUGH MASONRY OR CONCRETE ASSEMBLIES. SLEEVES SIZES, MATERIALS AND FIRE-STOPPING SHALL BE COORDINATED PER PLAN WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ARCHITECTURAL ASSEMBLIES' REQUIREMENTS.

G. ANY PIPING SYSTEM OR SUPPORT/HANGER LOCATED IN A RETURN AIR PLENUM SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NO MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALTERNATIVELY, COMBUSTIBLE MATERIALS SHALL BE FULLY ENCLOSED IN MATERIALS LISTED AND LABELED FOR INSTALLATION WITHIN A PLENUM AND LISTED FOR THE APPLICATION.

H. ALL 2" DIAMETER AND GREATER PIPING MUST BE VIBRATION ISOLATED WHERE LOCATED WITHIN MECHANICAL EQUIPMENT ROOMS AND/OR FOR A MINIMUM DISTANCE OF 50' FROM CONNECTION TO ANY VIBRATING EQUIPMENT WITH ISOLATION HANGERS WITH A MINIMUM ¾" STATIC DEFLECTION. THE FIRST THREE HANGERS FROM THE EQUIPMENT SHALL HAVE A STATIC DEFLECTION EQUAL TO THAT OF THE ISOLATORS ON THE EQUIPMENT TO WHICH THE PIPE IS ATTACHED, OR 2" MAXIMUM. SMALLER PIPING REQUIRES RESILIENT MEANS OF ATTACHMENT BY USING A 3" LONG SECTION OF ½" THICK, CLOSED-CELL, SYNTHETIC FOAM RUBBER PIPE INSULATION.

4. DUCTWORK – ENVIRONMENTAL AIR AND GENERAL EXHAUST.

A. DUCTWORK SERVING ENVIRONMENTAL AIR FOR HVAC SYSTEMS AND FOR GENERAL EXHAUST PURPOSES SUCH AS TOILET, NON-COMMERCIAL KITCHEN, OR NON-HAZARDOUS EXHAUST SHALL BE CONSTRUCTED, INSTALLED, AND SEALED IN ACCORDANCE WITH SMACNA STANDARDS. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES. FINISHES FOR EXPOSED DUCTWORK, JOINT CONNECTION, AND SEALING METHODS SHALL BE COORDINATED WITH ARCHITECT/OWNER PRIOR TO BID. MINIMUM DUCT THICKNESS SHALL BE 26 GAGE OR THICKER AS REQUIRED BY SMACNA OR NOTED OTHERWISE.

B. DUCT MATERIALS SHALL BE PROVIDED PER THE SYSTEM TYPE, MAXIMUM OPERATING PRESSURE OF THE SYSTEM, AND SIZE UNLESS NOTED OTHERWISE:

1. GALVANIZED STEEL SHEET WITH A MINIMUM G90 ZINC COATING CONFORMING TO ASTM A924 & ASTM A653.
2. ALUMINUM SHEET CONSTRUCTED OF 3003-H14 CONFORMING TO ASTM B209.
3. STAINLESS STEEL CONSTRUCTED OF TYPE 304 OR 316 SHEET CONFORMING TO ASTM A480.
4. ANY NON-METALLIC DUCT AND FLEXIBLE DUCT SHALL BE CLASS 0 OR CLASS 1 DUCT MATERIALS AND UL 181 LISTED.
5. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF FLAME-RESISTANT MATERIAL, AND COMPLYING WITH NFPA-701. FLEXIBLE CONNECTORS INSTALLED EXPOSED TO WEATHER SHALL BE UV RESISTANT.
6. FIBERGLASS DUCT BOARD SHALL BE CONSTRUCTED CONFORMING TO ASTM 1071, ASTM E84 AND LISTED FOR UL 181 CLASS 1.
7. FABRIC, UNDERGROUND, AND PREFAB ENVIRONMENTAL DUCTWORK AS SPECIFIED SHALL BE CONSTRUCTED AND INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS AND METHODS.

C. DUCT SYSTEM MATERIAL SCHEDULE SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

1. SUPPLY, RETURN AND EXHAUST DUCTWORK SHALL BE GALVANIZED STEEL UNLESS NOTED OTHERWISE.
2. ALL DUCTWORK SERVING OR WITHIN A HIGH HUMIDITY ENVIRONMENT (NATATORIUM, SPA, LOCKER/SHOWER ROOM, ETC.) SHALL BE ALUMINUM OR STAINLESS STEEL.
3. DUCT BOARD IS APPROVED FOR TRANSFER DUCTS AND RETURN AIR BOOTS. TURNING VANES ARE NOT REQUIRED IN TRANSFER AIR DUCTS.
4. DUCTWORK SERVING NON-COMMERCIAL ENVIRONMENTAL KITCHEN OR LAUNDRY EXHAUST SHALL BE RIGID GALVANIZED OR ALUMINUM.

D. DUCT CONSTRUCTION, FITTINGS, AND ACCESSORIES SHALL BE PROVIDED PER THE SYSTEM TYPE, MAXIMUM OPERATING PRESSURE OF THE SYSTEM, AND SIZE UNLESS NOTED OTHERWISE:

1. ALL DUCTWORK, TRANSVERSE JOINTS, LONGITUDINAL SEAMS, AND DUCT WALL PENETRATIONS SHALL BE SEALED AIRTIGHT. THE DUCT PRESSURE CLASS SHALL BE AS NOTED ON PLANS OR CORRESPONDING TO THE MAXIMUM EQUIPMENT EXTERNAL STATIC PRESSURE ON EACH SYSTEM. DUCT SYSTEMS WITH PRESSURE CLASSIFICATIONS GREATER THAN 2 INWC SHALL BE LEAKAGE-TESTED AND PROVED AIRTIGHT TO STANDARDS ESTABLISHED BY SMACNA PRIOR TO APPLYING EXTERNAL INSULATION.
2. DUCT SIZES GIVEN ARE NET INSIDE FREE AREA. WHERE INTERNAL DUCT LINING IS USED, INCREASE DUCT SIZES ACCORDINGLY TO PROVIDE THE INDICATED NET FREE AREA.
3. UNLESS NOTED OTHERWISE, CONNECTIONS TO AIR DEVICES AND AIR-MOVING EQUIPMENT TO BE THE FULL SIZE OF THE EQUIPMENT CONNECTION.
4. EXPOSED ROUND OR OVAL DUCTWORK SHALL BE SPIRAL CONSTRUCTION. EXPOSED RECTANGULAR DUCTWORK JOINTS AND FITTINGS SHALL BE FLANGED CONNECTIONS. ALL DUCT SEALING MATERIALS AND METHODS SHALL BE APPLIED IN A WORKMANSHIP LIKE MANNER WITH NO VISIBLE SEALANT. COORDINATE WITH ARCHITECT IF DUCTWORK SHALL BE PAINTABLE.
5. INSTALL TURNING VANES IN ALL 90-DEGREE SQUARE ELBOWS AND TEE FITTINGS WITHIN COMMERCIAL AND MULTI-FLOOR RESIDENTIAL DWELLING UNITS' DUCTWORK. SINGLE FLOOR DWELLING UNITS LESS THAN 1,800 SQUARE FEET SHALL NOT BE REQUIRED TO HAVE TURNING VANES. ALL TURNING VANES SHALL HAVE SMOOTH EDGES AND BE OF WORKMANSHIP LIKE QUALITY.
6. ALL DUCT TAPS AND RUNOUTS TO ANY SUPPLY, RETURN, OR EXHAUST TERMINAL SHALL BE PROVIDED WITH A MEANS OF BALANCING AIRFLOW.
7. ALL ROUND DUCTWORK SERVING DISHWASHER, KITCHEN OR LAUNDRY EXHAUST SHALL BE UNVANED SMOOTH RADIUS WITH A RADIUS EQUAL TO 1-1/2 TIMES THE DIAMETER OF THE DUCT.
8. INSTALL DUCT ACCESS DOORS FOR INSPECTION AND CLEANING FILTERS, COILS, DAMPERS, AND EQUIPMENT, ETC. PROVIDE AN APPROVED MEANS OF ACCESS, LARGE ENOUGH TO PERMIT INSPECTION AND MAINTENANCE.

E. INSTALL FLEXIBLE DUCT CONNECTORS ON ALL AIR HANDLING AND VAV TYPE EQUIPMENT DUCT CONNECTIONS. CONNECTORS SHALL HAVE A MAXIMUM LENGTH OF 10 INCHES.

F. FLEXIBLE DUCTWORK TO AIR DEVICES IN COMMERCIAL SPACES SHALL HAVE A MAXIMUM STRETCHED LENGTH OF 6 FEET. REFER TO FLEX DUCT ROUTING NOTES FOR CONNECTIONS WITHIN RESIDENTIAL UNITS.

G. PRESSURIZED EXHAUST DUCTWORK LOCATED RETURN AIR PLENUM SHALL BE SEALED WITH SMACNA SEAL CLASS "A" DUCT SEALANT.

H. MECHANICAL CONTRACTOR MUST COORDINATE WITH ALL TRADES AND STRUCTURAL MEMBERS TO MAINTAIN ALL EXHAUST AND INTAKE CLEARANCES PER AUTHORITY HAVING JURISDICTION REQUIREMENTS. COORDINATE ANY FIELD MODIFICATIONS REQUIRED PRIOR TO FABRICATION AND INSTALLATION WITH THE DESIGN TEAM.

THERMAL INSULATION

A. PIPING INSULATION MATERIALS, COATINGS, ADHESIVES AND SPECIALTIES SHALL BE PROVIDED PER THE SYSTEM AND MAXIMUM TEMPERATURE. UNLESS NOTED OTHERWISE:

1. FIBERGLASS PIPE INSULATION SHALL BE MOLDED MINERAL FIBER WITH A FACTORY-APPLIED SELF SEALING, ALL SERVICE VAPOR RETARDER JACKET. MINERAL FIBER INSULATION AND JACKETING SHALL CONFORM TO ASTM C1136, ASTM C547 AND ASTM E84.
2. CLOSED CELL ELASTOMERIC FOAM PLASTIC INSULATION SHALL CONFORM TO ASTM C534 TYPE I AND ASTM E84. ALL SEAMS AND JOINTS SHALL BE SEALED AND TAPED PER THE MANUFACTURER'S INSTRUCTIONS. POLYETHYLENE (PE) SHALL NOT BE AN ACCEPTABLE SUBSTITUTION.
3. CELLULAR GLASS INSULATION SHALL BE PREFORMED, SEALED CELLULAR GLASS BEAD PIPE WITH FACTORY APPLIED ALL SERVICE JACKET. ALL SEAMS AND JOINTS SHALL BE SEALED AND TAPED PER THE MANUFACTURER'S INSTRUCTIONS. CELLULAR GLASS INSULATION SHALL CONFORM TO ASTM C552 AND ASTM E84.
4. CALCIUM SILICATE BLOCK AND PREFORMED PIPING INSULATION SHALL CONFORM TO ASTM C533
5. PIPING EXPOSED TO WEATHER SHALL BE INSTALLED WITH AN ALL-SERVICE JACKET AND SELF ADHERING, FOIL FACED, UV RESISTANT WEATHER BARRIER RATED FOR EXTERIOR USE.
6. VISIBLE PIPING NOT EXPOSED TO WEATHER SHALL BE INSTALLED WITH AN IMPACT RESISTANT PIPE PVC JACKET AND TAPE ALL SEAMS.

B. DUCT INSULATION MATERIALS, COATING, ADHESIVES AND SPECIALTIES SHALL BE PROVIDED PER THE SYSTEM AND TYPE PER THE DUCT INSULATION SCHEDULE. MATERIALS FOR EACH TYPE OF INSULATION SHALL BE AS FOLLOWS:

1. INSULATION INTERNAL TO DUCT SHALL BE A MATT-FACED, ANTI-MICROBIAL TREATED, FLEXIBLE GLASS FIBER BLANKET ATTACHED WITH MECHANICAL FASTENERS. FIBROUS GLASS DUCT LINER SHALL CONFORM TO ASTM E84 AND ASTM C1071.
2. INSULATION EXTERNAL TO DUCT, NOT EXPOSED TO WEATHER SHALL BE A FLEXIBLE MINERAL FIBER BLANKET WITH A FACTORY-APPLIED FSK JACKET. MINERAL FIBER BLANKET SHALL CONFORM TO ASTM E84, ASTM C553 AND ASTM C1290.
3. INSULATION EXTERNAL TO DUCT AND EXPOSED TO WEATHER SHALL BE MINERAL FIBER BOARD INSULATION WITH FACTORY INSTALLED ALL-SERVICE JACKET (ASJ+) AND SELF ADHERING, FOIL FACED, UV RESISTANT WEATHER BARRIER RATED FOR EXTERIOR USE. MINERAL FIBER BOARD INSULATION SHALL CONFORM TO ASTM E84 AND ASTM C612.
4. ALL DUCTWORK EXPOSED TO WEATHER SHALL BE PROVIDED WITH A SELF ADHERING, FOIL FACED, UV RESISTANT WEATHER BARRIER RATED FOR EXTERIOR USE.

C. EXHAUST PIPING SERVING A GENERATOR SHALL BE PREFORMED CALCIUM SILICATE CONFORMING TO ASTM C533

D. CONDENSATE DRAIN PIPING SHALL BE 1/2-INCH-THICK INSULATION. PROVIDE WITH AN ALL-SERVICE JACKET WHEN EXPOSED.

E. INSULATE REFRIGERANT SUCTION LINES WITH 3/4" FOAM PLASTIC CLOSED CELL INSULATION.

1. AIR INLETS AND OUTLETS

A. FURNISH AND INSTALL AIR INLETS AND OUTLETS AS SCHEDULED ON THE PLANS.

B. OUTLETS SHALL HAVE A WHITE BAKED ENAMEL FINISH TO MATCH CEILING OR WALL.

AIR DEVICES SERVING SWIMMING POOL AREAS SHALL BE ALUMINUM OR GALVANIZED COATED STEEL.

1. EXHAUST FANS

A. FURNISH AND INSTALL EXHAUST FANS AS SCHEDULED ON THE PLANS.

B. FURNISH AND INSTALL UNITS COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROL NECESSARY FOR PROPER OPERATION.

2. ROOFTOP HVAC UNITS

A. FURNISH AND INSTALL ROOF TOP PACKAGED ELECTRIC A/C UNITS WITH NATURAL GAS HEATING SECTIONS AS SCHEDULED ON THE PLANS. ACCEPTABLE MANUFACTURERS ARE TRANE, CARRIER, DAIKIN, OR YORK. ANY SUBSTITUTED MODELS MUST BE EQUAL IN CONTROLS, ACCESSORIES, AND PERFORMANCE TO SCHEDULED MODELS.

B. FURNISH AND INSTALL UNITS COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROLS FOR SATISFACTORY OPERATION. PROVIDE PHASE REVERSAL PROTECTION ON ANY UNITS WITH SCROLL COMPRESSORS.

C. FURNISH PROGRAMMABLE SPACE THERMOSTAT WITH NIGHT SETBACK OPERATION OR DIGITAL CONTROL SYSTEM FOR VAV APPLICATIONS AS APPLICABLE. MOUNT AT +42-INCHES AFF.

D. FURNISH ALL UNITS WITH 100% OUTDOOR AIR ECONOMIZER PACKAGE UNLESS OTHERWISE NOTED.

E. FURNISH ALL UNITS WITH 14-INCH ROOF CURBS.

F. UNITS SHALL BE UL 60355-3-40 LISTED AND EQUIPPED WITH A REFRIGERANT DETECTION SYSTEM THAT WILL ENERGIZE FAN AND DE-ENERGIZE ELECTRIC HEATING A REFRIGERATION OPERATION UPON DETECTION OF A REFRIGERANT LEAK PER ASHRAE 15-2022 SECTION 7.6.2.

1. HEAT PUMP SPLIT SYSTEMS

A. FURNISH AND INSTALL FAN COIL UNITS WITH DX COOLING COIL AND HEATING COIL AS SCHEDULED ON THE PLANS. FAN COIL UNITS SHALL BE AS MANUFACTURED BY CARRIER, TRANE, DAIKIN, OR FIRST COMPANY.

B. PROVIDE SPACE THERMOSTAT AND INTERLOCK WIRING DIAGRAM APPROPRIATE FOR SYSTEM. THERMOSTAT SHALL HAVE HEAT OFF COOL, FAN AUTO CONTINUOUS SWITCH AND 7-DAY PROGRAMMABLE CONTROLS. MOUNT AT +42-INCHES AFF.

C. FAN COIL UNIT SHALL BE CERTIFIED AND COORDINATED WITH HEAT PUMP OUTDOOR UNIT OF SAME MANUFACTURER. UNIT MANUFACTURER SHALL SIZE REFRIGERANT PIPING TO BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENT.

D. UNITS SHALL BE UL 60355-3-40 LISTED AND EQUIPPED WITH A REFRIGERANT DETECTION SYSTEM THAT WILL ENERGIZE FAN AND DE-ENERGIZE ELECTRIC HEATING A REFRIGERATION OPERATION UPON DETECTION OF A REFRIGERANT LEAK PER ASHRAE 15-2022 SECTION 7.6.2.

E. UNITS SHALL BE AHRI CERTIFIED IN PERFORMANCE.

F. PROVIDE LOW AMBIENT KIT FOR OPERATION.

G. HEAT PUMPS SHALL PROVIDE CONTROLS TO OPERATE THE SUPPLEMENTARY ELECTRIC HEAT TO ONLY WHEN VAPOR COMPRESSION CYCLE CANNOT PROVIDE THE NECESSARY HEATING ENERGY TO SATISFY THE THERMOSTAT SETTING.

2. ELECTRIC HEATING UNITS

A. FURNISH AND INSTALL ELECTRIC HEATING EQUIPMENT AS SCHEDULED AND INDICATED ON THE PLANS

B. ELECTRIC UNIT HEATERS SHALL BE FURNISHED COMPLETE WITH ALL MOUNTING HARDWARE AND ACCESSORIES INCLUDING SPACE THERMOSTAT AND/OR SELF-CONTAINED THERMOSTAT AS REQUIRED FOR OPERATION.

C. PROVIDE WHITE COLOR FINISH UNLESS OTHERWISE INDICATED.

D. ALL UNITS SHALL BE UL LISTED.

E. MC SHALL REVIEW SURFACE VERSUS RECESS MOUNTING OPTIONS WITH GC PRIOR TO ORDERING EQUIPMENT. ASK FOR CLARIFICATION IF CONFLICTS ARISE DUE TO RATED WALLS, RATED CEILING, STRUCTURE, ETC.

CONTROL SYSTEM

A. FURNISH AND INSTALL A COMPLETE SYSTEM OF ELECTRIC/ELECTRONIC CONTROL FOR THE SYSTEMS INSTALLED TO PROVIDE THE FOLLOWING SEQUENCES OF OPERATION.

B. SYSTEMS SHALL BE INDEPENDENT AND STAND ALONE IN OPERATION AND SEQUENCE. SOME SYSTEMS SHALL BE INTEGRATED WITH BAS (BUILDING AUTOMATION SYSTEM) AS NOTED ON PLANS.

C. PROGRAMMABLE THERMOSTATS WITH THE FOLLOWING CAPABILITIES ARE REQUIRED FOR ZONE CONDITIONING SYSTEMS, EXCEPT WHERE THE SYSTEMS OPERATE CONTINUOUSLY, PROVIDE FREEZE PROTECTION AND ENTRY OR VESTIBULE TEMPERING SYSTEMS.

1. THERMOSTATS SHALL BE 7-DAY PROGRAMMABLE AND CAPABLE OF MAINTAINING A DAILY SCHEDULE WITH DIFFERENT SETPOINTS THROUGHOUT THE DAY.
2. THERMOSTATS SHALL HAVE AUTOMATIC CHANGE OVER BETWEEN HEATING AND COOLING AND MAINTAIN A MINIMUM DEADBAND OF 5°F BETWEEN HEATING AND COOLING SETPOINTS.
3

## MECHANICAL DUCT INSULATION SCHEDULE

CLIMATE ZONES 5-8 WITH 1% SUMMER DESIGN MCWB < 73 F

| DUCT SYSTEM | DUCT SYSTEM LOCATION | | | | | |
|---|---|---|---|---|---|---|
| | EXTERIOR OF BUILDING | VENTILATED ATTIC | UNVENTILATED ATTIC | UNCONDITIONED BUILDING AREA | CONDITIONED SPACE | RETURN AIR PLENUM |
| ROOM NEUTRAL AIR | R-12 WRAP OR LINER | R-8 WRAP OR LINER | (1) R-6 WRAP OR LINER | R-6 WRAP OR LINER | NR | NR |
| UNCONDITIONED AIR | NR | NR | R-6 WRAP | NR | R-6 WRAP | R-6 WRAP |
| CONDITIONED AIR | R-12 WRAP OR LINER | R-8 WRAP OR LINER | (1) R-6 WRAP OR LINER | R-6 WRAP OR LINER | NR | NR |
| RETURN AIR | R-12 WRAP OR LINER | R-6 WRAP OR LINER | (1) R-6 WRAP OR LINER | R-6 WRAP OR LINER | R-2.1 LINER | R-2.1 LINER |
| EXHAUST AIR | NR | NR | (1) R-6 WRAP OR LINER | NR | NR | NR |
| ERV EXHAUST AIR | NR | NR | R-6 WRAP | NR | R-6 WRAP | R-6 WRAP |

**SCHEDULE NOTES:**

(1) BUILDING INSULATION MUST COVER DUCT WITH A MINIMUM VALUE OF R-6 VALUE TO PROVIDE A TOTAL VALUE OF R-12 SEPARATION TO AMBIENT CONDITIONS. IF THERE IS NO ADDITIONAL BUILDING INSULATION SEPERATING THE DUCT FROM THE EXTERIOR, PROVIDE R-12 DUCT INSULATION.

**GENERAL NOTES:**

1. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. DUCT INSULATION REQUIREMENTS LISTED IN THIS SCHEDULE ARE MINIMUM R-VALUES REQUIRED. ADDITIONAL INSULATION MAY BE REQUIRED AND SPECIFIED ELSEWHERE IN PLANS AND DOCUMENTS. IF LOCALLY ADOPTED CODE REQUIRES ADDITIONAL INSULATION, THE CONTRACTOR SHALL PROVIDE THE MINIMUM REQUIRED BY THE AHJ.
3. IN SOME CASES, DUCT INSULATION EXCEEDS CODE REQUIRED INSULATION VALUES TO PREVENT CONDENSATION FORMATION.

DUCT SYSTEM DEFINITIONS & ABBREVIATIONS

**DUCT SYSTEMS:**

ROOM NEUTRAL AIR - AIR STREAM TEMPERATURE IS LESS THAN 5 DEGREE DIFFERENCE FROM SPACE TEMPERATURE (TYPICALLY 65°F-78°F AIR STREAM TEMP)

UNCONDITIONED AIR - AIR STREAM TEMPERATURE EQUAL TO OUTDOOR AMBIENT AIR TEMPERATURE OR GREATER THAN 15°F DIFFERENCE FROM SPACE TEMPERATURE

CONDITIONED AIR - MECHANICALLY CONDITIONED HEATING OR COOLING AIRFLOW (TYPICALLY LESS THAN 60°F OR GREATER THAN 80°F)

RETURN AIR - RETURN AIR SERVICE FROM CONDITIONED SPACES

EXHAUST AIR - EXHAUST AIR SERVICE FROM CONDITIONED SPACES

ERV EXHAUST AIR - PARTIALLY TEMPERED EXHAUST AIR SERVICE FROM AN ERV (CAN BE LESS THAN 60°F OR GREATER THAN 80°F)

NR = NOT REQUIRED

**LOCATION DEFINITIONS:**

EXTERIOR OF BUILDING - DUCT LOCATED OUTSIDE OF THE BUILDINGS THERMAL ENVELOPE AND WEATHER BARRIER

VENTILATED ATTIC - DUCT LOCATED OUTSIDE OF THE BUILDING'S THERMAL ENVELOPE IN A VENTILATED ROOF ATTIC

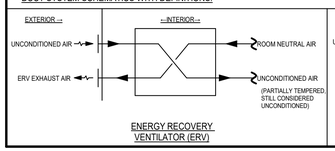
UNVENTILATED ATTIC - DUCTWORK LOCATED ENTIRELY WITHIN BUILDING'S WEATHER BARRIER AND EMBEDDED IN THE BUILDING'S INSULATION WITHIN THE ROOF/CEILING ASSEMBLY

UNCONDITIONED BUILDING AREA - DUCTWORK LOCATED IN A BUILDING CAVITY EXPOSED TO AMBIENT EXTERIOR CONDITIONS (PARKING GARAGE, EXTERIOR SHAFT, CRAWLSPACE, ETC)

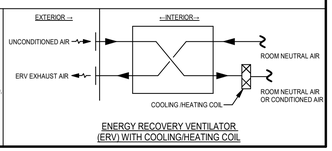
CONDITIONED BUILDING AREA - DUCTWORK LOCATED ENTIRELY ON CONDITIONED SIDE OF THERMAL ENVELOPE

RETURN AIR PLENUM - RETURN AIR PLENUM LOCATED COMPLETELY WITHIN THE BUILDING'S THERMAL ENVELOPE

DUCT SYSTEM SCHEMATICS WITH DEFINITIONS:




ENERGY RECOVERY VENTILATOR (ERV)




ENERGY RECOVERY VENTILATOR (ERV) WITH COOLING/HEATING COIL

## PIPING SYSTEMS

- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- CDS — CONDENSER WATER SUPPLY
- CDR — CONDENSER WATER RETURN
- HWS — HEATING HOT WATER SUPPLY
- HWR — HEATING HOT WATER RETURN
- DCW — DOMESTIC COLD WATER
- DCWR — DOMESTIC COLD WATER RETURN
- XXX"— DOMESTIC HOT WATER
- XXX"R — DOMESTIC HOT WATER RETURN
- REFS — REFRIGERANT SUCTION LINE
- REFL — REFRIGERANT LIQUID LINE
- REFG — REFRIGERANT GAS LINE
- G — NATURAL/PROPANE GAS
- CA — COMPRESSED AIR
- CND — CONDENSATE

## VALVES & FITTINGS

- 3 WAY CONTROL VALVE
- 3 WAY VALVE
- AIR VENT AUTOMATIC
- AIR VENT MANUAL
- BALL VALVE
- BUTTERFLY VAVLE
- CALIBRATED BALANCE VALVE
- CAP
- CHECK VALVE
- CONTROL VALVE
- DRAIN & FILL VALVE WITH CAP & 3/4" HOSE CONNECTION
- FLEX CONNECTOR
- FLOW ARROW
- FLOW METER
- FLOW SWITCH
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE/GAS COCK
- PRESSURE GAUGE & COCK
- PRESSURE REGULATING/REDUCING VALVE
- SIGHT GLASS
- SUCTION DIFFUSER
- TEMPERATURE & PRESSURE RELIEF VALVE
- TEMPERATURE & PRESSURE TEST PORT
- TEST PORT
- THERMOMETER
- Y-STRAINER
- Y-STRAINER WITH VALVE, CAP & 3/4" HOSE CONNECTION
- ELL/ELBOW DN
- ELL/ELBOW UP
- TEE DOWN
- TEE UP
- UNION

## DUCT SYSTEMS

- 24"x12" — DUCT SIZE (CLEAR INSIDE DIMENSION)
- 12" Ø — ROUND DUCT DIAMETER SIZE (CLEAR INSIDE DIMENSION)
- FLEXIBLE DUCT
- ELBOW WITH TURNING VANES
- SUPPLY UP/DOWN
- RETURN UP/DOWN
- EXHAUST UP/DOWN
- R — RADIATION DAMPER
- F — FIRE DAMPER
- S — SMOKE DAMPER
- FS — FIRE/SMOKE DAMPER
- M 24V — 24V OR 120V MOTORIZED CONTROL DAMPER
- BDD — BACK DRAFT DAMPER
- VCD — VOLUME CONTROL DAMPER
- MANUAL VOLUME DAMPER
- DOOR UNDERCUT
- AIR FLOW DIRECTION

## AIR DEVICES

- CEILING SUPPLY AIR DEVICE
- CEILING RETURN AIR DEVICE
- CEILING EXHAUST AIR DEVICE
- ROUND DIFFUSER
- LINEAR AIR DEVICE
- SIDEWALL AIR DEVICE
- LOUVER
- LOUVERED WALL BOX
- EYEBROW HOOD WALL CAP
- CONCENTRIC VENT TERMINATION

## SHEET DESIGNATIONS

- ABOVE OR BELOW
- CLEARANCE
- CONTROL OR INTERLOCK
- DEMOLISH
- EXISTING
- FUTURE
- MATCHLINE
- NEW
- TEMPORARY
- NUMBER ON SHEET / SHEET NUMBER
- # — EQUIPMENT COORDINATION TAG
- # — KEY NOTE(S)
- # — DETAIL NOTE(S)
- POINT OF CONNECTION (POC)
- POINT OF DISCONNECT (POD)
- TAG-# / # — MECHANICAL EQUIPMENT TAG: PLAN MARK / INSTANCE
- TAG-# / #-# — VRF FAN COIL/CONTROLLER EQUIPMENT TAG: PLAN MARK / SYSTEM INSTANCE ID / OUTDOOR UNIT SYSTEM
- TAG-# — PLUMBING/ELECTRICAL EQUIPMENT TAG FOR REFERENCE
- TAG -NECK / CFM / QTY — AIR DEVICE TAG
- TAG - # - SIZE / CFM — LOUVER TAG

## DEVICES

- T — THERMOSTAT
- H — HUMIDISTAT
- Z — SMOKE DETECTOR
- HORN/STROBE
- PANEL — EQUIPMENT/CONTROL PANEL
- VFD — VARIABLE FREQUENCY DRIVE
- EPO — EMERGENCY POWER OFF (RE: ELEC)
- S — SENSOR WITH ABBREVIATION

| ## | |
|---|---|
| AQ | AQUASTAT |
| CO | CARBON MONOXIDE |
| CO2 | CARBON DIOXIDE |
| H | HYDROGEN |
| NO2 | NITROUS DIOXIDE |
| P | PRESSURE |
| PD | PRESSURE DIFFERENTIAL |
| T | TEMPERATURE |

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| (D) | DEMOLISH | LF | LINEAR FEET |
| (E) | EXISTING | LWT | LEAVING WATER TEMPERATURE |
| (F) | FUTURE | MAT | MIXED AIR TEMP |
| (N) | NEW | MBH | THOUSANDS BTU PER HOUR |
| (R) | RELOCATE | M.C. | MECHANICAL CONTRACTOR |
| ABS | ABSOLUTE | MCA | MINIMUM CIRCUIT AMPS |
| AD | ACCESS DOOR | MCDB | MEAN COINCIDENT DRY BULB |
| ADJ | ADJUSTABLE | MCWB | MEAN COINCIDENT WET BULB |
| AFF | ABOVE FINISHED FLOOR | MFR | MANUFACTURER |
| AHJ | AUTHORITY HAVING JURISDICTION | MMBH | MILLION BTU PER HOUR |
| ALT | ALTITUDE | MOCP | MAX OVERCURRENT PROTECTION |
| AMB | AMBIENT | MTD | MOUNTED |
| AVG | AVERAGE | N.C. | NORMALLY CLOSED |
| BHP | BRAKE HORSEPOWER | N.O. | NORMALLY OPEN |
| BTU | BRITISH THERMAL UNIT | NAT | NATURAL GAS |
| CAT | CATEGORY | NC | NOISE CRITERIA |
| CFH | CUBIC FT PER HOUR | NIC | NOT IN CONTRACT |
| CFM | CUBIC FEET PER MINUTE | №. / # | NUMBER |
| CND | CONDENSATE | NOM. | NOMINAL (VALUE) |
| CONC | CONCENTRATION | NR | NOT REQUIRED |
| COND | CONDENS(-ER -ING -ATION) | NTS | NOT TO SCALE |
| CU FT | CUBIC FEET | OA | OUTSIDE AIR |
| CU IN | CUBIC INCH | OBD | OPPOSED BLADE DAMPER |
| DB(A) | DECIBEL (A) | OD | OUTSIDE DIAMETER |
| DB | DRY-BULB TEMPERATURE (°F) | P.C. | PLUMBING CONTRACTOR |
| DCW | DOMESTIC COLD WATER | PD | PRESSURE DROP OR DIFFERENCE |
| DHW | DOMESTIC HOT WATER | PEG | POLYETHYLENE GLYCOL |
| DIA / Ø | DIAMETER | PPG | PROPYLENE GLYCOL |
| DX | DIRECT EXPANSION | PPM | PARTS PER MILLION |
| EAT | ENTERING AIR TEMPERATURE | PROP | PROPANE GAS |
| E.C. | ELECTRICAL CONTRACTOR | PSF | POUNDS PER SQUARE FOOT |
| EER | ENERGY EFFICIENCY RATING | PSI | POUNDS PER SQUARE INCH |
| ELEV | ELEVATION | PSI(G) | POUNDS PER SQUARE INCH, GAUGE |
| EFF | EFFICIENCY | PSIA | POUNDS PER SQUARE INCH, ABSOLUTE |
| EOR | ENGINEER OF RECORD | R | THERMAL EXPANSION VALVE |
| ESP | EXTERNAL STATIC PRESSURE | RA | RETURN AIR |
| EVAP | EVAPORATOR | REFR | REFRIGERANT |
| EWT | ENTERING WATER TEMPERATURE | RH | RELATIVE HUMIDITY |
| FLA | FULL LOAD AMPS | RLA | RUNNING LOAD AMPS |
| FPM | FEET PER MINUTE | RPM | REVOLUTIONS PER MINUTE |
| FPS | FEET PER SECOND | SA | SUPPLY AIR |
| FT LB | FOOT-POUND | SEER | SEASONAL ENERGY EFFICIENCY RATING |
| FTHD | FEET OF HEAD (WC) | STG | STAGES CONTROL |
| GA | GAUGE THICKNESS | SL | SEA LEVEL |
| GAL | GALLON(S) | STG | STAGES |
| G.C. | GENERAL CONTRACTOR | TEMP | TEMPERATURE AND PRESSURE |
| GPD | GALLONS PER DAY | TONS | TONS OF REFRIGERATION |
| GPH | GALLONS PER HOUR | TSP | TOTAL STATIC PRESSURE |
| GR | GRAINS | T-STAT | THERMOSTAT |
| HP | HORSEPOWER | TXV | THERMOSTATIC EXSPANSION VALVE |
| HSPF | HEATING SEASONAL PERFORMANCE FACTOR | TYP | TYPICAL |
| | | U | HEAT TRANSFER COEFFICIENT |
| HZ | FREQUENCY | VFD | VARIABLE FREQUENCY DRIVE |
| ID | INSIDE DIAMETER | VAV | VARIABLE AIR VOLUME |
| IPLV | INTEGRATED PART LOAD VALUE | VEL | VELOCITY |
| K | THERMAL RESISTANCE | W | WATTS |
| KW | KILOWATT | WB | WET BULB TEMPERATURE |
| | | WT | WEIGHT |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JEFFREY K. GIVEN
32963
PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/06/26 ADDENDUM 1
2 01/20/26 ADDENDUM 2 PERMIT SUBMITTAL


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LEGEND & ABBREVIATIONS

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## ROOFTOP UNIT SCHEDULE HEAT PUMP - DX/ELECTRIC WITH HIGH OUTSIDE AIR CAPACITY

REMARKS:
(1) REFERS TO COOLING CAPACITIES BASED ON 100F OADB @ 5200 FT ELEV, AND 100% OA. UNIT SELECTED AT 95°F SUMMER/ 0° WINTER
(2) PROVIDE PLENUM CURB WITH HORIZONTAL DISCHARGE, BELT DRIVE, HAIL GUARDS, MICROPROCESSOR CONTROL, OPTIONAL DISCONNECT, COMBO FILTER RACK, OUTDOOR AIR INTAKE HOOD.
(3) PROVIDE NON POWERED CONVENIENCE OUTLET.
(4) SEER AND EER RATING ARE RATED AT ARI CONDITIONS AND IN ACCORDANCE WITH DOE TEST PROCEDURES.
(5) PROVIDE ROOF TOP UNIT WITH SMOKE DETECTOR AND AUTOMATIC SHUT-OFF IN RETURN AIR DUCT. INTERLOCK UNIT WITH FIRE CONTROL PANEL.
(6) PROVIDE STAINLESS STEEL HEAT EXCHANGER
(7) PROVIDE UNIT WITH 10kW NOMINAL ELECTRIC HEAT BACKUP.
(8) PROVIDE SENSOR IN SPACE FOR DEMAND CONTROLLED VENTILATION. MINIMUM OA SETTING SHALL BE 15% OF TOTAL SUPPLY AIRFLOW. MAXIMUM OA SETTING SHALL BE PER VENTILATION SCHEDULE.
(9) PROVIDE ULL TEMPERATURE ECONOMIZER W BAROMETRIC RELIEF PER MANUFACTURER.

| PLAN MARK | MANUFACTURER | MODEL # | SUPPLY (CFM) | EXHAUST (CFM) | OA (CFM) | SUPPLY FAN HP | EXHAUST FAN HP | ESP (inH20) | HEATING CAPACITY | | | | | COOLING CAPACITY | | | | | | REFRIGERANT | SEER/EER RATING | ELECTRICAL DATA | | | | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | CAPACITY | TEMP RISE (MBH/LALT) | EAT (°F) | LAT (°F) | COP | TOTAL (MBH) | SENS (MBH) | EADB (°F) | EAWB (°F) | LADB (°F) | LAWB (°F) | | | VOLT | PH | MCA | MOCP | | |
| RTU-1 | CAPTIVE AIRE | CAS-HVAC1-E.292-16-5T | 2,000 | 1,050 | 940 | 0.75 | 0.75 | 1.0 | 38.5 | 52 | 0 | 88 | 3.5 | 64.0 | 60.7 | 95 | 65 | 49.0 | 70 / 58.0 | R454B | 17.9 / 6.4 | 208 | 3 | 89.7 | 90A | 1225 | (1)(2)(3)(4)(5)(6)(7)(8)(9) |

## ROOFTOP UNIT SCHEDULE - DX/ELECTRIC COOLING & HEAT PUMP HEAT

REMARKS:
(1) REFERS TO COOLING CAPACITIES BASED ON 95F OADB, 80F EADB, 67F EAWB @ 5,300 FT ELEVATION.
(2) PROVIDE MANUFACTURER'S 14" VIBRATION ISOLATION ROOF CURB, BELT DRIVE, HAIL GUARDS, 100% OA ECONOMIZER AND BAROMETRIC RELIEF.
(3) PROVIDE NON-POWERED CONVENIENCE OUTLET.
(4) PROVIDE WITH ELECTRIC HEAT KIT AND SINGLE POINT POWER CONNECTION. HEATER WATTS LISTED IN SCHEDULE REFLECT POWER AT 208V. PROVIDE HEATER MODEL CRHEATER328A00.
(5) PROVIDE WITH ELECTRIC HEAT KIT AND SINGLE POINT POWER CONNECTION. HEATER WATTS LISTED IN SCHEDULE REFLECT POWER AT 208V. PROVIDE HEATER MODEL CRHEATER332A00.
(6) PROVIDE RETURN DUCT SMOKE DETECTOR.
(7) PROVIDE SENSOR IN SPACE FOR DEMAND CONTROLLED VENTILATION. MINIMUM OA SETTING SHALL BE 15% OF TOTAL SUPPLY AIRFLOW, MAXIMUM OA SETTING SHALL BE PER VENTILATION SCHEDULE.
(8) PROVIDE ULL TEMPERATURE ECONOMIZER W BAROMETRIC RELIEF PER MANUFACTURER.
(9) PROVIDE UL60335-2-40 APPROVED R-454B DISSIPATION BOARD AND LEAK SENSOR INCLUDED AS STANDARD.

| PLAN MARK | MANUFACTURER | MODEL # | SUPPLY AIRFLOW (CFM) | MIN OA AIRFLOW (CFM) | BLWR (HP) | ESP. (inH20) | HEATING CAPACITY | | | | | NET COOLING CAPACITY | | | | | | REFRIG | EFFICIENCY STD/HI | SEER2 RATING | ELECTRICAL DATA | | | | OPERATING WEIGHT (LBS) | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | HEATING EAT (°F) | HEATING LAT (°F) | HEATING CAPACITY 47°F (MBH) | HSPF2 / COP | ELECTRIC HEAT WATTS | HEATING STAGES/ CONTROLS | TOTAL (MBH) | SENS (MBH) | EADB (°F) | EAWB (°F) | LADB (°F) | LAWB (°F) | | | | VOLT | PH | MCA | MOCP | | |
| RTU-2 | CARRIER | 50FEQA04A2M5-0A0A0 | 1,200 | 290 | 1.0 | 1.0 | -3 F | 101 F | 32.8 | 6.7 / 3.6 | 12,000 | 1 | 32.8 | 27.2 | 80 | 63 | 54.6 | 53.1 | R-454B | STD | 13.4 | 208 | 3 | 64 | 70A | 509 | (1)(2)(3)(4)(7)(8)(9) |
| RTU-3 | CARRIER | 50FEQA06B6M5-8U0A0 | 2,000 | 525 | 1.0 | 1.0 | -3 F | 101 F | 54.3 | 6.7 / 3.7 | 18,000 | 2 | 54.3 | 52.5 | 80 | 63 | 54.6 | 53.1 | R-454B | STD | 13.4 | 208 | 3 | 96 | 100A | 659 | (1)(2)(3)(5)(6)(7)(8)(9) |

## ELECTRIC UNIT HEATER SCHEDULE

REMARKS:
(1) PROVIDE WITH FACTORY MOUNTING ACCESSORIES. VERIFY MOUNTING HEIGHTS PRIOR TO FIELD INSTALLATION.
(2) UNITS TO BE PROVIDED WITH BUILT-IN FAN DELAY/ AUTO THERM PROTECTION.
(3) PROVIDE BANKERS BRONZE COLOR. CONFIRM WITH ARCHITECT PRIOR TO ORDERING.
(4) HEIGHT = 6". DEPTH = 2.5"
(5) INTEGRAL T-STAT TO ENERGIZE HEATER AT A TEMPERATURE AT 68°F (ADJ) OR BELOW.
(6) PROVIDE SURFACE MOUNTING FRAME: FRASM
(7) PROVIDE HEATER FOR PLENUM SPACE. INTEGRAL T-STAT TO ENERGIZE HEATER AT A TEMPERATURE AT 45°F (ADJ) OR BELOW.

| PLAN MARK | MFR | MODEL | STYLE | CONTROL | ELECTRICAL DATA | | | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | VOLT | PH | WATTS | | |
| EUH-1-1 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-2 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-3 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-4 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-5 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-6 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-7 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-8 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-9 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-10 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-11 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-1-12 | MARKELL | F2910-048C | BASEBOARD HEATER | INTEGRAL TSTAT | 208 V | 1 | 1,000 | 10 | (1)(2)(3)(4)(5) |
| EUH-2-1 | BERKO | FRA4824F | WALL HEATER | INTEGRAL TSTAT | 208 V | 1 | 3,600 | 10 | (1)(2)(6) |
| EUH-2-2 | BERKO | FRA4824F | WALL HEATER | INTEGRAL TSTAT | 208 V | 1 | 3,600 | 10 | (1)(2)(6) |
| EUH-3-1 | BERKO | FRA1512F | WALL HEATER | INTEGRAL TSTAT | 120 V | 1 | 1500 | 10 | (1)(2)(7) |

## OUTDOOR AIR VENTILATION SCHEDULE

| SYSTEM - TYPE ZONE | FLOOR | SPACE TYPE | AREA (SF) | Rp | Ra | # / 1000SF | # OCCUPANTS | Vbz | Ez | Voz | Ev | Vot |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RTU-1** | | | | | | | | | | | | |
| BAR BASEMENT SEATING | 0 | Bars / cocktail lounges | 128 | 7.5 | 0.18 | 100 | 13 | 121 | 0.8 | 151 | 1 | 151 |
| BAR MAIN LEVEL SEATING | 1 | Bars / cocktail lounges | 503 | 7.5 | 0.18 | 100 | 51 | 473 | 0.8 | 591 | 1 | 591 |
| BAR SECOND LEVEL SEATING | 2 | Bars / cocktail lounges | 170 | 7.5 | 0.18 | 100 | 17 | 158 | 0.8 | 198 | 1 | 198 |
| | | | 801 | | | | 81 | | | TOTAL REQUIRED | | 940 |
| | | | | | | | | | | TOTAL SUPPLIED | | 940 |
| **RTU-2** | | | | | | | | | | | | |
| COMMUNITY ROOM | 1 | Conference / meeting | 525 | 5 | 0.06 | 50 | 27 | 167 | 0.8 | 208 | 1 | 208 |
| COMMUNITY ROOM | 2 | Conference / meeting | 185 | 5 | 0.06 | 50 | 10 | 61 | 0.8 | 76 | 1 | 76 |
| | | | 710 | | | | 37 | | | TOTAL REQUIRED | | 285 |
| | | | | | | | | | | TOTAL SUPPLIED | | 290 |
| **FCU-1-1** | | | | | | | | | | | | |
| COMMUNITY ROOM | 1 | Conference / meeting | 625 | 5 | 0.06 | 50 | 32 | 198 | 0.8 | 247 | 1 | 247 |
| | | | 625 | | | | 32 | | | TOTAL REQUIRED | | 247 |
| | | | | | | | | | | TOTAL SUPPLIED | | 250 |
| **RTU-3** | | | | | | | | | | | | |
| BOXCAR SEATING | 1 | Restaurant dining rooms | 534 | 7.5 | 0.18 | 70 | 38 | 381 | 0.8 | 476 | 1 | 476 |
| HALL | 1 | Corridors | 98 | 0 | 0.06 | 0 | 0 | 6 | 0.8 | 7 | 1 | 7 |
| OFFICE | 0 | Office space | 74 | 5 | 0.06 | 5 | 1 | 9 | 0.8 | 12 | 1 | 12 |
| HALL | 0 | Corridors | 348 | 0 | 0.06 | 0 | 0 | 21 | 0.8 | 26 | 1 | 26 |
| | | | 1054 | | | | 39 | | | TOTAL REQUIRED | | 522 |
| | | | | | | | | | | TOTAL SUPPLIED | | 525 |

Vbz = Rp * Pz + Ra * Az
Rp = OUTDOOR AIRFLOW RATE PER PERSON (CFM/ PERSON)
Ra = OUTDOOR AIRFLOE RATE REQUIRED PER UNIT AREA (CFM/ SQFT)
Az = ZONE FLOOR AREA (sqft)
Pz = ZONE POPULATION; OCCUPANTS
Vbz (CFM) = BREATHING ZONE OUTDOOR AIR FLOW
Voz = Vbz/ Ez
Ez = ZONE AIR DISTRIBUTION EFFECTIVENESS
Voz (CFM) = ZONE OUTDOOR AIR FLOW
Vot = Voz/ Ev
Ev = SYSTEM VENTILATION EFFICIENCY
Vot (CFM) = REQUIRED OUTDOOR AIR INTAKE FLOW
** FLOOR AREA BASED ON NET OCCUPIABLE AREA.

## HEAT PUMP ELECTRIC HEAT/DX FAN COIL UNIT SCHEDULE

REMARKS:
(1) SELECTION BASED ON 5400 FT ELEVATION
(2) PROVIDE WITH LOCKABLE T-STATS, AND CONDENSATE PUMPS AS REQUIRED
(3) UNIT HEAT SPECIFIED AT 240V WITH 208V PERFORMANCE & DERATE SHOWNON SCHEDULE FOR ELECTRICAL DATA. PROVIDE EHK310B HEATER 10KW AT 240V.
(4) PROVIDE MOTORIZED DAMPER FOR OUTSIDE AIT INTAKE. BALANCE OUTSIDE AIR INTAKE TO QUANTITY SHOWN ON VENTILATION SCHEDULE.
(5) UNIT LOCATED IN CRAWLSPACE. ACCESS TO UNIT THROUGH CRAWLSPACE ACCESS. MOUNT UNIT FROM STRUCTURE ABOVE. PROVIDE VIBRATION ISOLATION HANGERS FOR UNIT.

| PLAN MARK | MANUFACTURER | MODEL # | AIRFLOW (CFM) | ESP (inH2O) | MOTOR (HP) | DX COOLING | | | DX HEATING | | ELECTRIC HEAT | | | ELECTRICAL DATA | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | EDB (°F) | EWB (°F) | TC (MBH) | EDB (°F) | TH (MBH) | STAGES | CAPACITY (WATTS) | CAPACITY (MBH) | VOLT | PH | MCA | MOCP | |
| FCU-1-1 | CARRIER | FMC5Z3000AL | 1,200 | 0.7 | 1/3 | 80 | 67 | 36.0 | 70 | 36.0 | 1 | 7,200 | 24.7 | 208 V | 1 | 45.5 | 60 | (1)(2)(3)(4)(5)(6) |

## HEAT PUMP CONDENSING UNIT SCHEDULE

REMARKS:
(1) PROVIDE UNIT WITH 18" QUICK SLING MOUNTING PAD.
(2) PROVIDE UNIT WITH TXV VALVE PER MANUFACTURER.
(3) REFRIGERANT PIPING TO BE SIZED PER MANUFACTURER'S RECOMMENDATIONS.
(4) UNIT CONTAINS R-454B A2L REFRIGERANT AND IS EQUIPPED WITH REFRIGERANT DETECTION SYSTEM.

| PLAN MARK | MANUFACTURER | MODEL # | COOLING | HEATING | | | ELECTRICAL DATA | | | | | | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TOTAL COOLING (MBH) | MBH AT 47°F | MBH AT 30°F | COP | SEER2 | VOLT. | PH | FLA | MCA | MOCP | | |
| HP-1 | CARRIER | 37MUHAQ036AA3 | 36.0 | 36.0 | 24.0 | 3.6 | 17.4 | 208 | 1 | 29.5 | 29.5 | 30A | 151 | (1)(2)(3) |

## FAN SCHEDULE

REMARKS:
(1) PROVIDE SPRING MOUNT ISOLATORS, WALL CAP, EC MOTOR & BACKDRAFT DAMPER.
(2) FAN SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS.
(3) FAN SHALL INTERLOCKED WITH LIGHTING CONTROL.
(4) FAN SHALL BE INTERLOCKED WITH MOTORIZED DAMPER AND LOUVER IN BASEMENT

| PLAN MARK | MANUFACTURER | MODEL # | STYLE | AIRFLOW | | | SONES | ELECTRICAL DATA | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CFM | ESP (inH20) | RPM | | VOLT | PH | MOTOR SIZE (HP) | MOTOR SIZE (WATTS) | |
| EF-1-1 | GREENHECK | SBE-1H20 | WALL MOUNT | 600 | 0.3 | 1222 | <30 | 120 | 1 | 1/3 | - | (1)(4) |
| EF-2-1 | GREENHECK | SQ-98-VG | INLINE FAN | 300 | 0.5 | 2500 | <30 | 120 | 1 | 1/4 | - | (1)(2) |
| EF-3-1 | GREENHECK | SP-A110 | CEILING FAN | 75 | 0.5 | 950 | <30 | 120 | 1 | - | 14 | (1)(3) |
| EF-3-2 | GREENHECK | SP-A110 | CEILING FAN | 75 | 0.5 | 950 | <30 | 120 | 1 | - | 14 | (1)(3) |

## AIR DEVICE SCHEDULE

REMARKS:
(1) VERIFY FINISH TYPE & COLOR WITH ARCHITECT PRIOR TO SUBMITTING FOR APPROVAL.
(2) COORDINATE FRAME SELECTION WITH FINAL RCP.
(3) PROVIDE SPIRAL DUCT MOUNT ACCESORIES.

| PLAN MARK | MANUFACTURER | MODEL # | NOMINAL SIZE | CONNECTION SIDE (IN) | FACE PATTERN | DAMPER | MATERIAL | FINISH | NC MAX (dB) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PRICE | SDG | 12"x8" | NOTED | SPIRAL DUCT GRILLE | AIR SCOOP (ROD) | STL | TBD W/ ARCH | <35 | (1)(2)(3) |
| A2 | PRICE | SDG | 12"x6" | NOTED | SPIRAL DUCT GRILLE | AIR SCOOP (ROD) | STL | TBD W/ ARCH | <35 | (1)(2)(3) |
| A3 | PRICE | LFG | 12"x6" | NOTED | FLOOR DIFFUSER | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| A4 | PRICE | 520 | 12"x12" | NOTED | LOUVERED SUPPLY GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| A5 | PRICE | 520 | 12"x10" | NOTED | LOUVERED SUPPLY GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| A6 | PRICE | SCD | 12"x12" | NOTED | SQUARE CONE DIFFUSER | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B1 | PRICE | 530 | 38"x6" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B2 | PRICE | 530 | 12"x12" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B3 | PRICE | 530 | 32"x12" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B4 | PRICE | 530 | 24"x16" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B5 | PRICE | 530 | 30"x18" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B6 | PRICE | 530 | 10"x10" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| B7 | PRICE | 530 | 32"x12" | NOTED | LOUVERED RETURN GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| E1 | PRICE | 530 | 12"x6" | NOTED | LOUVERED EXHAUST GRILLE | OP. BLADE | STL | TBD W/ ARCH | <35 | (1)(2) |
| LV-1 | GREENHECK | ESD-635 | 60"x12" | NOTED | LOUVER | NONE | STL | TBD W/ ARCH | <35 | (1) |


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Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
JEFFREY C. GIVEN
32961
PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
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CHECKED BY: BAB
REVISIONS:
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MECHANICAL SCHEDULES

Sheet
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## DRAWING NOTES:

1. UNLESS NOTED OTHERWISE, BRANCH DUCTS TO INDIVIDUAL TERMINALS, DIFFUSERS AND GRILLES WILL BE THE SAME SIZE AS THE NECK INLET SIZE.
2. ALL EXHAUST TERMINALS MUST BE 3'-0" AWAY FROM OPERABLE PORTION OF WINDOWS AND DOORS. MC TO OFFSET AS REQUIRED.
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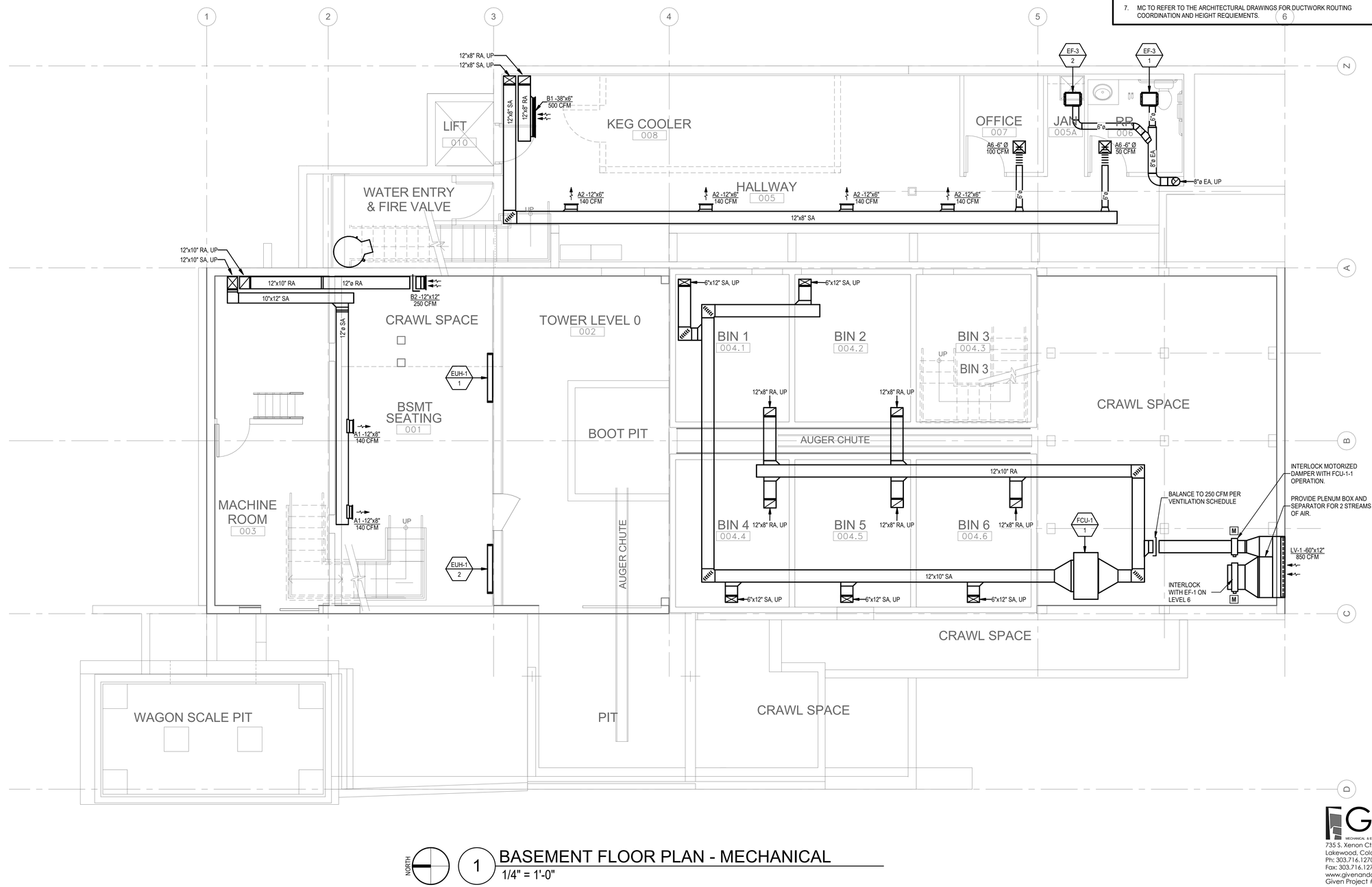


NORTH

1 BASEMENT FLOOR PLAN - MECHANICAL
1/4" = 1'-0"


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BASEMENT FLOOR PLAN - MECHANICAL

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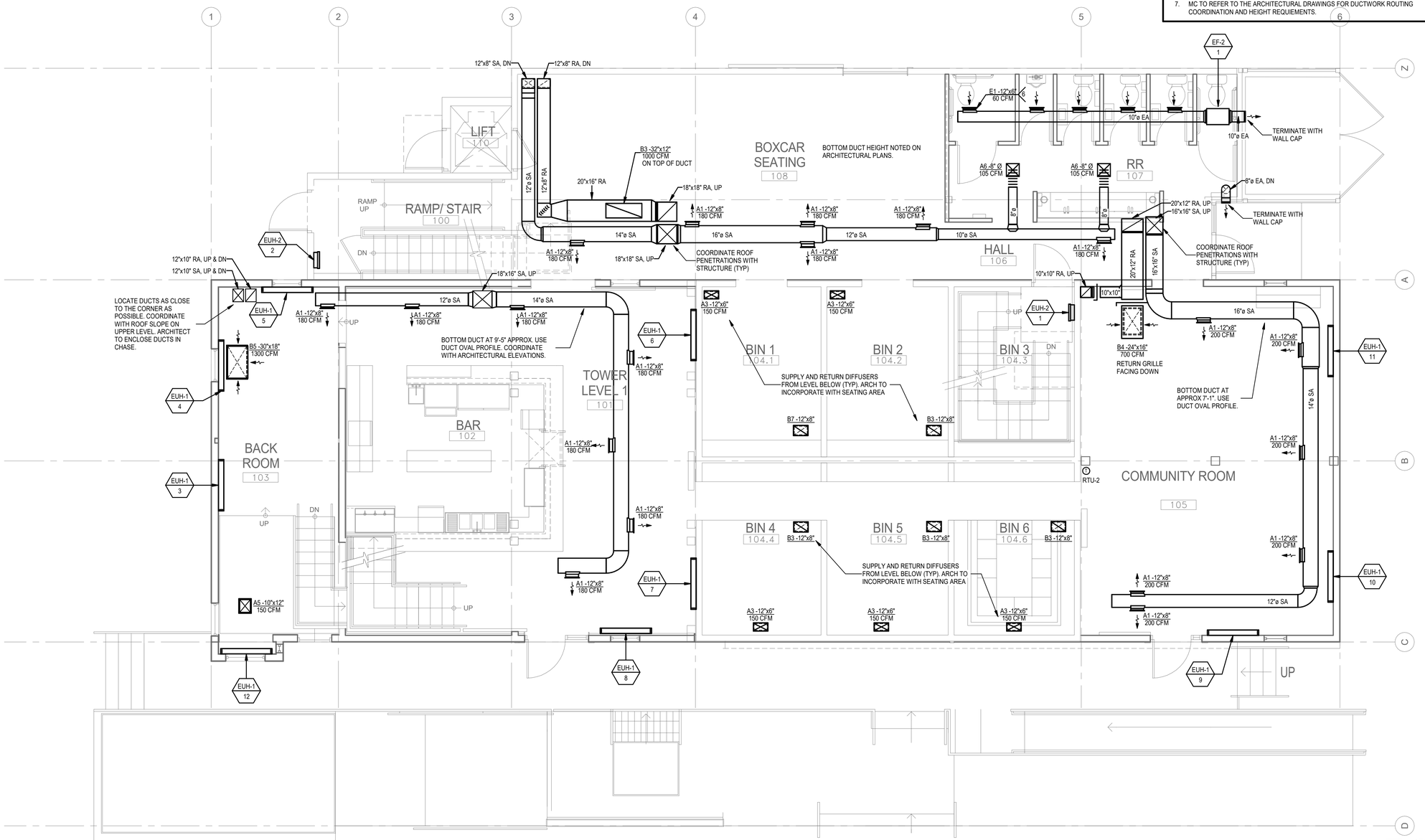


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1 FIRST LEVEL FLOOR PLAN - MECHANICAL
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FIRST FLOOR PLAN - MECHANICAL

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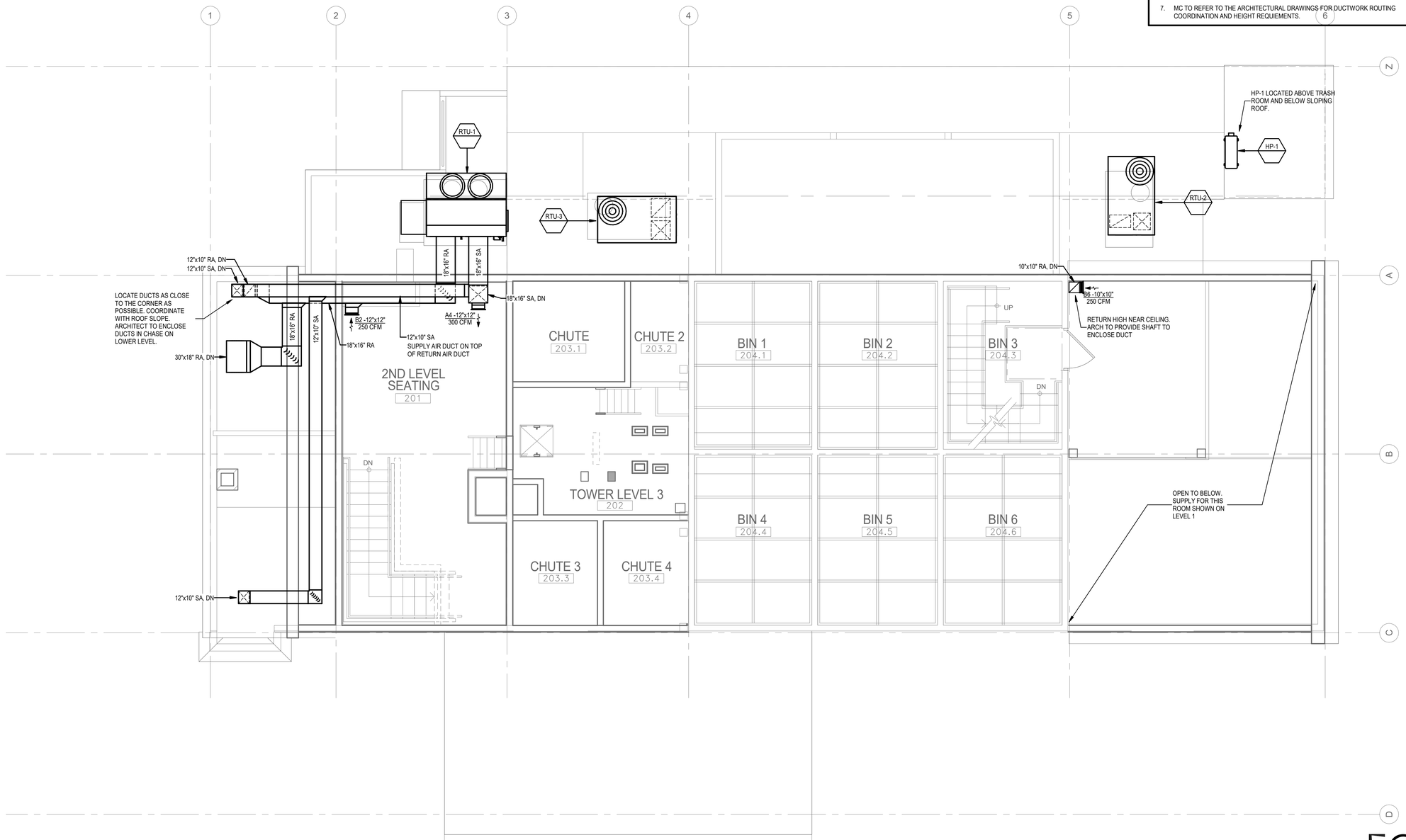


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1 SECOND/THIRD LEVEL FLOOR PLAN - MECHANICAL
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SECOND/THIRD FLOOR PLAN - MECHANICAL

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1 FOURTH/FIFTH LEVEL FLOOR PLAN - MECHANICAL
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FOURTH/FIFTH FLOOR PLAN - MECHANICAL

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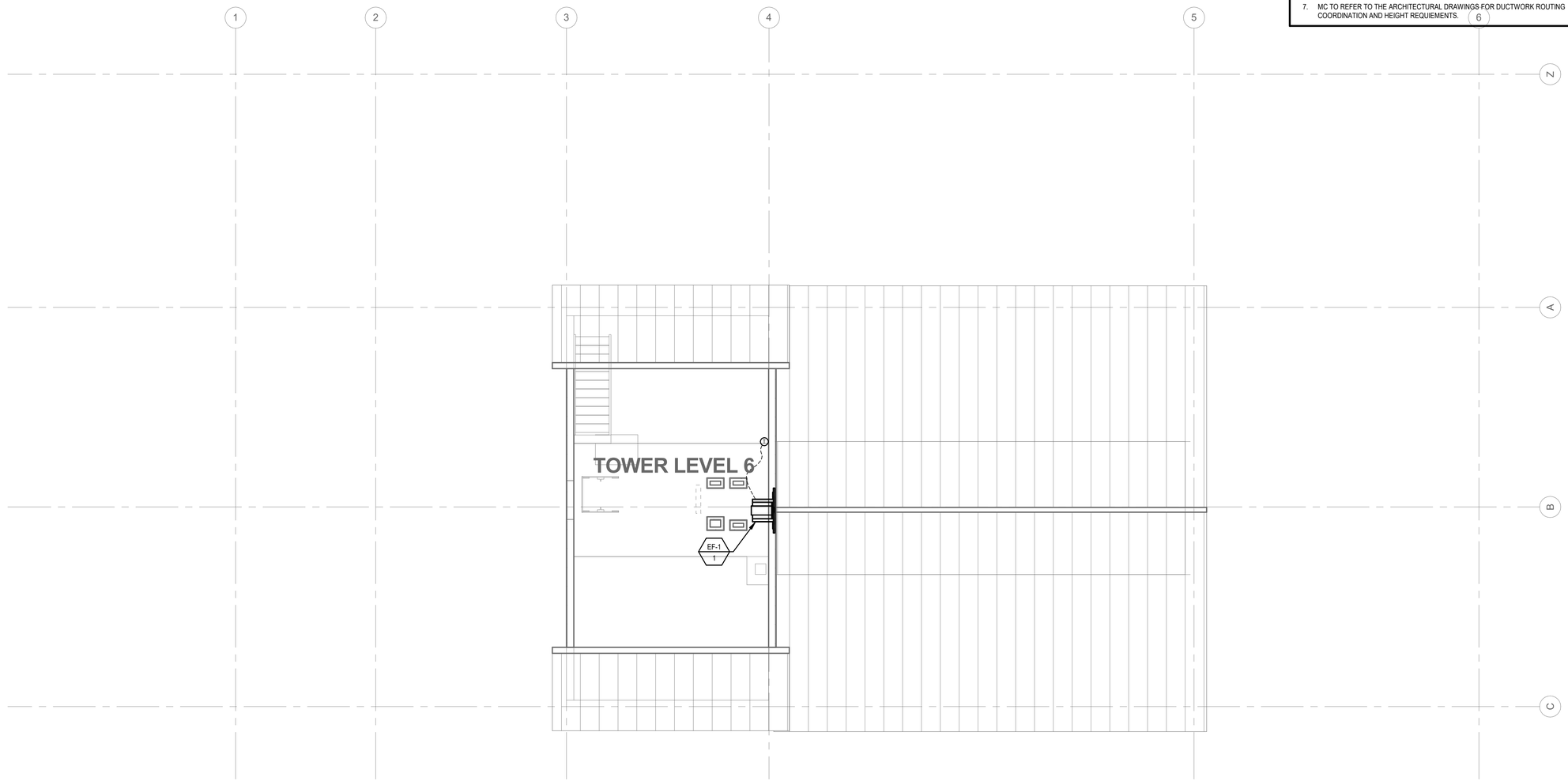


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1 SIXTH LEVEL FLOOR PLAN - MECHANICAL
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01/26/2026

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SIXTH FLOOR PLAN - MECHANICAL

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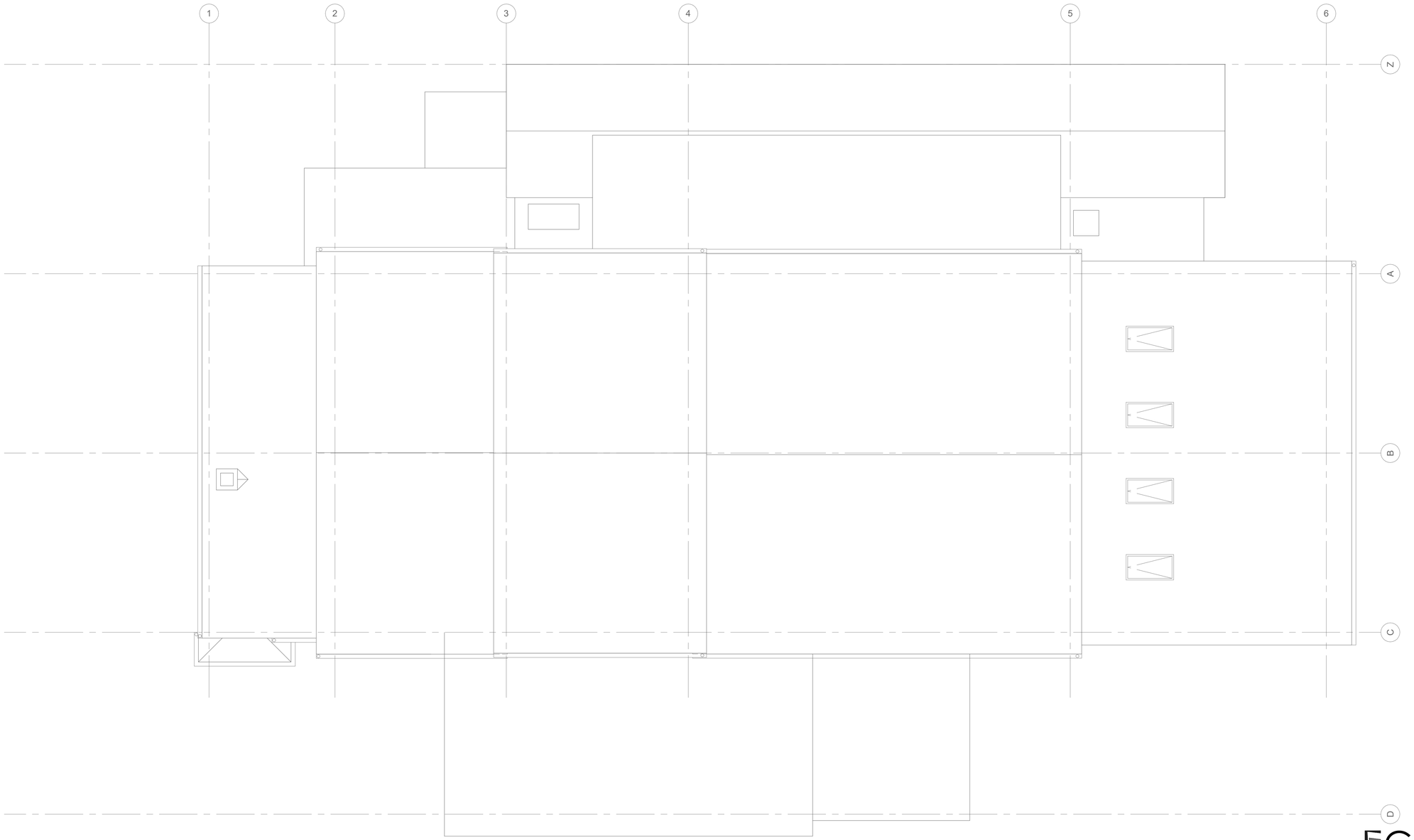


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1 ROOF PLAN - MECHANICAL
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ROOF PLAN - MECHANICAL

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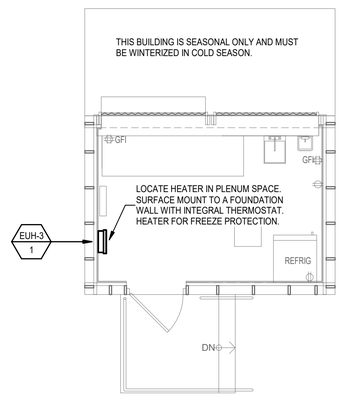


1 TAP HOUSE FLOOR PLAN - MECHANICAL

1/4" = 1'-0"


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TAP HOUSE PLAN - MECHANICAL

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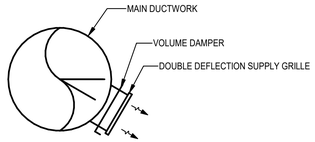
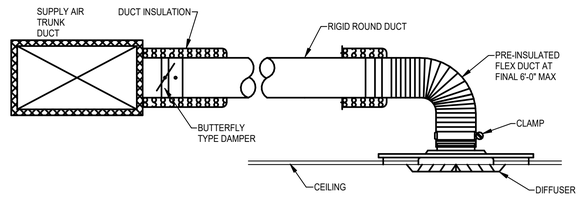
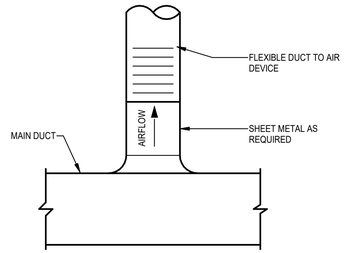


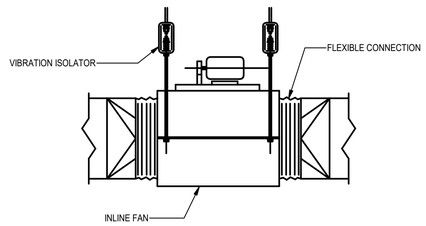

## 3 EXPOSED DUCT INSTALLTION DETAIL
N.T.S.



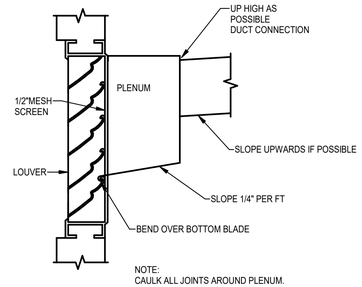

## 2 DIFFUSER INSTALLATION DETAIL
N.T.S.



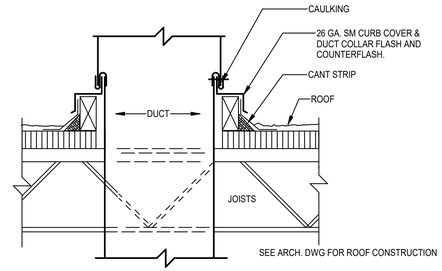

## 1 CIRCULAR BRANCH DUCT DETAIL
N.T.S.



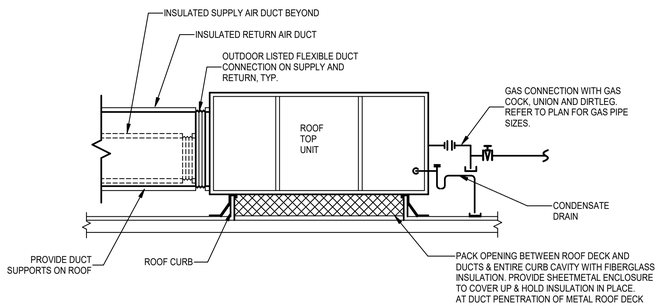

## 6 INLINE FAN SUPPORT DETAIL
N.T.S.



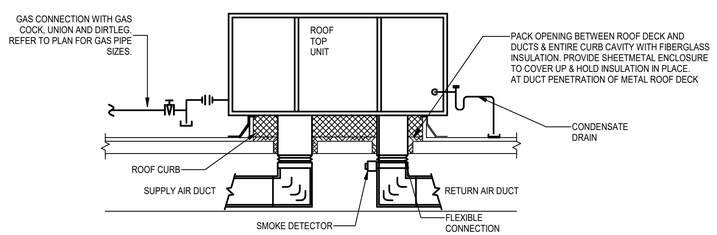

## 5 LOUVER CONNECTION DETAIL
N.T.S.




## 4 ROOF PENETRATION DETAIL
N.T.S.




## 8 HORIZONTAL ROOF TOP DETAIL
N.T.S.




## 7 ROOF TOP DETAIL
N.T.S.

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*Planning*
*Architecture*
*Interior Design*
950 Spruce Street, #2C
Louisville, CO 80027
TEL: 303.673.9304
FAX: 303.673.9319

LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED BRENT A. GIVEN 32963 PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/26/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL

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MECHANICAL DETAILS

Sheet
M5.01
- of . Sheets

# COMcheck-Web™

## Compliance Certificate

### Project Information

| | |
|---|---|
| Energy Code: | 2024 IECC |
| Project Title: | The Grain Yard |
| Location: | Louisville, Colorado |
| Climate Zone: | 5b |
| Project Type: | Alteration |
| Project No: | 74937 |
| Project Sub Type: | Substantial Alteration |
| All Electric: | true |
| Is Renewable: | false |
| Has Battery: | false |
| Has Charger: | true |
| Has Heat Pump | true |

| Construction Site: | Owner/Agent: | Designer/Contractor: |
|---|---|---|
| 540 County Road<br>Louisville , Colorado 80027 | Erik Hartronft<br>Hartronft Associates<br>Louisvllle , Colorado 80027<br>303.673.9304 | Arlen Flax<br>Given & Associates, Inc.<br>Lakewood , Colorado 80228<br>720-638-6582<br>arlenf@givenandassociates.com |

**Notes:**

### Energy Credits

| Description | Credit |
|---|---|
| L06 Reduced lighting power | 8.0 |
| H02 More efficient HVAC equipment heating performance | 36.6 |
| H03 More efficiency HVAC cooling equipment and fan performance | 2.9 |
| W06 Thermostatic balancing valves | 1.0 |
| L03 Increase occupancy sensor | 1.0 |

**Credits: 72.0 Required 49.5 Proposed**

### Renewable energy

| | |
|---|---|
| Number of Floors: | 1 |
| Area of Three Largest Floors: | 5847 |
| Proposed Capacity: | 0 |
| Required Capacity: | 0 |
| Proposed Off-site Energy: | 0 |
| Required Off-site Energy: | 0 |
| Exception: | None |

**Renewables Pass**



### Building Area

| Description | Floor Area |
|---|---|
| 1-Dining: Bar Lounge/Leisure (Dining: Bar Lounge/Leisure) : Nonresidential | 5847 |



## Mechanical Compliance Certificate

### Project Information

| | |
|---|---|
| Energy Code: | 2024 IECC |
| Project Title: | The Grain Yard |
| Location: | Louisville, Colorado |
| Climate Zone: | 5b |
| Project Type: | Alteration |

| Construction Site: | Owner/Agent: | Designer/Contractor: |
|---|---|---|
| 540 County Road<br>Louisville , Colorado 80027 | Erik Hartronft<br>Hartronft Associates<br>Louisvllle , Colorado 80027<br>303.673.9304 | Arlen Flax<br>Given & Associates, Inc.<br>Lakewood , Colorado 80228<br>720-638-6582<br>arlenf@givenandassociates.com |

### Mechanical Systems List

| Quantity | Component | Description |
|---|---|---|
| **HVAC Systems** | | |
| 1 | RTU-1 (Single Zone): | Single Package Heat Pump<br>Heating Mode: Capacity = 38 kBtu/h,<br>Proposed Efficiency = 10.30 HSPF2, Required Efficiency = 6.70 HSPF2<br>Cooling Mode: Capacity = 64 kBtu/h, , Air Economizer<br>Proposed Efficiency = 17.90 SEER2, Required Efficiency = 13.40 SEER2<br>Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00<br>Fan System: FAN-1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes<br><br>Fans:<br>FAN-1 Supply, Constant Volume, 2000 CFM, 0.8 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW |
| 1 | RTU-2 (Single Zone): | Single Package Heat Pump<br>Heating Mode: Capacity = 32 kBtu/h,<br>Proposed Efficiency = 6.70 HSPF2, Required Efficiency = 6.70 HSPF2<br>Cooling Mode: Capacity = 32 kBtu/h,<br>Proposed Efficiency = 13.40 SEER2, Required Efficiency = 13.40 SEER2<br>Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00<br>Fan System: FAN-2 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes<br><br>Fans:<br>FAN-2 Supply, Constant Volume, 1200 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW |
| 1 | RTU-3 (Single Zone): | Single Package Heat Pump<br>Heating Mode: Capacity = 54 kBtu/h,<br>Proposed Efficiency = 6.70 HSPF2, Required Efficiency = 6.70 HSPF2<br>Cooling Mode: Capacity = 54 kBtu/h, , Air Economizer<br>Proposed Efficiency = 13.40 SEER2, Required Efficiency = 13.40 SEER2<br>Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00<br>Fan System: FAN-3 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes<br><br>Fans:<br>FAN-3 Supply, Constant Volume, 2000 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW |
| **Water Heaters** | | |
| 1 | EWH-1: | Electric Storage Water Heater, Capacity: 119 gallons<br>Proposed Efficiency: 0.00 SL, %/h (if > 12 kW), Required Efficiency: 0.53 SL, %/h (if > 12 kW) |

### Mechanical Compliance Statement



*Compliance Statement:* The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2024 IECC requirements in COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

| Name - Title | Signature | Date |
|---|---|---|



## Inspection Checklist

Energy Code: 2024 IECC

Requirements: 100% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

### Plan Review

| Section # & Req.ID | Plan Review | Complies? | Comments/Assumptions |
|---|---|---|---|
| C105.2 [PR2][1] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.01 |

**Additional Comments/Assumptions:**

| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|---|---|---|---|---|



### Mechanical Rough-In Inspection

| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C403.3 [ME1][2] | HVAC equipment efficiency verified. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | *See the Mechanical Systems list for values* |
| C403.12.3, C403.12.3.1, C403.12.3.2 [ME13][3] | Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.12.3.1 and refrigeration compressor systems that comply with C403.12.3.2.. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.14.1 [ME14][2] | Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.13.1, C403.13.2 [ME15][2] | HVAC ducts and plenums insulated in accordance with C403.13.1 and constructed in accordance with C403.13.3, verification may need to occur during Foundation Inspection. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.01 |
| C403.2.2 [ME18][1] | Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.03 |
| C403.4.1.3 [ME24][2] | Where thermostatic control setpoints are adjustable by occupants or HVAC operators, the adjustments are independent for heating and cooling setpoint. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.01 |
| C403.4.1.5 [ME26][2] | Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.9 [ME3][2] | Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230 and meet efficacy requirements of Table C403.9. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.4.3.3.2 [ME32][3] | Closed-circuit cooling tower within heat pump loop have either automatic bypass valve or lower leakage positive closure dampers. Open-circuit tower within heat pump loop have automatic valve to bypass all heat pump water flow around the tower. Open- or closed-circuit cooling towers used in conjunction with a separate heat exchanger have heat loss by shutting down the circulation pump on the cooling tower loop. Open- or closed circuit cooling towers have a separate heat exchanger to isolate the cooling tower from the heat pump loop, and heat loss is controlled by shutting down the circulation pump on the cooling tower loop. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |



| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C403.4.7 [ME35][3] | Doors or operable openings from conditioned space to outdoors > 40 sq ft contain automatic controls interlocked with the heating and cooling system. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Alterations. |
| C403.4.8.1 [ME36][3] | Dehumidification controls do not use mechanical cooling to reduce humidity < 60% or a dew point < 55F | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.4.8.2 [ME37][3] | Humidity controls do not use fossil fuel or electricity for a humidity > 30% in warmest zone. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.4.8.3 [ME38][3] | Zones served by systems with both humidification and dehumification prevent simultaneous operation. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.5, C403.5.1, C403.5.2 [ME39][1] | Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.03 |
| C403.5.2 [ME40][1] | Economizer operation will not increase heating energy use during normal operation. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.01 |
| C404.2 [ME4][2] | Service water heating equipment meets efficiency requirements. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | |
| C403.5.3.3 [ME41][1] | Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.01 |
| C403.5.3.4 [ME42][1] | System capable of relieving excess outdoor air during air economizer operation to prevent over pressurizing the building. The relief air outlet located to avoid recirculation into the building. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.03 |
| C403.5.3.5 [ME43][1] | Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.7.7 for details. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.03 |
| C403.5.5 [ME45][2] | Fault detection and diagnostics installed with air-cooled unitary DX units or VRF units having economizers. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | |



| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C403.7.1 [ME56][1] | Demand control ventilation provided for spaces >250 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.03 |
| C403.7.2 [ME57][3] | Enclosed parking garage ventilation has separate ventilation systems for each section, can reduce airflow < 0.05 cfm/sq ft of floor area and >20% of design capacity. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.7.4 [ME59][1] | Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2). | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.7.5 [ME60][3] | Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria. Type I exhaust hoods contain demand control kitchen ventilation with > 50% reduction in exhaust. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.7.6 [ME61][3] | HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2). | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.7.8, C403.7.8.1 [ME63][3] | Classrooms, training rooms, conference and multipurpose rooms, lounges, enclosed offices, open office areas and corridors contain occupied standby ventilation controls. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.8.4 [ME67][2] | Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M0.03 |
| C403.8.6 [ME68][2] | Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.15 [ME69][2] | Dehumidification systems for plant growth and maintenance are tested in accordance with DOE 10 CFR 430, has on-site heat recovery > 75% of dehumidification energy or ha a solid or liquid desiccant. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.16 [ME70][2] | Service water pressure boost systems contain pressure sensors for pump control, no devices used to reduce pressure and booster pumps do not operate when there is no service water flow. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |
| C403.17 [ME71][2] | Clean water pumps achieve a pump energy index (PEI) <= 1.0. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Exception:** Requirement does not apply. |



| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C408.2.2.1 [ME73][3] | Air outlets and zone terminal devices have means for air balancing. | ☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable | **Location on plans/spec:** M1.01 |

**Additional Comments/Assumptions:**

| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|---|---|---|---|---|



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1 01/06/26 ADDENDUM 1
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ENERGY CALCULATIONS

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# PLUMBING SPECIFICATIONS

THIS SHEET SPECIFICATION SHALL GOVERN IN LIEU OF SEPARATE BOUND SPECIFICATIONS. UPON ISSUANCE SHOULD CONFLICTS ARISE BETWEEN THE SHEET AND THE BOUND SPECIFICATION THEN THE MORE STRINGENT OF THE TWO SHALL PREVAIL.

1. BASIC REQUIREMENTS

   A. PLUMBING PLANS MAY INCLUDE SCOPE INFORMATION FOR OTHER TRADES. GENERAL CONTRACTOR TO FACILITATE COORDINATION OF PERTINENT INFO TO ALL REQUIRED CONTRACTORS. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO BID TO CONFIRM A COMPLETE SYSTEM IS INCLUDED.

   B. PLUMBING DESIGN SHALL CONFORM TO ADOPTED CODES AND ALL LOCAL AMENDMENTS. PROJECT SHALL BE COORDINATED WITH ALL BUILDING SERVICES AND SHALL INCLUDE ALL ITEMS NECESSARY FOR COMPLETE AND FULLY OPERATIONAL PLUMBING SYSTEMS. MAKE CONNECTIONS TO AND EXTEND SYSTEMS INSTALLED BY OTHERS AND/OR FURNISHED BY OTHERS. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM WHETHER OR NOT SPECIFICALLY SPECIFIED AND/OR SHOWN ON THE PLANS.

   C. DO NOT SCALE FROM THESE DRAWINGS. REFER TO ARCHITECTURAL, STRUCTURAL OR CIVIL DRAWINGS BY OTHER DESIGN PROFESSIONALS FOR DIMENSIONS AND FOR ESTIMATING DISTANCES. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS RELATING TO THE JOB WHETHER OR NOT INDICATED ON THESE DRAWINGS.

   D. ANY SCALE, DIMENSION OR QUANTITIES SHOWN ON THE DRAWINGS ARE FOR ENGINEERING CALCULATION PURPOSES ONLY. DESIGN IS DIAGRAMMATIC IN NATURE AND IS PROVIDED TO CONVEY DESIGN INTENT ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTIMATING AND DETERMINING ALL DISTANCES AND QUANTITIES RELATED TO THE PROJECT. REFER TO ALL DRAWINGS BY OTHERS AND VERIFY EXISTING CONDITIONS ON SITE PRIOR TO BID FOR ALL ESTIMATING PURPOSES.

   E. COORDINATE WITH OTHER TRADES FOR A COORDINATED INSTALLATION WITHIN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXIST, PREPARE COORDINATION DRAWINGS SHOWING ALL TRADE CONFLICTS AND SUBMIT TO ARCHITECT/ENGINEER FOR APPROVAL AND DIRECTION PRIOR TO ROUGH-IN AND/OR INSTALLATION. RELOCATION OF WORK MADE PRIOR TO ROUGH-IN SHALL BE DONE AT NO ADDITIONAL COST. PROVIDE OFFSETS AT CHANGES OF DIRECTION AND TO AVOID OBSTRUCTIONS AT NO ADDITIONAL COST TO OWNER.

   F. ALL WORK SHALL BE PERFORMED BY PROPERLY LICENSED CONTRACTORS OR UNDER THEIR DIRECT SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF UL, ASTM, CISPI, ETC. AND SHALL BEAR THE LABEL AS EVIDENCE THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT.

   G. CONFIRM ACTUAL VOLTAGES, PHASE AND CHARACTERISTICS OF EQUIPMENT, FIXTURES AND APPARATUS FURNISHED BY CONTRACTOR, OTHER TRADES, DIVISIONS AND/OR EXISTING. CONFIRM PRIOR TO ROUGH-IN. IF DISCREPANCIES ARE NOTED TO THE INSTRUCTIONS OF THESE PLANS AND SPECIFICATIONS, SUBMIT THE NOTED DISCREPANCIES TO THE ARCHITECT/ENGINEER FOR DIRECTION PRIOR TO PROCEEDING.

   H. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND DETAILS UNLESS OTHERWISE NOTED IN THESE PLANS. IF DISCREPANCIES EXIST CONTACT THE ARCHITECT/ENGINEER PRIOR TO ORDERING EQUIPMENT AND ROUGH-IN.

   I. CONTRACTOR TO ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM STARTUP SERVICES ON ALL EQUIPMENT AND PROVIDE ALL NECESSARY ADJUSTMENTS FOR PROPER OPERATION.

   J. SUBMIT MANUFACTURER'S LITERATURE (SHOP DRAWINGS) FOR MATERIALS AND EQUIPMENT. SUBMITTAL SHALL INCLUDE EQUIPMENT PERFORMANCE DATA AT ELEVATION AND/OR LOCAL CONDITIONS. EQUIPMENT CUTSHEETS OR CATALOG COPIES ARE NOT ACCEPTABLE. SUBMITTAL SHALL BEAR THE APPROVAL OF THE GENERAL CONTRACTOR FOR COMPLIANCE WITH COORDINATION AND THESE SPECIFICATIONS PRIOR TO SUBMITTAL TO ARCHITECT AND/OR THEIR AGENCIES. ANY SUBSTITUTED EQUIPMENT FROM SCHEDULED SHALL BE EQUAL TO THAT SCHEDULED IN CONTROLS, ACCESSORIES, AND PERFORMANCE REGARDLESS OF MANUFACTURER. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE SUBSTITUTED EQUIPMENT REALIZED BY OTHER CONTRACTORS OR THE DESIGN TEAM.

   K. AT TIME OF BID THE CONTRACTORS SHALL ENSURE THE SITE TO BUILDING UTILITY CONNECTIONS ARE INCLUDED. CONTRACTORS TO COORDINATE INVERT AND SIZING OF ALL PLUMBING LEAVING OR ENTERING THE BUILDING. CONTRACTORS SHALL CONTACT DESIGN TEAM DURING THE BID PROCESS IF THERE IS A DISCREPANCY BETWEEN THE CIVIL DOCUMENTS AND THE PLUMBING DOCUMENTS. COORDINATE WITH SITE CONTRACTOR TO BRING ALL UNDERGROUND PLUMBING TO A MINIMUM OF 5' OFF OF BUILDING FOUNDATION UNLESS NOTED OTHERWISE.

   L. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NEW EQUIPMENT, FIXTURES AND DEVICES IN A LIKE NEW STATE AT TIME OF PROJECT CLOSEOUT. PROTECT EQUIPMENT, FIXTURES AND DEVICES AS REQUIRED AGAINST PHYSICAL DAMAGE, DEBRIS, RAIN, SNOW, WIND, DIRT, SUN FADING, RUST, CORROSION OR ANY OTHER DEGRADATION. CONTRACTOR TO REPAIR OR REPLACE ANY EQUIPMENT OR DEVICES AS REQUIRED.

2. BASIC MATERIALS

   A. PROVIDE PLUMBING SYSTEM CONTROLS, CONTROLLERS, CONTROL TRANSFORMER, DISCONNECTS, STARTERS, CONTROL WIRING, ASSOCIATED CONTROL POWER WIRING, AND ALL WORK NECESSARY FOR A COMPLETE AND OPERATIONAL PLUMBING SYSTEM. CONTRACTOR IS REQUIRED TO COORDINATE WITH OTHER TRADES OR RETAIN SUB-CONTRACTORS AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM PRIOR TO BID.

   B. PROVIDE SUPPLEMENTAL STEEL AND SUPPORTS AS REQUIRED FOR INSTALLATION OF PLUMBING MATERIALS, EQUIPMENT, AND APPARATUS.

   C. PROVIDE VIBRATION ISOLATION AND FLEXIBLE CONNECTIONS ON ALL EQUIPMENT WITH ROTATING OR OSCILLATING COMPONENTS AND PUMPS OVER 1 HORSEPOWER.

   D. ALL WORK IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED AS EXPOSED ON THE PLANS. PRIOR TO THE INSTALLATION OF ANY EXPOSED WORK THE CONTRACTOR SHALL VERIFY AND OBTAIN ARCHITECTURAL APPROVAL OF LOCATION, ELEVATION, EXTENT, MATERIAL, AND FINISH.

   E. UNLESS NOTED ELSEWHERE ON PLAN, PROVIDE ASSE 1003 PRESSURE REDUCING VALVE ASSEMBLY AT BUILDING WATER SERVICE ENTRY. OUTLET PRESSURE TO BE SET TO MAINTAIN A MAXIMUM STATIC PRESSURE OF 80 PSI AT ANY FIXTURE.

   F. PROVIDE DRAINAGE SYSTEM CLEANOUTS AS REQUIRED BY LOCAL CODES.

   G. PROVIDE QUARTER TURN BRANCH AND ZONE SHUT-OFF VALVES ON ALL WATER LINES EXTENDING FROM MAINS.

   H. THE CONTRACTOR SHALL LOCATE AND FURNISH FOR INSTALLATION BY OTHERS, ALL ACCESS PANELS AS REQUIRED FOR ACCESS TO VALVES, ACTUATORS, MOTORS, DEVICES, ETC AND THE PROPER SERVICING OF EQUIPMENT INSTALLED UNDER THIS CONTRACT. AT TIME OF BID THE CONTRACTOR AND GC SHALL COORDINATE TO ENSURE THAT ALL ACCESS PANELS (INCLUDING FIRE AND/OR SMOKE RATED MODELS) ARE INCLUDED.

   I. PROVIDE SEISMIC AND/OR WIND LOADING SECUREMENT DETAILS AS REQUIRED BY THE LOCAL JURISDICTION. THE CONTRACTOR SHALL COORDINATE WITH THE EQUIPMENT SUPPLIER(S) TO OBTAIN THE DRAWINGS AND INSTALL THE SYSTEM AS REQUIRED BY THE MANUFACTURER. CONTRACTOR TO SELECT ATTACHMENT AND MOUNTING SYSTEM(S) BASED ON ATTACHING TO THE DESIGNED SUBSTRATE AND STRUCTURE WITHOUT REQUIRING ADDITIONAL REINFORCEMENT BY OTHERS. IF ANY SUBSTRATE AND/OR STRUCTURE IS REQUIRED FOR PROPER REINFORCEMENT, CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR FOR ALL POTENTIAL REQUIREMENTS PRIOR TO BID.

   J. FIRE STOP ALL PIPING AND WIRING MATERIALS PASSING THROUGH RATED STRUCTURES OR ASSEMBLIES USING U.L. LISTED PRODUCTS FOR ALL APPLICABLE PENETRATIONS IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.

   K. FIELD LABEL ALL PLUMBING EQUIPMENT AND PIPING AS INDICATED ON THE PLANS PER PLUMBING AND LOCAL CODE REQUIREMENTS. INDICATE DIRECTION OF FLOW ON PIPING.

   L. TAG ALL ZONE VALVES WITH CONSECUTIVE NUMBERING ON PERMANENT HARD PLASTIC OR METAL TAB AND PROVIDE SCHEDULE LISTING ITEMS, AREA SERVED, SIZE AND VALVE TYPE. SUBMIT FINAL VALVE SCHEDULE FOR REVIEW.

   A. ALL PROVIDED MATERIALS LOCATED IN A RETURN AIR PLENUM SHALL HAVE A FLAME SPREAD OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS AS DETERMINED BY AN INDEPENDENT TESTING LAB. CONTRACTOR SHALL COORDINATE AT TIME OF BID WITH OTHER TRADES.

   B. DOMESTIC WATER CIRCULATION SYSTEMS WITH MANUAL FLOW CONTROL VALVES AND ALL RECIRCULATING PUMPS SHALL BE VERIFIED AND / OR BALANCED TO MEET DESIGN CRITERIA. BALANCING AND VERIFICATION SHALL BE BY AN INDEPENDENT THIRD PARTY CERTIFIED BALANCER. CONTRACTOR'S ARE RESPONSIBLE TO COORDINATE WITH THE BALANCING CONTRACTOR TO PROVIDE FLOW MONITORING STATIONS AND ACCESS PORTS AS REQUIRED FOR PROPER BALANCING AND SYSTEM VERIFICATION. BALANCING NOT REQUIRED IN RESIDENTIAL UNITS WITH INDIVIDUAL DEDICATED RECIRCULATION SYSTEMS.

3. DOMESTIC WATER FLOW CONTROL VALVES

   A. FURNISH AND INSTALL AN ASSE 1013, NSF 61, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER WITH DISCHARGE FUNNEL FOR THE PRIMARY DOMESTIC WATER SERVICE IN ACCORDANCE WITH STATE, LOCAL, AND JURISDICTIONAL WATER DISTRICT REQUIREMENTS. CONTRACTOR TO COORDINATE WITH WATER DISTRICT FOR METER AND WATER ENTRY REQUIREMENTS. CONTRACTOR SHALL PROVIDE FLOOR SINK(S) SUTIABLE FOR DISCHARGE FUNNEL AND PIPING TO ACCEPT DEVICE FAILURE EMERGENCY FLOW RATE AS PROVIDED BY MANUFACTURER.

   B. UNLESS NOTED ELSEWHERE ON PLAN, CONTRACTOR TO PROVIDE AN ASSE 1003 NSF 61 PRESSURE REDUCING VALVE ON DOMESTIC WATER SERVICE ENTRY. CONTRACTOR TO ADJUST VALVE TO MAINTAIN A MAXIMUM OF 80 PSI AT ANY FIXTURE.

   C. FURNISH AND INSTALL AN ASSE 1013, NSF 61, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER FOR ALL DOMESTIC WATER DIRECT CONNECTIONS TO MECHANICAL EQUIPMENT, POOL / SPA / FOUNTAINS, IRRIGATION, OR SIMILAR NON-POTABLE APPLICATIONS. PROVIDE DISCHARGE FUNNEL AND PIPING ROUTED TO APPROVED RECEPTOR WITH AIR GAP DISCHARGE.

4. PIPING

   A. PIPE MATERIALS SHALL BE PROVIDED PER THE SYSTEM TYPE, MAXIMUM OPERATING TEMPERATURE AND PRESSURE OF THE SYSTEM, AND SIZE UNLESS NOTED OTHERWISE. PIPE AND FITTINGS SHALL BE MANUFACTURED AS A SYSTEM AND BE THE PRODUCT OF ONE MANUFACTURER. ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN THE UNITED STATES. INSTALLATION SHALL COMPLY WITH THE LATEST INSTALLATION INSTRUCTIONS PUBLISHED BY MANUFACTURER AND SHALL CONFORM TO ALL APPLICABLE PLUMBING, BUILDING, AND FIRE CODE REQUIREMENTS. SYSTEMS SHALL BE HYDROSTATICALLY TESTED AFTER INSTALLATION. THE SYSTEM SHALL BE PROTECTED FROM CHEMICAL AGENTS, FIRE STOPPING MATERIALS, THREAD SEALANT, PLASTICIZED VINYL PRODUCTS, OR OTHER AGGRESSIVE CHEMICAL AGENTS NOT COMPATIBLE WITH PVC COMPOUNDS.

   B. PROVIDE EXPANSION LOOPS, SWING JOINTS, OR MECHANICAL EXPANSION COMPENSATING DEVICES AS REQUIRED TO ACCOUNT FOR THERMAL EXPANSION OF ALL PIPING SYSTEMS. EXPANSION SYSTEM SIZING SHALL BE IN ACCORDANCE WITH MATERIALS DATA SHEETS AND MANUFACTURER RECOMMENDATIONS.

   C. ANY PIPING SYSTEM LOCATED IN A RETURN AIR PLENUM SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NO MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.

   D. FIRE STOP ALL PIPING MATERIALS PASSING THROUGH FIRE RATED STRUCTURES OR FIRE RATED ASSEMBLIES IN ACCORDANCE WITH THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. USE CURRENTLY LISTED U.L. CLASSIFIED PRODUCTS, TESTED BY ASTM E814. USE FOR ALL APPLICABLE PIPE PENETRATIONS THROUGH FIRE RATED FLOORS, WALLS, OR FLOOR CEILING ASSEMBLIES IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.

   E. GRAVITY DRAIN PIPING

      a. DRAINAGE SYSTEM ACCEPTABLE MATERIALS: REFER TO MATERIALS LISTED BELOW FOR STANDARDS AND SPECIFIC REQUIREMENTS.
         - SANITARY & VENT – CAST IRON, EPOXY COATED CAST IRON, SOLID CORE PVC, STAINLESS STEEL, COPPER.
         - GREASE WASTE – CAST IRON, EPOXY COATED CAST IRON, PVC, STAINLESS STEEL, COPPER.
         - SAND OIL DRAINAGE – CAST IRON, PVC.

      b. CAST IRON NO-HUB PIPE & FITTINGS: MANUFACTURED FROM GRAY CAST IRON AND CONFORM TO ASTM A 888 AND CISPI STANDARD 301 BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND BE LISTED BY NSF INTERNATIONAL. COUPLINGS FOR JOINING CAST IRON NO-HUB PIPE SHALL MEET THE REQUIREMENTS OF CISPI 310 AND LISTED BY NSF INTERNATIONAL. COUPLINGS SHALL BE IDEAL GREEN, HUSKY 4000 OR CLAMP ALL 125. INSTALLATION IN COMPLIANCE TO CISPI HANDBOOK.

      c. EPOXY COATED CAST IRON NO-HUB PIPE & FITTINGS (ACIDIC & HIGH TEMPERATURE WASTE): MANUFACTURED FROM GRAY CAST IRON AND CONFORM TO ASTM A 888 AND CISPI STANDARD 301 BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND BE LISTED BY NSF INTERNATIONAL. COATING PERFORMANCE REQUIREMENTS TO MEET EN 877. WHERE REQUIRED BY MANUFACURER, FIELD-CUT PATCHES SHALL BE TREATED WITH MANUFACTURE APPROVED METHOD. COUPLINGS FOR JOINING CAST IRON NO-HUB PIPE SHALL MEET THE REQUIREMENTS OF CISPI 310 AND LISTED BY NSF INTERNATIONAL. COUPLINGS SHALL BE IDEAL GREEN, HUSKY 4000 OR CLAMP ALL 125. INSTALLATION IN COMPLIANCE TO CISPI HANDBOOK.

      d. CAST IRON HUB AND SPIGOT PIPE & FITTINGS: MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A74 AND BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL. CAST IRON HUB AND SPIGOT PIPE SHALL BE JOINED WITH COMPRESSION GASKETS MANUFACTURED IN COMPLIANCE WITH ASTM C564 AND C1563.

      e. EPOXY COATED CAST IRON HUB AND SPIGOT PIPE & FITTINGS (ACIDIC & HIGH TEMPERATURE WASTE): MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A74 AND BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL. COATING PERFORMANCE REQUIREMENTS TO MEET EN 877. WHERE REQUIRED BY MANUFACURER, FIELD-CUT PATCHES SHALL BE TREATED WITH MANUFACTURE APPROVED METHOD. CAST IRON HUB AND SPIGOT PIPE SHALL BE JOINED WITH COMPRESSION GASKETS MANUFACTURED IN COMPLIANCE WITH ASTM C564 AND C1563.

      f. SOLID CORE PVC PIPE & FITTINGS (MAX 140F OPERATING TEMPERATURE AND/OR ACIDIC WASTE): SCHEDULE 40 PIPE AND SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1784, ASTM D 1785 AND ASTM D 2665. INJECTION MOLDED PVC DWV FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED PVC DWV FITTINGS SHALL CONFORM TO ASTM F 1866. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARD 14. BURIED PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D 2321 AND ASTM F 1668. SOLVENT CEMENT JOINTS SHALL BE MADE IN A TWO STEP PROCESS WITH COLORED PRIMER CONFORMING TO ASTM F 656 AND SOLVENT CEMENT CONFORMING TO ASTM D 2564.

      g. CELLULAR CORE PVC PIPE & FITTINGS (ABOVE GRADE ONLY) (MAX 140F OPERATING TEMPERATURE AND/OR ACIDIC WASTE): MATERIAL SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER, OWNER, AND ARCHITECT. SCHEDULE 40 PIPE AND SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1784 AND ASTM F 891. INJECTION MOLDED PVC DWV FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED PVC DWV FITTINGS SHALL CONFORM TO ASTM F 1866. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARD 14. BURIED PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D 2321 AND ASTM F 1668. SOLVENT CEMENT JOINTS SHALL BE MADE IN A TWO STEP PROCESS WITH COLORED PRIMER CONFORMING TO ASTM F 656 AND SOLVENT CEMENT CONFORMING TO ASTM D 2564.

      h. STAINLESS STEEL PIPE & FITTINGS (ACIDIC & HIGH TEMPERATURE WASTE): CONFORMING TO AISI 316 L 1.4404 FOR STAINLESS STEEL PIPE SYSTEM, WITH PUSH-FIT SOCKET CONNECTIONS WITH EPDM (STANDARD) SEALING RING. ALL PRODUCTS ARE TO BE TESTED AND LISTED ACCORDING TO ASME A112.3.1 THROUGH IAPMO (FILE NO. 3247). ALL PIPE TO BE TREATED WITH PICKLING AND PASSIVATION FINISH PROCESS.

      i. COPPER PIPE & FITTINGS: CONFORMING TO ABOVE GRADE COPPER SHALL BE ASTM B 88, TYPE L COPPER WITH WROUGHT OR FORGED FITTINGS AND LEAD FREE SOLDERED OR MECHANICALLY PRESSED-CONNECTED JOINT PRO PRESS OR EQUAL. BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH SILVER SOLDERED JOINTS.

      j. CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH SOLDERED JOINTS,

   F. PRESSURE PIPING

      a. DOMESTIC WATER PIPING (WATER ENTRY, MECH ROOMS, MAINS, DISTRIBUTION) ABOVE/BELOW GRADE: ABOVE GRADE COPPER SHALL BE ASTM B 88, TYPE L COPPER WITH WROUGHT OR FORGED FITTINGS AND LEAD FREE SOLDERED OR MECHANICALLY PRESSED-CONNECTED JOINT PRO PRESS OR EQUAL. BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH SILVER SOLDERED JOINTS.

      b. DOMESTIC WATER PIPING (MAINS, DISTRIBUTION) ABOVE/BELOW GRADE: SOLVENT SOCKET WELDED CPVC PIPE MEETING ASTM D2846 W/ CELL CLASS 24448 PER ASTM D1784 FOR FLOWGUARD GOLD CTS (1/2" THRU 2") PIPE UTILIZING A 1-STEP SOLVENT CEMENT CONFORMING TO ASTM F493. IF THE AHJ REQUIRES PRIMER, THEN A PRIMER CONFORMING TO ASTM F656 SHOULD BE USED. CONTRACTOR SHALL HAVE ALL INSTALLERS BE BONDED QUALIFIED TO ASME B 31.3. CORZAN CPVC SCHEDULE 80 PIPE W/ CELL CLASS 24448 UP TO 6" AND 23447 8" AND G. ALL PRIMERS AND CEMENTS SHALL BE LISTED WITH NSF FOR POTABLE WATER.

         - REVIEW ALL ANCILLARY PRODUCT (CAULK, FIRE SEALANT, COATED HANGERS, ETC…) WITH THE LUBRIZOL SYSTEM COMPATIBLE PROGRAM AND/OR RECEIVE WRITTEN DOCUMENTATION FROM ANCILLARY PRODUCT MANUFACTURER SHOWING "COMPATIBILITY" WITH CPVC.

         - CONTRACTOR SHALL SUBMIT PROOF OF TRAINING BY CPVC MANUFACTURER WITHIN LAST 2-YEARS OF START OF THIS PROJECT FOR "RECOMMENDED INSTALLATION PRACTICES".

      c. DOMESTIC WATER PIPING (MAINS, DISTRIBUTION) ABOVE/BELOW GRADE: TYPE A UPONOR AQUAPEX PIPING WITH PROPEX FITTINGS FOR ALL BRANCH CONNECTIONS AND TERMINATIONS (OR REHAU EQUIVALENT). TYPE B VIEGA PEX OR EQUAL WITH ZERO LEAD BRONZE, RADEL-R PEX PRESS, OR EQUAL FITTINGS FOR ALL BRANCH CONNECTIONS AND TERMINATION. MANIFOLD SYSTEM SHALL BE REVIEWED AND APPROVED PRIOR TO INSTALLATION. DCW TO BE BLUE PIPE, DHW TO BE RED PIPE, AND DHWR TO BE WHITE PIPE.

      d. CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH SOLDERED JOINTS, OR CPVC IF ALLOWED BY LOCAL AUTHORITY HAVING JURISDICTION.

5. INSULATION

   A. PIPING INSULATION TO BE INSTALLED AS PER BELOW. WHEN CONFLICTING INSULATION REQUIREMENTS ARE LISTED, THE MORE STRINGENT SHALL BE USED.

   B. INSULATION SHALL BE INSTALLED PER IECC SECTION & TABLE C403 MINIMUM PIPE INSULATION THICKNESS AND TABLE C404 PIPING VOLUME AND MAXIMUM PIPING LENGTHS. HOT & RETURN WATER PIPING (105°-140°) 1-1/4" AND SMALLER SHALL HAVE 1" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET, 1-1/2" AND LARGER SHALL HAVE 1-1/2" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET (K-VALUE OF 0.21-0.28). 141°-200° 1 1/4" AND SMALLER SHALL HAVE 1 1/2" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET, 1-1/2" AND LARGER SHALL HAVE 2" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET (K-VALUES OF 0.25-0.29). EXCEPTION: PIPING SURROUNDED BY BUILDING INSULATION WITH A THERMAL RESISTANCE OF NOT LESS THAN R-3.

   C. RESIDENTIAL R-2, R-3, R-4 BUILDINGS THREE STORIES OR LESS IN HEIGHT, INSULATION SHALL BE INSTALLED PER 2018 IECC R403.5.3. MINIMALLY R-3 VALUE INSULATION SHALL BE INSTALLED ON 3/4" AND LARGER HOT WATER AND ALL RECIRCULATING HOT WATER LINES.

   D. DOMESTIC COLD & HOT WATER PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING ATTICS, COVERED PARKING AND CRAWL SPACES SHALL BE INSULATED WITH MINIMUM 2-INCH FIBERGLASS INSULATION.

   E. SANITARY, DOMESTIC COLD, AND HOT WATER PIPING IN AN EXTERIOR WALL, CEILING, OR FLOOR THAT IS ADJACENT TO AN UNCONDITIONED SPACE SHALL BE INSTALLED TO THE WARM SIDE OF THE BUILDING INSULATION.

   F. IN COLD ENVIRONMENTS (99% WINTER DESIGN DB <34F):

      a. HORIZONTAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING COVERED PARKING AND CRAWL SPACES SHALL BE HEAT-TRACED AND INSULATED WITH 1-INCH FIBERGLASS INSULATION.

      b. VERTICAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING EXTERIOR WALLS, COVERED PARKING AND CRAWL SPACES SHALL BE INSULATED WITH 1-INCH FIBERGLASS INSULATION.

      c. DOMESTIC COLD & HOT WATER PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING ATTICS, COVERED PARKING AND CRAWL SPACES SHALL BE HEAT-TRACED AND INSULATED WITH MINIMUM 2-INCH FIBERGLASS INSULATION.

      d. PROVIDE MINIMUM 1-INCH THICK INSULATION ON DOMESTIC WATER LINES IN AN EXTERIOR WALL, CEILING, OR FLOOR THAT IS ADJACENT TO AN UNCONDITIONED SPACE.

6. PLUMBING FIXTURE

   A. FURNISH AND INSTALL PLUMBING FIXTURES AS SCHEDULED ON THE PLANS.

   B. PROVIDE CHROME PLATED ANGLE STOPS AND ESCUTCHEON PLATES ON ALL EXPOSED FIXTURE RUNOUTS.

   C. PROVIDE INSULATION AND ROUGH IN AS REQUIRED FOR COMPLIANCE WITH ADA REQUIREMENTS.

   D. PROVIDE ALL ACCESSORIES AND SPECIALTY ITEMS AS REQUIRED FOR A COMPLETE FIXTURE INSTALLATION.

7. ELECTRIC WATER HEATERS

   A. FURNISH AND INSTALL A GLASS LINED ELECTRIC WATER HEATER AS SCHEDULED ON THE PLANS.

      a. FURNISH HEATER WHICH ARE UL LABELED AND MEET THE REQUIREMENTS OF LOCAL MUNICIPALITIES.

      b. WATER HEATER LOCATED IN CEILING SHALL BE PROVIDED WITH 2 1/2" DRAIN PAN. TERMINATE DRAIN TO NEAREST FLOOR DRAIN, FLOOR SINK OR LAV TRAP.

   B. MINIMUM 2FT OF DOMESTIC WATER PIPE SHALL BE COPPER OFF ALL WATER CONNECTIONS TO WATER HEATER. REFER TO SHEET SPEC SECTION 3 PIPING TO VERIFY MATERIALS ACCEPTABLE IN MECHANICAL/WATER ENTRY ROOM.

8. PUMP

   A. FURNISH AND INSTALL INLINE OR BASE MOUNTED PUMP AS SCHEDULED ON THE PLANS.

   B. FURNISH AND INSTALL PUMP COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROLS.

   C. PROVIDE 4" CONCRETE PAD FOR BASE MOUNTED PUMPS.

9. CIRCULATING PUMP

   A. FURNISH AND INSTALL A NSF RATED DOMESTIC WATER RETURN CIRCULATOR AS SCHEDULED ON THE PLANS. PROVIDE RETURN LINE AQUASTAT AND WIRE COMPLETE TO CYCLE CIRCULATOR TO PROVIDE 120 OR 140 DEGREES RETURN WATER TEMPERATURE (ADJUSTABLE).

10. SUBMERSIBLE SEWAGE SUMP AND DEWATERING PUMPS

   A. PUMPS SHALL BE SIMPLEX OR DUPLEX, VERTICAL, CENTRIFUGAL, DIRECT CONNECTED, END SUCTION, SINGLE STAGE, BRONZE FITTED, COMPLETE WITH INTEGRAL INLET STRAINER, OPERATING CONTROLS, AND SUMP COVER AS SCHEDULED. SYSTEM SHALL INCLUDE ALL ACCESSORIES FOR COMPLETE INSTALLATION INCLUDING BUT NOT LIMITED TO THOSE STATED ABOVE.

   B. PUMP SHALL BE CAST IRON CONSTRUCTION AND FULLY SEALED FOR SUBMERSIBLE APPLICATIONS.

   C. PROVIDE HIGH WATER ALARM.

11. CONDENSATE PUMP

   A. FURNISH AND INSTALL A SELF CONTAINED CONDENSATE PUMP WHERE INDICATED ON THE PLANS.

   B. PUMP SHALL BE CAPABLE OF LIFTING CONDENSATE FROM EQUIPMENT INDICATED ON PLANS FOR PIPED DISPOSAL TO AVAILABLE DRAIN LOCATION.

   C. PROVIDE HIGH WATER ALARM.

12. KITCHEN EQUIPMENT.

   A. MAKE ALL FINAL CONNECTIONS TO KITCHEN EQUIPMENT AS REQUIRED.

   B. RECEIVE AND COMPLETELY INSTALL KITCHEN EQUIPMENT MATERIALS, EQUIPMENT, AND APPARATUS FURNISHED BY OTHERS FOR INSTALLATION OF A COMPLETE PLUMBING SYSTEM FOR ALL KITCHEN AND FOOD SERVICE RELATED EQUIPMENT AND SYSTEMS).

   C. REVIEW CONSTRUCTION DOCUMENTS AND INSTALLATION INSTRUCTIONS FOR MATERIALS AND EQUIPMENT FURNISHED FOR INSTALLATION BY THIS CONTRACTOR. INSTALL ALL EQUIPMENT AND APPARATUS IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AND SUGGESTED PRACTICES. PROVIDE SUPPLEMENTAL AND INCIDENTAL MATERIALS AND PIPING AS MAY BE REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM. PREPARE A DETAILED ROUGH-IN DRAWING FOR APPROVAL PRIOR TO ROUGH-IN.


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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED JEFF A. GIVEN 32961 PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/06/26 ADDENDUM 1
2 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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PLUMBING SPECIFICATIONS

Sheet
P0.01
- of - Sheets

## GENERAL NOTES:

1. ALL ITEMS CONNECTING TO POTABLE WATER SHALL MEET THE LEAD FREE STANDARD OF .25% OR LESS LEAD.
2. PLUMBING PLANS REFERENCE FINISHED FLOOR TO FINISHED FLOOR ABOVE. SANITARY SHOWN IS FOR FIXTURES ABOVE UNLESS NOTED OTHERWISE.
3. FIELD VERIFY ALL ROUTING OF PLUMBING LINES WITH OTHER TRADES. FIELD ADJUST ROUTING ACCORDINGLY TO MAKE SYSTEM WORK WITH OTHER TRADES.
4. PROVIDE ASSE1070 MIXING VALVE AT ALL PUBLIC FIXTURES AS REQUIRED PER LOCAL CODE.
5. PC TO PROVIDE VACUUM BREAKERS AT LOCATIONS WHERE HOSES AND NOZZLES ARE USE, I.E. JANITOR SINKS, BEAUTY SINKS, KITCHEN SPRAYERS, DISHWASHERS, AND BATHS. INSTALL CHECK VALVES ON BOTH COLD AND HOT WATER LINES TO FIXTURE.
6. ALL DRAINAGE LINES 2-1/2" AND UNDER TO BE SLOPED AT 1/4" PER FOOT, 3"-6" TO BE SLOPED AT 1/8" PER FOOT, AND 8" AND OVER TO BE SLOPED AT 1/16" PER FOOT UNLESS NOTED OTHERWISE. GREASE WASTE SHALL BE SLOPED AT 1/4" ONLY PER CODE.
7. START TRENCHING FOR NEW SANITARY LINE AT FURTHEST FIXTURE (HIGHEST POINT IN SYSTEM) FROM CIVIL CONNECTION POINT TO BUILDING.
8. FIELD ROUTE ALL CONDENSATE LINES, T&P VALVES, AND DRAIN VALVES FROM MECHANICAL AND PLUMBING EQUIPMENT TO SANITARY SEWER RECEPTOR OR STORM/GRADE PER LOCAL CODE AND JURISDICTION.
9. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL HEIGHTS AND/OR LOCATIONS OF SHOWER FIXTURES.
10. WATER CLOSETS ON BEAMS OR COLUMNS TO BE OFFSET 18" OFF FINISHED WALL.
11. PEX PIPING IS AN APPROVED PIPING MATERIAL FOR DISTRIBUTION TO ALL FIXTURES OFF WATER MAINS.
12. DO NOT SECURE ANY PIPING TO EXPANSION JOINT WALLS.

## PIPING SYSTEMS

| | |
|---|---|
| —·—·—DCW— | DOMESTIC COLD WATER |
| ———DCWR— | DOMESTIC COLD WATER RETURN |
| —·—·—XXX°— | DOMESTIC HOT WATER |
| —·—·—XXX°R— | DOMESTIC HOT WATER RETURN |
| ——CND—— | CONDENSATE |
| ——F—— | FIRE SUPRESSION |
| ——G—— | NATURAL/PROPANE GAS |
| ——GW—— | GREASE WASTE |
| ——IRR—— | IRRIGATION |
| ——SO—— | SAND OIL |
| ——SS—— | SANITARY |
| ——ST—— | STORM |
| ——STO—— | STORM OVERFLOW |
| — —V— — | VENT |

## SHEET DESIGNATIONS

| | |
|---|---|
| | ABOVE OR BELOW |
| | CLEARANCE |
| | CONTROL OR INTERLOCK |
| | DEMOLISH |
| | EXISTING |
| | FUTURE |
| | MATCHLINE |
| | NEW |
| | TEMPORARY |
| TAG-# | MEP EQUIPMENT/FIXTURE TAG |
| | NUMBER ON SHEET / SHEET NUMBER |
| # | EQUIPMENT COORDINATION TAG |
| # | KEY NOTE(S) |
| # | DETAIL NOTE(S) |
| | POINT OF CONNECTION (POC) |
| | POINT OF DISCONNECT (POD) |

## VALVES & FITTINGS

| | |
|---|---|
| | 3 WAY CONTROL VALVE |
| | 3 WAY VALVE |
| | BALL VALVE |
| | BUTTERFLY VAVLE |
| | CALIBRATED BALANCE VALVE |
| | CHECK VALVE |
| | CONTROL VALVE |
| | DRAIN & FILL VALVE WITH CAP & 3/4" HOSE CONNECTION |
| XXX | FLEX CONNECTOR |
| | FLOW METER |
| | FLOW SWITCH |
| | GATE VALVE |
| | GLOBE VALVE |
| | PLUG VALVE/GAS COCK |
| | PRESSURE GAUGE & COCK |
| | PRESSURE REGULATING/REDUCING VALVE |
| | TEMPERATURE & PRESSURE TEST PORT |
| | TEMPERATURE & PRESSURE RELIEF VALVE |
| | TEST PORT |
| | THERMOMETER |
| | Y-STRAINER |
| | Y-STRAINER WITH VALVE, CAP & 3/4" HOSE CONNECTION |
| | CAP |
| | FLOW ARROW |
| | ELL/ELBOW DN |
| | ELL/ELBOW UP |
| | TEE DOWN |
| | TEE UP |
| | UNION |

## FIXTURES / DEVICES

| | |
|---|---|
| | WALL CLEANOUT |
| | FLOOR CLEANOUT |
| PANEL | EQUIPMENT/CONTROL PANEL |
| VFD | VARIABLE FREQUENCY DRIVE |
| EPO | EMERGENCY POWER OFF (RE: ELEC) |
| S ## | SENSOR WITH ABBREVIATION |
| AQ | AQUASTAT |
| P | PRESSURE |
| PD | PRESSURE DIFFERENTIAL |
| T | TEMPERATURE |

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| (D) | DEMOLISH | HX | HEAT EXCHANGER |
| (E) | EXISTING | ID | INSIDE DIAMETER |
| (F) | FUTURE | IN / " | INCHES |
| (N) | NEW | LB(S) | POUND(S) |
| (_)WFU | (COLD OR HOT) WATER FIXTURE UNITS | LF | LINEAR FEET |
| AMP | AMPERE | LWT | LEAVING WATER TEMPERATURE |
| AAV | AIR ADMITTANCE VALVE | MBH | THOUSANDS OF (BTU) |
| ADJ | ADJUSTABLE | M.C. | MECHANICAL CONTRACTOR |
| AFF | ABOVE FINISHED FLOOR | MCA | MINIMUM CURRENT AMPACITY |
| AHJ | AUTHORITY HAVING JURISDICTION | MFR | MANUFACTURER |
| AHU | AIR HANDELING UNIT | MOCP | MAXIMUM OVERCURRENT PROTECTION |
| ALT | ALTITUDE | N/A | NOT APPLICABLE |
| AVG | AVERAGE | NG/NAT | NATURAL GAS |
| BV | BALL VALVE | NC | NORMALLY CLOSED |
| BTU | BRITISH THERMAL UNITS | NIC | NOT IN CONTRACT |
| CND | CONDENSATE | NO | NORMALLY OPEN |
| CFH | CUBIC FEET PER HOUR | №./# | NUMBER |
| CO2 | CARBON DIOXIDE | NTS | NOT TO SCALE |
| CV | CHECK VALVE | OD | OUTSIDE DIAMETER |
| DCW | DOMESTIC COLD WATER | OZ | OUNCES |
| DFU | DRAINAGE FIXTURE UNITS | PH/ϕ | PHASE |
| DIA/Ø | DIAMETER | P.C. | PLUMBING CONTRACTOR |
| DN | DOWN | PROP | PROPANE GAS |
| E.C. | ELECTRICAL CONTRACTOR | PRV | PRESSURE REDUCING VALVE |
| ECO | END OF LINE CLEANOUT | PSIA | POUNDS PER SQUARE INCH ATMOSPHERIC |
| EOR | ENGINEER OF RECORD | PSI(G) | POUNDS PER SQUARE INCH GAUGE |
| EPO | EMERGENCY POWER OFF | PSID | PRESSURE DIFFERENTIAL IN PSI |
| EWT | ENTERING WATER TEMPERATURE | PV | PLUG VALVE |
| °F/F | FAHRENHEIT | REFR | REFRIGERANT |
| FCO | FLOOR CLEANOUT | RH | RADIANT HEATER |
| FCU | FAN COIL UNIT | RPM | REVOLUTIONS PER MINUTE |
| FLA | FULL LOAD AMPS | RVM | RADON/VAPOR MITIGATION |
| FPS | FEET PER SECOND | SOI | SAND & OIL INTERCEPTOR |
| FTHD | FEET OF HEAD (WC) | STD | STANDARD |
| FT / ' | FOOT / FEET DIMENSIONAL | SL | SEA LEVEL |
| FU | FIXTURE UNIT(S) | TEMP | TEMPERATURE |
| GAL | GALLON(S) | T&P | TEMPERATURE & PRESSURE |
| GC | GENERAL CONTRACTOR | TYP | TYPICAL |
| GCO | GRADE CLEANOUT | V | VOLT(S) |
| GPD | GALLONS PER DAY | VAV | VARIABLE AIR VOLUME |
| GPH | GALLONS PER HOUR | VFD | VARIABLE FREQUENCY DRIVE |
| GPM | GALLONS PER MINUTE | VTR | VENT THROUGH ROOF |
| GWI | GREASE INTERCEPTOR | WC | WATER COLUMN |
| HP | HORSEPOWER | WCO | WALL CLEANOUT |
| HT | HEIGHT | | |

## CODE & DESIGN CRITERIA

| | |
|---|---|
| JURSIDICTION | LOUISVILLE, CO |
| PROJECT ALTITUDE | 5350' |
| INTERNATIONAL CODES | 2024 INTERNATIONAL PLUMBING CODE<br>2024 INTERNATIONAL ENERGY CONSERVATION CODE |
| UTILITY WATER PRESSURE | PENDING |
| GAS METER OUTLET | - |
| PEAK RAINFALL RATE | - |
| S-O-I DISCHARGE | - |
| ELEVATOR PUMP REQUIRED | N/A |
| ELEVATOR PUMP DISCHARGE | TO STORM |
| CONDENSATE DISCHARGE | SANITARY |
| FULLY SPRINKLERED | YES |
| NUMBER OF FLOORS | 3 |
| LOCAL CODES | 2021 LOUISVILLE MUNICAL CODE: CHAPTER 15 - BUILDINGS AND CONSTRUCTION |

## PLUMBING SHEET LIST

| NUMBER | TITLE |
|---|---|
| P0.01 | PLUMBING SPECIFICATIONS |
| P0.02 | PLUMBING LEGENDS |
| P0.03 | PLUMBING SCHEDULES |
| P1.00 | UNDERGROUND FLOOR PLAN - PLUMBING |
| P1.01 | BASEMENT FLOOR PLAN - PLUMBING |
| P1.02 | FIRST FLOOR PLAN - PLUMBING |
| P1.03 | SECOND/THIRD FLOOR PLAN - PLUMBING |
| P1.07 | TAP HOUSE PLANS - PLUMBING |
| P5.01 | PLUMBING ISOMETRICS |
| P5.02 | PLUMBING ISOMETRICS |
| P6.01 | PLUMBING DETAILS |
| P6.02 | PLUMBING DETAILS |
| P6.03 | PLUMBING DETAILS |
| P6.04 | PLUMBING DETAILS |
| P6.05 | PLUMBING DETAILS |
| SHEET TOTAL: 15 | |


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# LOUISVILLE HISTORIC GRAIN ELEVATOR
## Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
JEFF K. GIVEN
32981
PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/06/26 ADDENDUM 1
2 01/20/26 ADDENDUM 2
PERMIT SUBMITTAL


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PLUMBING LEGENDS

Sheet
P0.02
- of - Sheets

# PLUMBING FIXTURE SCHEDULE

NOTES:

1. FIXTURES REQUIRING WATER SENSE LISTING PER JURISDICTION: TANK TYPE WATER CLOSETS, PRIVE USE LAVATORY FAUCETS, SHOWER HEADS INCLUDING HAND HELD, AND URINALS.
2. ALL PUBLIC LAVATORIES TO HAVE OPEN GRID STRAINERS AND BE PROVIDED WITH ASSE1070 MIXING VALVE., PRIVATE LAVATORIES TO HAVE POP-UP STRAINERS.
3. ALL FIXTURES TO BE PROVIDED W/ FLEXIBLE STEEL BRADED WATER LINES, 1/4 TURN ANGLE STOPS (INCLUDING DISHWASHER CONNECTIONS), TRAP WRAP, ESCUTCHEON PLATES AS REQUIRED PER FIXTURE INSTALL AND CODE.
4. ALL INSTALLATIONS SHALL COMPLY WITH MANUFACTURER'S INSTRUCTIONS, AND STATE AND LOCAL CODES.
5. PROVIDE BACKFLOW PROTECTION ON FIXTURES AS REQUIRED PER LOCAL CODE.
6. TRIP LEVERS SHALL BE TO WIDE/OPEN SIDE OF TOILET.
7. GOOSE NECK FAUCETS TO BE PROVIDE WITH SPOUT SWIVEL RESTRICTION SETTING OR SHALL BE SET STATIONARY WITHOUT SWIVEL.
8. PROVIDE TRIM KIT ON OPEN SHOWER FLANGE OR EXTEND FINISHING DRYWALL OVER FLANGE AS REQUIRED AT RATED WALLS.
9. ANY FIXTURES WITH POTENTIAL OF WATER SYSTEMS CROSSING DUE TO FAUCET REMAINING OPEN WHEN NOT IN USE SHALL BE PROVIDED WITH INLINE CHECK VALVES ON SUPPLY LINES.
10. MANUFACURES SPECIFIED FIXTURE FLOW RATES SHALL MEET OR EXCEED THE REQUIRED FLOW RATE OF STORM DRAIN FIXTURES AT THE SPECIFIED PONDING HEIGHTS OF EACH AREA OR FIXTURE.
11. AUXILIARY DRAIN LINES FROM FIXTURES SHALL DISCHARGE TO AN APPROVED LOCATION VIA AN AIR GAP. COMMON AREA AUXILAIARY DRAIN LINES SHALL NOT DISCHARGE INT PRIVATE AREAS/UNIT RECEPTORS AND VISE VERSA FOR UNIT AUXILIARY DRAIN LINES.
12. PROVIDE WATER HAMMER ARRESTORS ON ALL QUICK CLOSING VALVES.

ALTERNATE MFR'S.: ACORN, AMERICAN STANDARD, CRANE, DELTA, ELKAY, HAWS, HALSEY TAYLOR, J.R.SMITH, KOHLER, LASCO, MOEN, SIOUX CHIEF, STING RAY, SYMMONS, TOTO, WADE, ZURN.

FIXTURE SCHEDULE REMARKS

AF - ALTERNATE FIXTURES NOT ALLOWED
BS - BASKET STRAINER
BO - BATTERY OPERATED
DS - DOME STRAINER
DW - DISH WASHER CONNECTION
EC - 120V/1P ELECTICAL CONNECTION
EN - ENAMEL COATING
GS - GRID STRAINER
LS - LINT SCREEN ON PUBLIC UNITS
NA - NO ALTERNATES UNLESS PROVIDED BY OWNER
PS - POP-UP STRAINER
SM - SENSOR/METERING FAUCET
TG - ASSE1072 TRAP GUARD
TP - ASSE 1080 OR ASSE 1044 TRAP PRIMER
TR - DEEP TRAP SEAL
TW - TRAP WRAP
WB - WALL BRACKET
WD - WATER DAM
WH - WATER HAMMER ARRESTOR
6W - 6" WALL REQUIRED
8W - 8" WALL REQUIRED
15W - 7" VOID BETWEEN (2) 4" WALLS
17W - 9" VOID BETWEEN (2) 4" WALLS

BATH & SHOWER NOTES:

A. REFER TO ARCHITECTURAL FOR ALL ACCESSORIES, GRAB BAR REQUIREMNTS, AND DOORS.

| PLAN MARK | ADA | DESCRIPTION | CONNECTION SIZE (IN) | | | | FIXTURE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DCW | DHW | WASTE | VENT | MANUFACTURER | MODEL NAME | MODEL # | FLOW RATE | DIMENSIONS (IN) | MOUNTING | RIM HEIGHT (IN) | FINISH | MISC | REMARKS |
| FDR-1 | | FLOOR DRAIN ROUND | 1/2 | - | 2 | 2 | SIOUX CHIEF | LITTLEMAX | 864 SERIES | - | 8-1/2"DIA | FLOOR | FLUSH | WHITE PVC | 1/2, 3/4, FULL GRATES | |
| FS-1 | | FLOOR SINK | - | | 3 | 2 | SIOUX CHIEF | SQUAREMAX | 861 SERIES | - | 14-1/8"X14-1/8" | FLOOR | FLUSH | WHITE PVC | 1/2, 3/4, FULL GRATES | |
| FS-2 | | FLOOR SINK | - | | 4 | 2 | SIOUX CHIEF | SQUAREMAX | 861 SERIES | - | 14-1/8"X14-1/8" | FLOOR | FLUSH | WHITE PVC | 1/2, 3/4, FULL GRATES | |
| HB-1 | | HOSE BIB | 3/4 | - | - | - | WOODFORD | - | MODEL 67 | - | 3"X4-3/8" | WALL | 24"AFF | CHROME | FREEZELESS, VACUUM BREAKER | |
| IM | | ICE MAKER SUPPLY BOX | 1/2 | - | - | - | SIOUX CHIEF | OX BOX | 696 SERIES | - | 7-1/4"X5-3/8"X3-1/2" | WALL | 18"AFF | WHITE ABS | W/ ARRESTOR, 1/4 TURN VALVES | |
| LAV-1 | | LAVATORY-PUBLIC | - | - | 1-1/4 | 1-1/4 | SOPHSTONE BESPOKE | SLANT | SOPH-ST | - | 110"X94" | DROP-IN | 34"AFF | HONED | 2 DRAINS | |
| | | LAVATORY FAUCET | 1/2" | 1/2" | - | - | BOBRICK | - | B-8892 | 0.5 GPM | 4-1/16" SPOUT | DECK | - | MATTE BLACK | - | |
| LAV-2 | | LAVATORY-PRIIVATE | - | - | 1-1/4 | 1-1/4 | KOHLER | BRYANT | K-2714-1 | - | 18-7/8" | DROP-IN | - | WHITE VITROUS CHINA | CENTER DRAIN, OVERFLOW DRAIN | |
| | | LAVATORY FAUCET | 1/2" | 1/2" | - | - | KOHLER | ACCLIV | K-103A36-SBTA | 0.35 GPM | 4-11/16" | DECK | - | CHROME | - | |
| LAV-3 | | LAVATORY-PUBLIC | - | - | 1-1/4 | 1-1/4 | KOHLER | MEMOIRS | K-2337-4 | - | 22-3/4"X18" | DROP-IN | 34"AFF | WHITE VITROUS CHINA | 4 INCH CENTERS | |
| | | LAVATORY FAUCET | 1/2" | 1/2" | - | - | KOHLER | ACCLIV | K-103A36-SBTA | 0.35 GPM | 4-11/16" | DECK | - | CHROME | - | |
| MS-1 | | MOP SINK | - | - | 3 | 2 | MUSTEE | - | 63M | - | 24"X24"X10" | FLOOR | - | WHITE | - | |
| | | MOP SINK FAUCET | 1/2" | 1/2" | - | - | MUSTEE | - | 63.600A | - | - | WALL | - | CHROME | PROVIDE INTEGRAL OR INLINE CHECK VALVES, 65.700 HOSE AND HOSE HOLDER | |
| UR-1 | | URINAL | - | - | 2 | 2 | AMERICAN STANDARD | WASHBROOK FLOWISE | 6590.001 | - | - | WALL/FLOOR | - | VITREOUS CHINA | - | |
| | | URINAL FLUSH VALVE | 3/4" | - | - | - | AMERICAN STANDARD | - | 6045.101.002 | 1.0 GPF | - | - | - | | - | |
| WC-1 | | WATER CLOSET - PUBLIC | 3/4 | - | 4 | 2 | KOHLER | HIGHLINE | K-3999 | 1.28 GPF | 12"R.I./2-1/8" TRAP | FLOOR | 16-1/2" | WHITE VITROUS CHINA | - | |
| | | WATER CLOSET SEAT | - | - | - | - | KOHLER | CACHET | K-4636 | - | - | - | - | WHITE | OPEN FRONT LESS COVER | |
| WC-2 | | WATER CLOSET - PUBLIC | 3/4 | - | 4 | 2 | KOHLER | KELSTON | K-32810-0 | 1.28 GPF | 12"R.I./2-1/8" TRAP | FLOOR | 16-1/2" | WHITE VITROUS CHINA | - | |
| | | WATER CLOSET SEAT | - | - | - | - | KOHLER | CACHET | K-4636 | - | - | - | - | WHITE | OPEN FRONT LESS COVER | |
| WC-3 | | WATER CLOSET - PRIVATE | 1/2 | - | 3 | 2 | AMERICAN STANDARD | MADERA | 3461.600.020 | - | - | FLOOR | - | - | - | |
| | | FLUSH VALVE | 1" | - | - | - | AMERICAN STANDARD | - | 6047.121.002 | 1.28 GPF | - | - | - | - | - | |
| | | WATER CLOSET SEAT | - | - | - | - | AMERICAN STANDARD | - | 5901.100 | - | - | - | - | - | HEAVY DUTY OPEN FRONT LESS COVER | |

# INTERCEPTOR SCHEDULE

REMARKS:

(1) REFER TO MANUFACTURER FOR INSTALLATION METHODS AND REQUIREMENTS.
(2) INSTALL INTERCEPTOR BELOW GROUND.
(3) PROVIDE AND INSTALL SCHIER MODEL PP3 PUMPOUT PORT KIT. REFER TO PLANS FOR PIPE ROUTING.

| PLAN MARK | MANUFACTURER | MODEL # | FLOW RATE (GPM) | FLUID CAPACITY OIL (GAL) GREASE (LBS) | SOLIDS CAPACITY (GAL) | TOTAL VOLUME (GAL) | DIMENSIONS (IN) | | | INLET SIZE (IN) | OUTLET SIZE (IN) | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | LENGTH | WIDTH | HEIGHT | | | | |
| GWI-1 | SCHIER | GB-75 | 75 | 861 | 31 | 125 | 47 | 33 | 39-3/4 | 4 | 4 | 1300 | (1)(2)(3) |

# TRADE CONNECTION SCHEDULE - PLUMBING

REMARKS:

(1) INSTALL ROUGH-INS AND MAKE FINAL TERMINATIONS IN ACCORDANCE WITH TRADE PLAN REQUIREMENTS AND MANUFACTURE I/O MANUALS.
(2) PROVIDE CONNECTIONS PER EQUIPMENT SUPPLIER INSTALLATION INSTRUCTIONS. COORDINATE WITH ALL OTHER TRADES PRIOR TO ROUGH-IN
(3) PROVIDE ASSE 1022 DUAL CHECK VALVE WITH VENT AND INSTALL IN ACCESSABLE LOCATION FOR MAINTANNCE AND DISCHARGE. (BEVERAGE MACHINES)
(4) PROVIDE WATER HAMMER ARRESTOR ON QUICK ACTING VALVE EQUIPMENT.
(5) PROVIDE ASSE 1070 MIXING VALVE SET TO 120°F ADJUSTABLE.

| PLAN MARK | DESCRIPTION | DOMESTIC WATER CONNECTION SIZE (IN) | | | WASTE CONNECTION SIZE (IN) | | GAS CONNECTION INFORMATION | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DCW | 120°F | 140°F | DIRECT | INDIRECT | INPUT (MBH,SL) | INPUT (CFH, ALT) | PRESSURE (MIN INWC) | PRESSURE (MAX INWC) | |
| OWNER | | | | | | | | | | | |
| P1 | HAND SINK | 1/2" | - | 1/2" | - | 2" | 0 | 0 | 0 | 0 | (1)(2)(5) |
| P2 | ICE MACHINE | 1/2" | - | - | - | 1/2" | 0 | 0 | 0 | 0 | (1)(2)(4) |
| P5 | ICE BIN | - | - | - | - | 1-1/4" | 0 | 0 | 0 | 0 | (1)(2)(4) |
| P6 | 3 COMP SINK | 1/2" | - | 1/2" | - | 2" | 0 | 0 | 0 | 0 | (1)(2)(4)(5) |
| P7 | DISHWASHER | - | - | 1/2" | - | 1" | 0 | 0 | 0 | 0 | (1)(2)(4) |
| P9 | TAP ISLAND | 1/2" | - | - | - | 1/2" | 0 | 0 | 0 | 0 | (1)(2)(3)(4) |
| P10 | ESPRESSO MACHINE | 1/2" | - | - | - | TBD | 0 | 0 | 0 | 0 | (1)(2)(3)(4) |
| P12 | DUMP SINK | 1/2" | - | 1/2" | 2" | - | 0 | 0 | 0 | 0 | (1)(2)(4)(5) |
| P13 | HAND SINK | 1/2" | - | 1/2" | 2" | - | 0 | 0 | 0 | 0 | (1)(2)(4)(5) |
| P14 | FREESTANDING SINK | 1/2" | 1/2" | - | 2" | - | 0 | 0 | 0 | 0 | (1)(2)(4)(5) |
| P15 | HAND SINK | 1/2" | 1/2" | - | 2" | - | 0 | 0 | 0 | 0 | (1)(2)(4)(5) |

# MINIMUM PIPE INSULATION TABLE

NOTES:

(1) PIPING SERVING AS PART OF A MECHANICALY HEATED OR CHILLED SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH THE LOCAL CODE.

| FLUID TEMPERATURE RANGE (°F) | INSULATION CONDUCTIVITY | | INSULATION MATERIAL | NOMINAL PIPE OR TUBE SIZE (IN) | | | | |
|---|---|---|---|---|---|---|---|---|
| | CONDUCTIVITY Btu × in./(h × ft2 × °F) | MEAN TEMPERATURE (°F) | | 3/4 AND SMALLER | 1 TO 1-1/4 | 1-1/2 TO 3-1/2 | 4 TO 6 | 8 AND LARGER |
| 141-200 | 0.25-0.29 | 125 | FIBERGLASS | 1-1/2 | 1-1/2 | 2 | 2 | 2 |
| | | | POLYETHYLENE | | | | | |
| 105-140 | 0.21-0.28 | 100 | FIBERGLASS | 1 | 1 | 1-1/2 | 1-1/2 | 1-1/2 |
| | | | POLYETHYLENE | | | | | |
| 40-60 | 0.21-0.27 | 75 | FIBERGLASS | 1/2 | 1/2 | 1 | 1 | 1 |
| | | | POLYETHYLENE | | | | | |
| <40 | 0.20-0.26 | 50 | FIBERGLASS | 1/2 | 1 | 1 | 1 | 1-1/2 |
| | | | POLYETHYLENE | | | | | |

# ELECTRIC WATER HEATER SCHEDULE

REMARKS:

(1) PROVDE 2 1/2" DEEP DRAIN PAN. ROUTE 3/4"DRAIN TO LAV TRAP OR FLOOR DRAIN.
(2) 1ST YR SHALL COVER ANY FREIGHT, PARTS, DIAGNOSTICS, AND LABOR WITH ANY WATER HEATER ISSUES, PROVIDED BY MANUFACTURER.
(3) STARTUPS TO BE PERFORMED BY FACTORY AUTHORIZED REPRESENTATIVE THEN SUBMITTED TO DESIGN ENGINEER FOR APPROVAL.
(4) SET WATER HEATER TO MAINTAIN SET POINT OF 140F (ADJUSTABLE).

| PLAN MARK | MANUFACTURER | MODEL # | NOMINAL TANK VOLUME (GAL) | RECOVERY RATE (GPH) | TEMPERATURE RISE (°F) | ELECTRICAL DATA | | | | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOLTS | PHASE | WATTS | FLA | | |
| EWH-1 | BRADFORD WHITE | CEHD120KW3*CF | 119 | 124 | 100 | 208 | 3 | 30,000 | 83.3 | 1477 | (1)(2)(3)(4) |
| EWH-2 | EEMAX | XTP024208 | 0 | 120 | 82 | 208 | 3 | 24,000 | 66.7 | 36 | |

# PLUMBING PUMP SCHEDULE

REMARKS:

(1) ECM OR VFD FLOW PUMP WITH INTEGRAL STAT SET POINT TO MAINTAIN 140F ADJ.
(3) PROVIDE VIBERATION ISOLATION AT PUMP AND CONNECTION TO STRUCTURE.
(4) PROVIDE ALL VALVES REQUIRED PER LOCAL CODE ON DISCHARGE PIPE.
(5) COORDINATE EXACT LOCATION OF SUMP PIT IN SHAFT WITH OTHER TRADES.

| PLAN MARK | MANUFACTURER | MODEL # | FLOW RATE (GPM) | DIFFERENTIAL PRESSURE (FTHD) | RPM | ELECTRICAL DATA | | | | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOLTS | PHASE | HP | WATTS | | |
| CP-1 | GRUNDFOS | COMFORT 10-16 DT | 1.0 | - | - | 120 | 1 | - | 6 | 0 | (1) |
| SP-1 | WEIL | 2413 | 19 | 6.5 | 1750 | 120 | 1 | 0.5 | - | 0 | (3)(4)(5) |
| SP-2 | WEIL | 2413 | 19 | 6.5 | 1750 | 120 | 1 | 0.5 | - | 0 | (3)(4)(5) |
| SP-3 | WEIL | 1411 | 50 | 5.2 | 1750 | 120 | 1 | 0.5 | - | 0 | (3)(4)(5) |
| SP-4 | WEIL | 1411 | 50 | 5.2 | 1750 | 120 | 1 | 0.5 | - | 0 | (3)(4)(5) |
| SP-5 | WEIL | 1411 | 50 | 5.2 | 1750 | 120 | 1 | 0.5 | - | 0 | (3)(4)(5) |

# PLUMBING ACCESSORIES SCHEDULE

REMARKS:

(1) PROVIDE FLOOD SENSOR CONNECTION KIT, WATTS FP-BF-CFS 2
(2) REPLACEABLE FULL ACCEPTANCE BLADDER, NSF RATED, REPLACABLE PART.

| PLAN MARK | DESCRIPTION | MANUFACTURER | MODEL # | CONNECTION SIZE (IN) | FLOW RATE (GPM) | ELECTRICAL DATA | | | | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | VOLTS | PHASE | WATTS | | | |
| ABV-1 | BALANCING VALVE | CIRCUIT SOLVER | CSUAS-1/2"-140 | 1/2 | 1.0 | 0 | 0 | 0 | | 0 | |
| BFP | BACKFLOW PREVENTER | WILKINS | 975XL | 1 | - | 0 | 0 | 0 | | 0 | (1) |
| ET-1 | EXPANSION TANK | AMTROL THERM-X-TROL | ST-12 | 3/4 | - | 0 | 0 | 0 | | 0 | (2) |


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PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 01/06/26 ADDENDUM 1
2 01/22/26 ADDENDUM 2, PERMIT SUBMITTAL


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PLUMBING SCHEDULES

Sheet
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- of - Sheets


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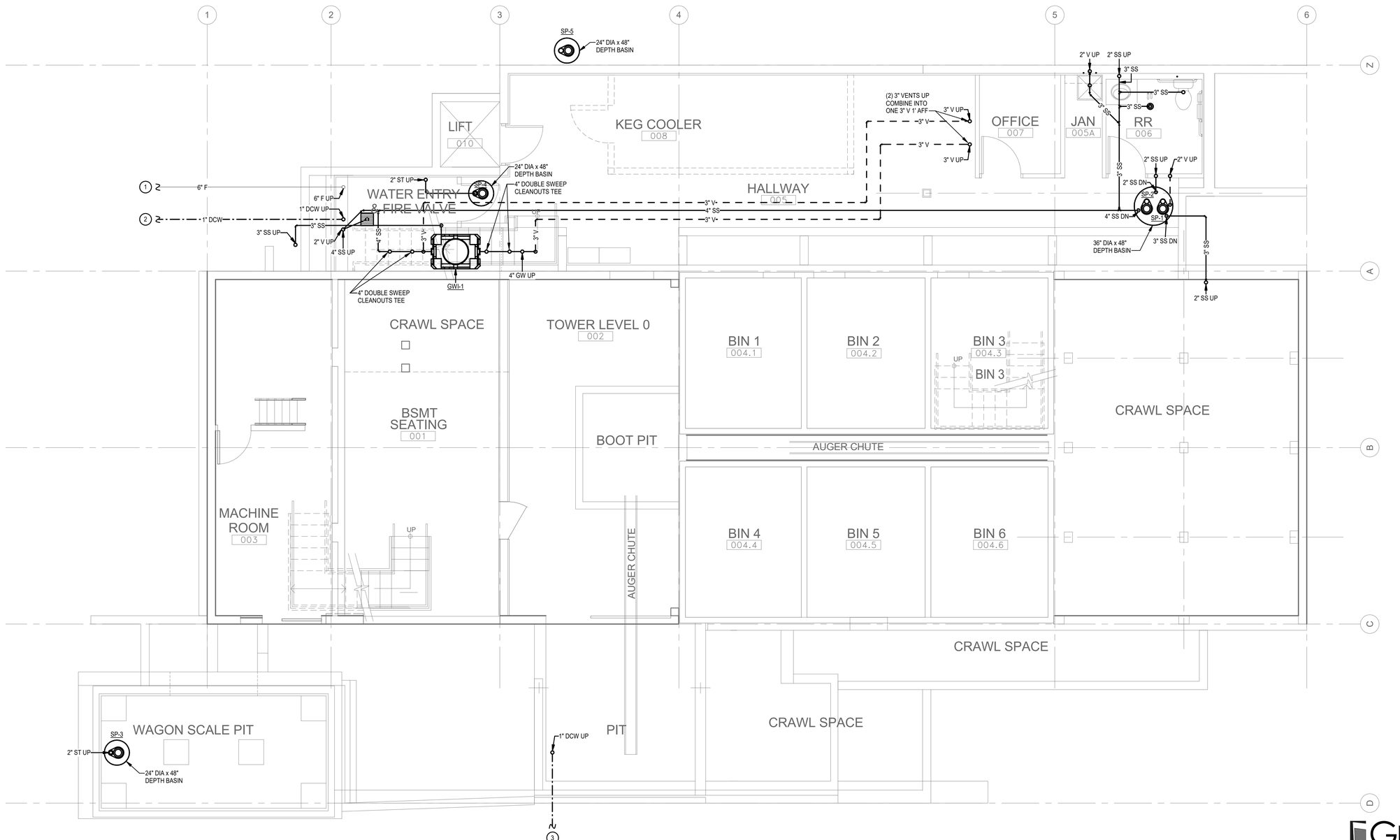
## KEY NOTES:

1. 6" FIRE LINE. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
2. 1-1/2" DOMESTIC COLD WATER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
3. 1" DOMESTIC COLD WATER BUILDING MAIN TO TAP HOUSE. REFER TO CIVIL DRAWINGS FOR CONTINUATION.




NORTH

1 UNDERGROUND FLOOR PLAN - PLUMBING
1/4" = 1'-0"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Given Project # 25086



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Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
JEFFREY A. GIVEN
32961
PROFESSIONAL ENGINEER
01/26/2026

| | |
|---|---|
| PROJECT # | 1252.50 |
| DATE: | 12/05/2025 |
| DRAWN BY: | AF/JC/RM |
| CHECKED BY: | BAB |

REVISIONS:
1. 01/06/26 ADDENDUM 1
2. 01/23/26 ADDENDUM 2 PERMIT SUBMITTAL


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UNDERGROUND FLOOR PLAN - PLUMBING

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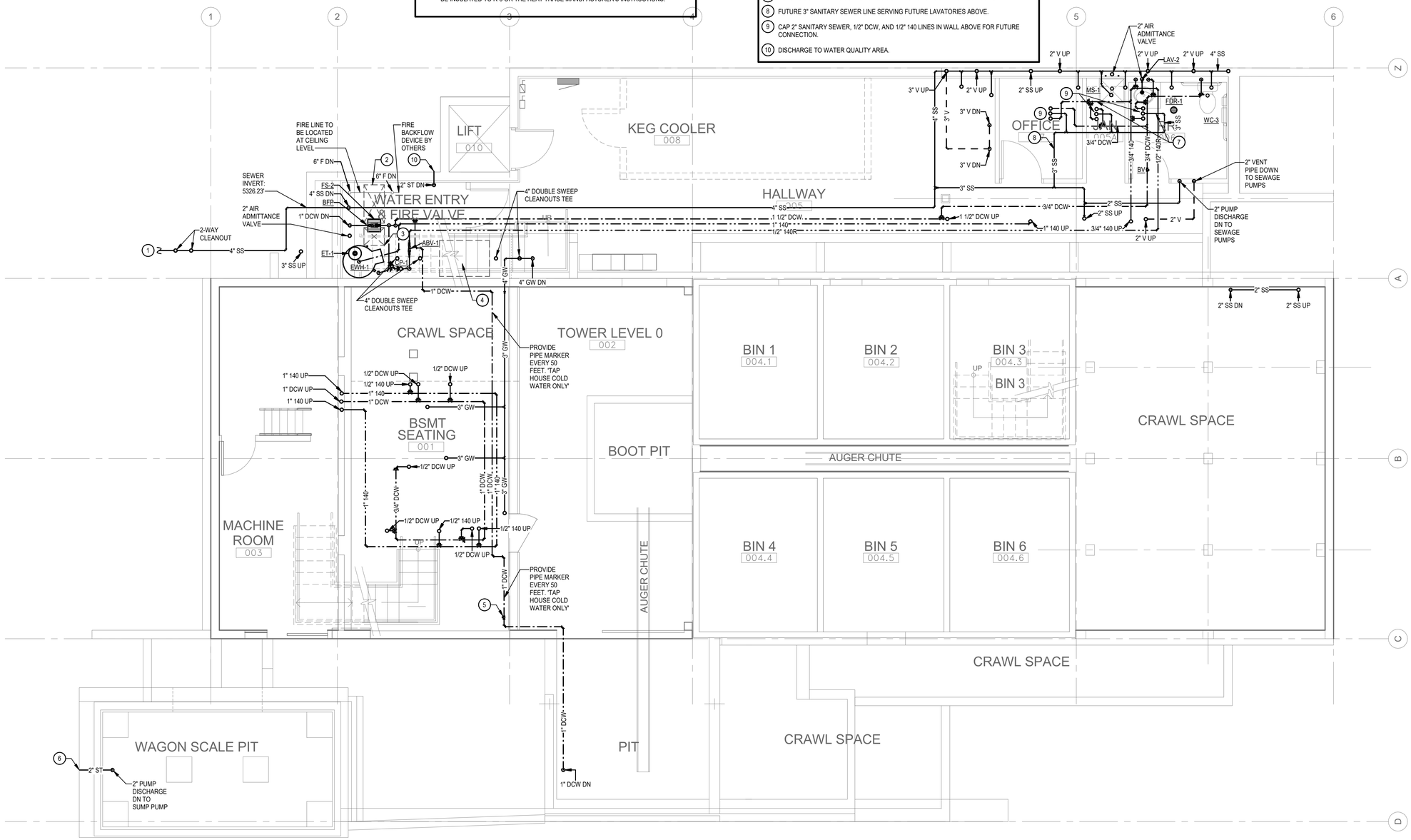
## DRAWING NOTES:

1. WHERE SERVICE HOT WATER IS PROVIDED BY A CENTRAL WATER HEATING SYSTEM, THE HOT WATER PIPE INSULATION THICKNESS SHALL BE AT LEAST 1.5 TIMES THE THICKNESS REQUIRED IN SECTION C404.4. ALL SERVICE HOT WATER PIPING SHALL BE INSULATED FROM THE HOT WATER SOURCE TO THE FIXTURE SHUTOFF. WHERE 50 PERCENT OR MORE OF HOT WATER PIPING DOES NOT HAVE INCREASED INSULATION DUE TO INSTALLATION IN PARTITIONS, THE CREDIT SHALL BE PRORATED AS A PERCENTAGE OF LINEAL FEET OF PIPING WITH INCREASED INSULATION.
2. PIPING FROM A WATER HEATER TO THE TERMINATION OF THE HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED TO R-3. ON BOTH THE INLET AND OUTLET PIPING OF A STORAGE WATER HEATER OR HEATED WATER STORAGE TANK, THE PIPING TO A HEAT TRAP OR THE FIRST 8 FEET (2438 MM) OF PIPING, WHICHEVER IS LESS, SHALL BE INSULATED. PIPING THAT IS HEAT TRACED SHALL BE INSULATED TO R-3 OR THE HEAT TRACE MANUFACTURER'S INSTRUCTIONS.

## KEY NOTES:

1. 4" SANITARY SEWER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
2. BACKFLOW PREVENTER FRONT CLEARANCE.
3. BACKFLOW PREVENTER BACK CLEARANCE.
4. GREASE INTERCEPTOR TO BE LOCATED BELOW GROUND.
5. PROVIDE 1" BALL VALVE AND BLOW OUT VALVE FOR TAP HOUSE COLD WATER SUPPLY LINE. PROVIDE ID TAG FOR EACH VALVE.
6. DISCHARGE TO DRAINAGE SWALE. REFER TO CIVIL SITE PLAN FOR CONTINUATION.
7. FUTURE DCW AND 140 SUPPLY LINES SERVING FUTURE LAVATORIES ABOVE.
8. FUTURE 3" SANITARY SEWER LINE SERVING FUTURE LAVATORIES ABOVE.
9. CAP 2" SANITARY SEWER, 1/2" DCW, AND 1/2" 140 LINES IN WALL ABOVE FOR FUTURE CONNECTION.
10. DISCHARGE TO WATER QUALITY AREA.




NORTH

1 BASEMENT FLOOR PLAN - PLUMBING
1/4" = 1'-0"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BASEMENT FLOOR PLAN - PLUMBING


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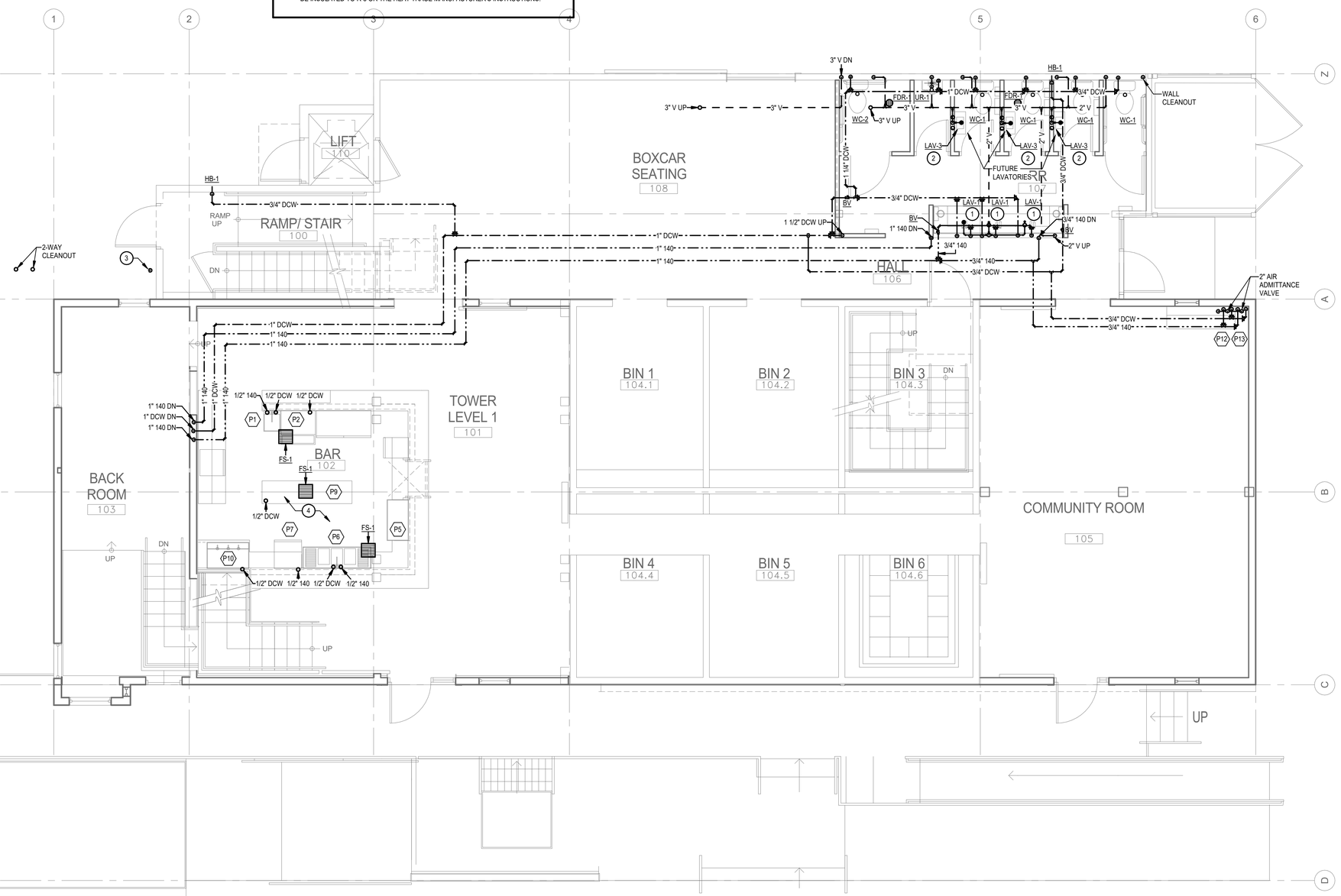
## KEY NOTES:

1. REFER TO DETAIL 1 ON P6.02 FOR HOT WATER ROUTING.
2. REFER TO DETAIL 2 ON P6.02 FOR HOT WATER ROUTING.
3. 3" PORT FOR GREASE INTERCEPTOR. REFER TO INTERCEPTOR SCHEDULE FOR MODEL.
4. OWNER PROVIDED EQUIPMENT PLUMBING HOOK UPS BY G.C.




NORTH

1 FIRST LEVEL FLOOR PLAN - PLUMBING

1/4" = 1'-0"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FIRST FLOOR PLAN - PLUMBING

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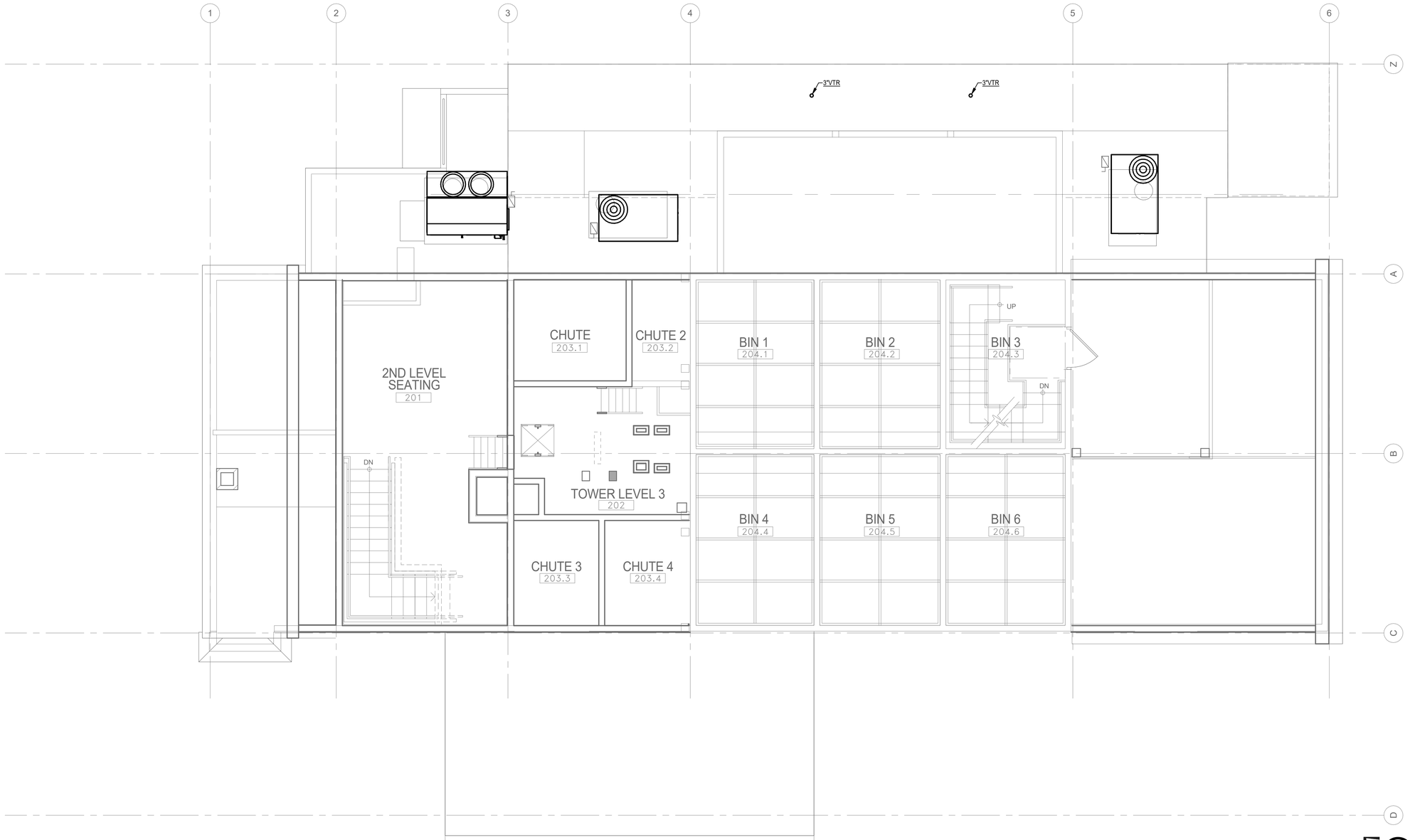


NORTH

1 SECOND/THIRD LEVEL FLOOR PLAN - PLUMBING
1/4" = 1'-0"


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SECOND/THIRD FLOOR PLAN - PLUMBING

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## DRAWING NOTES:

1. TAP HOUSE ANNUAL WINTERIZATION CHECKLIST:
   A. SHUT OFF VALVE ON COLD WATER SUPPLY TO TAP HOUSE. TAP HOUSE SHUT-OFF VALVE LOCATED IN MAIN BUILDING. REFER TO BASEMENT PLAN P1.01 FOR LOCATION.
   B. BLOWOUT COLD WATER SUPPLY SYSTEM WITH AIR COMPRESSOR.
   C. OPEN CLEANOUT FITTING ON SINK TAP HOUSE P-TRAPS.
   D. TURN OFF CIRCUIT BREAKER FOR TAP HOUSE WATER HEATER 'EWH-2'
2. WHERE SERVICE HOT WATER IS PROVIDED BY A CENTRAL WATER HEATING SYSTEM, THE HOT WATER PIPE INSULATION THICKNESS SHALL BE AT LEAST 1.5 TIMES THE THICKNESS REQUIRED IN SECTION C404.4. ALL SERVICE HOT WATER PIPING SHALL BE INSULATED FROM THE HOT WATER SOURCE TO THE FIXTURE SHUTOFF. WHERE 50 PERCENT OR MORE OF HOT WATER PIPING DOES NOT HAVE INCREASED INSULATION DUE TO INSTALLATION IN PARTITIONS, THE CREDIT SHALL BE PRORATED AS A PERCENTAGE OF LINEAL FEET OF PIPING WITH INCREASED INSULATION.
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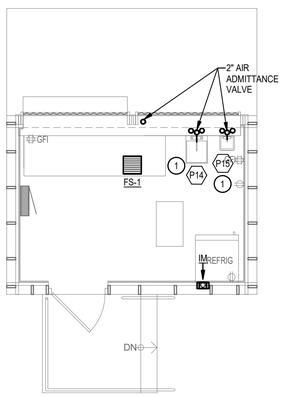
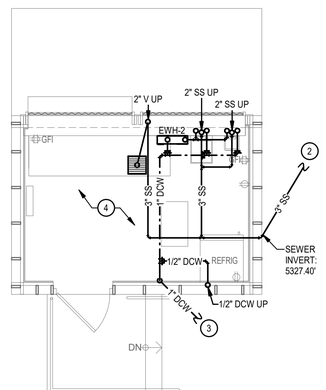
## KEY NOTES:

1. PROVIDE P-TRAP WITH CLEANOUT FITTINGS FOR EACH SINK FIXTURE IN THIS AREA.
2. 3" SANITARY SEWER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
3. 1" DOMESTIC COLD WATER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
4. OWNER PROVIDED EQUIPMENT PLUMBING HOOK UPS BY G.C.




NORTH 2 TAP HOUSE FLOOR PLAN - PLUMBING
1/4" = 1'-0"

NORTH 1 TAP HOUSE CRAWLSPACE - PLUMBING
1/4" = 1'-0"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TAP HOUSE PLANS - PLUMBING

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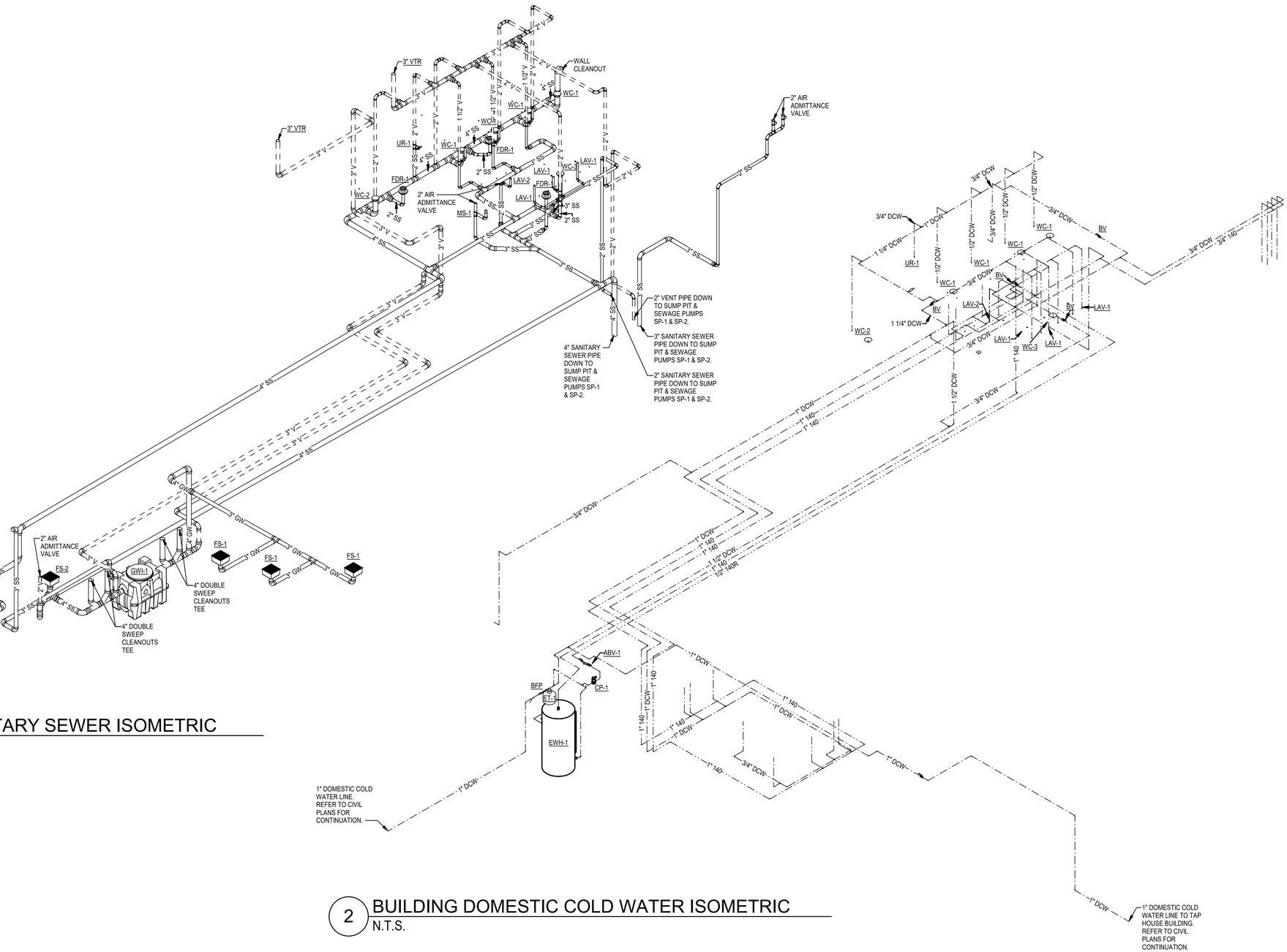


1 BUILDING SANITARY SEWER ISOMETRIC
N.T.S.

2 BUILDING DOMESTIC COLD WATER ISOMETRIC
N.T.S.


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PLUMBING ISOMETRICS

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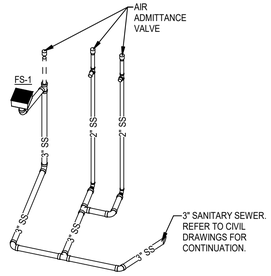


1 TAP HOUSE SANITARY SEWER ISOMETRIC
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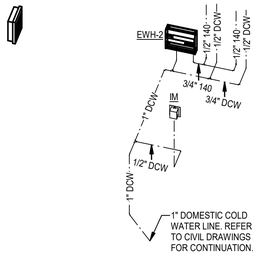


2 TAP HOUSE DOMESTIC WATER ISOMETRIC
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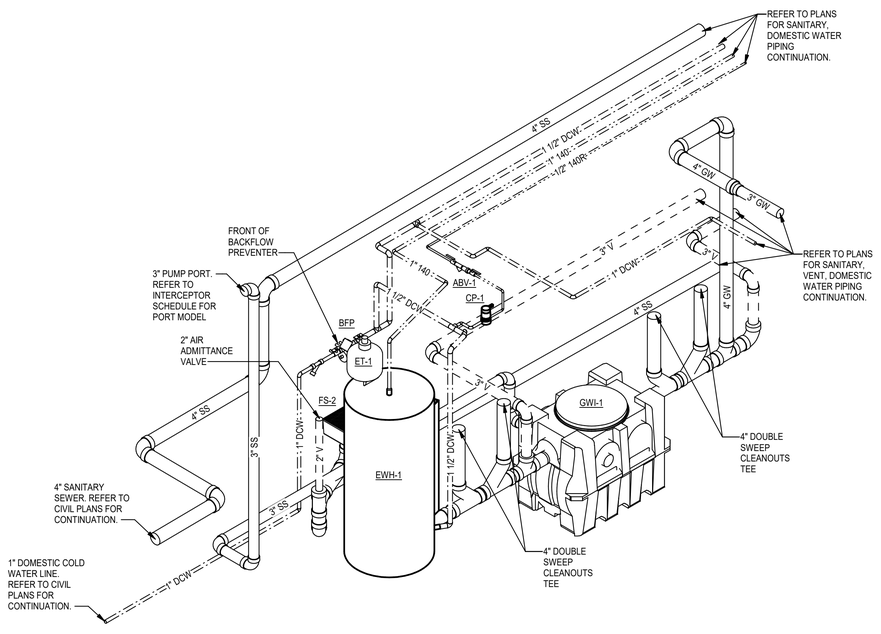


3 WATER ENTRY ROOM ISOMETRIC
N.T.S.

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PLUMBING ISOMETRICS

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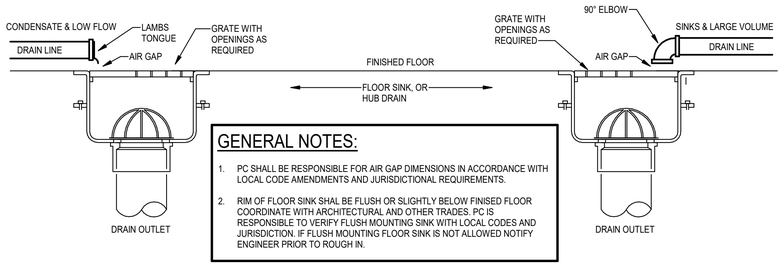
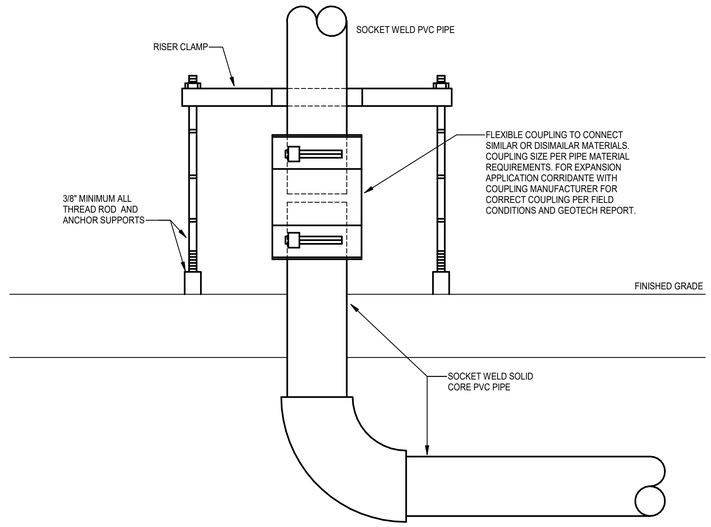
| MINIMUM REQUIRED AIR GAPS: PER IPC & UPC | | |
|---|---|---|
| FIXTURE | MINIMUM AIR GAP | |
| | AWAY FROM A WALL (INCHES) | CLOSE TO A WALL (INCHES) |
| LAVATORIES AND OTHER FIXTURES WITH EFFECTIVE OPENING NOT GREATER THAN 1/2" IN DIAMETER | 1 | 1 1/2 |
| SINK, LAUNDRY TRAYS, GOOSENECK BACK FAUCETS AND OTHER FIXTURES WITH EFFECTIVE OPENINGS GREATER THAN 3/4" IN DIAMETER | 1 1/2 | 2 1/2 |
| OVER-RIM BATH FILLERS AND OTHER FIXTURES WITH EFFECTIVE OPENINGS NOT GREATER THAN 1" IN DIAMETER | 2 | 3 |
| DRINKING WATER FOUNTAINS, SINGLE ORIFICE NOT GREATER THAN 7/16" IN DIAMETER OR MULTIPLE ORIFICES WITH A TOTAL AREA OF 0.150 SQUARE INCH (AREA OF CIRCLE 7/16" IN DIAMETER | 1 | 1 1/2 |
| EFFECTIVE OPENINGS GREATER THAN 1" | TWO TIMES THE DIAMETER OF THE EFFECTIVE OPENING | THREE TIMES THE DIAMETER OF THE EFFECTIVE OPENING |




## GENERAL NOTES:

1. PC SHALL BE RESPONSIBLE FOR AIR GAP DIMENSIONS IN ACCORDANCE WITH LOCAL CODE AMENDMENTS AND JURISDICTIONAL REQUIREMENTS.
2. RIM OF FLOOR SINK SHAL BE FLUSH OR SLIGHTLY BELOW FINISED FLOOR COORDINATE WITH ARCHITECTURAL AND OTHER TRADES. PC IS RESPONSIBLE TO VERIFY FLUSH MOUNTING SINK WITH LOCAL CODES AND JURISDICTION. IF FLUSH MOUNTING FLOOR SINK IS NOT ALLOWED NOTIFY ENGINEER PRIOR TO ROUGH IN.

1 INDIRECT PIPE DISCHARGE DETAIL
N.T.S.




2 PVC TO PVC CONNECTION DETAIL
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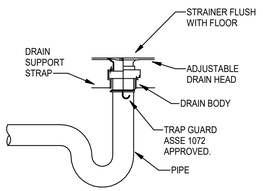


3 FLOOR DRAIN W/ TRAP GUARD DETAIL
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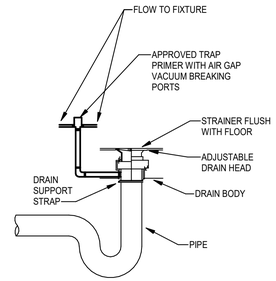


4 FLOOR DRAIN W/ TRAP PRIMER DETAIL
N.T.S.


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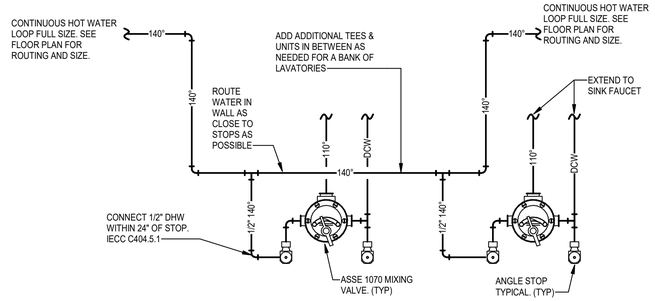
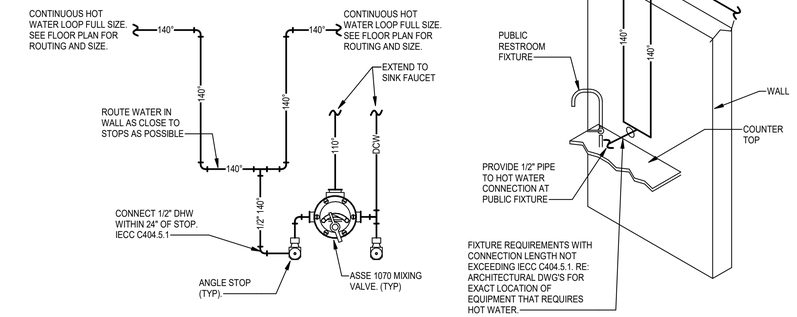
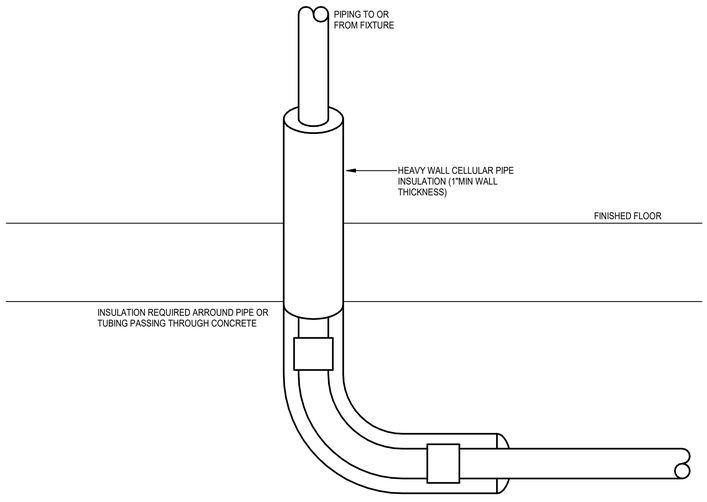



## 1 HOT WATER TO MULTIPLE PUBLIC FIXTURES DETAIL
N.T.S.



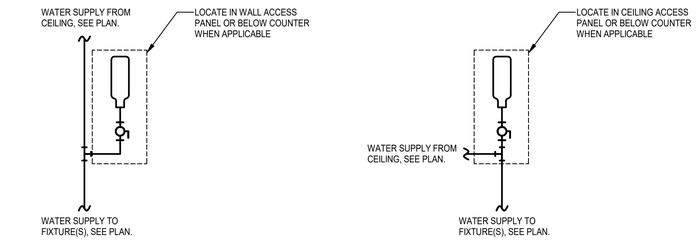

## 2 HOT WATER TO PUBLIC FIXTURE DETAIL
N.T.S.




## 3 PIPE SLEEVE BELOW GRADE DETAIL
N.T.S.

### GENERAL NOTES:

1. WATER HAMMER ARRESTORS INSTALLED ABOVE CEILINGS OR IN WALLS SHALL BE POSITIONED IN ACCESSIBLE LOCATIONS FOR VALVE MAINTAINANCE AND REMOVAL OF WATER HAMMER ARRESTOR.
2. WHEN WATER SUPPLY REQUIRES MORE THAN 1 WATER HAMMER ARRESTOR THE PC SHALL REFER TO MANUFACTURES I/O MANUAL FOR ACCEPTABLE FIXTURE QUANTITIES AND SPACING AND SIZE OF ARRESTORS TO BE INSTALLED.




## 4 WATER HAMMER ARRESTORS DETAIL
N.T.S.

GIVEN & ASSOCIATES INC
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735 S. Xenon Ct. #201
Lakewood, Colorado 80228
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Fax: 303.716.1272
www.givenandassociates.com
Given Project # 25086

HARTRONFT ASSOCIATES
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LOUISVILLE HISTORIC GRAIN ELEVATOR
Renovation for THE GRAIN YARD
540 COUNTY ROAD, LOUISVILLE, CO
Louisville Mill Site LLC / Louisville's Living Room LLC

COLORADO LICENSED
JEFFREY A. GIVEN
32963
PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
01/06/26 ADDENDUM 1
01/23/26 ADDENDUM 2 PERMIT SUBMITTAL

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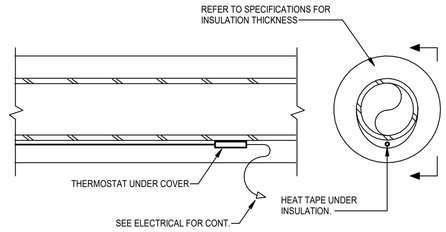
## GENERAL NOTES:

1. HEAT TAPE TO BE PROVIDED BY CONTRATOR FOR WHICH SYSTEM THE HEAT TAPE IS BEING PLACED ON. COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.
2. RUN HEAT TAPE ALONG BOTTOM OF PIPE OR WRAP PIPE PER MANUFACTURERS REQUIREMENTS. REFER TO FLOOR PLANS FOR WATTAGE REQUIREMENTS AND SET POINTS OF HEAT TAPE. HEAT TAPE SHALL COVER THE ENTIRE LENGHT OF PIPING EXPOSED TO CONDITIONS. PROVIDE MANUFACTURE CONTROLLER(S) FOR MONITORING HEATAPE SYSTEM(S)



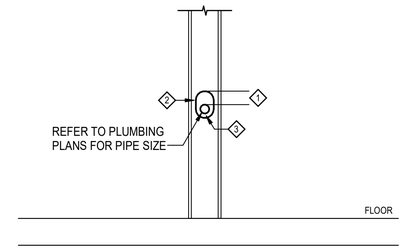

## 1 HEAT TAPE DETAIL
N.T.S.

## DIAGRAM NOTES:

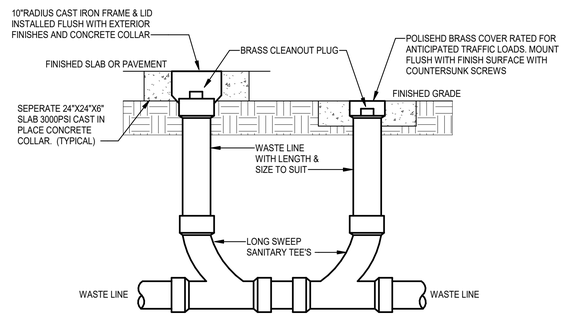
1. PROVIDE 2" RELIEF CUT ABOVE PIPE.
2. RELIEF CUT IN STUD FOR ANTICIPATED BUILDING SETTLEMENT. COORDINATE WITH STRUCTURAL FOR HOLE SIZE AND STUD REQUIREMENTS.
3. PIPE SHALL BE MINIMUM 1/2" ABOVE BOTTOM CUT.

## GENERAL NOTES:

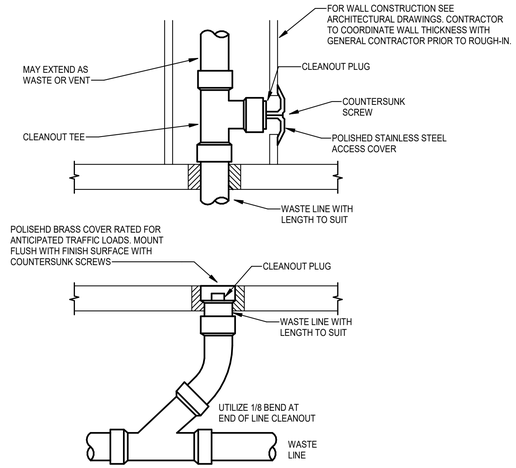
1. PC SHALL ACCOUNT FOR INSULATION AROUND PIPING WHEN CONSIDERING SIZE OR STUD OPENING.
2. REFER TO STRUCTURAL FOR STUD EXPANSION/CONTRACTION INFORMATION.
3. MAINTAIN PIPE PENETRATION RATINGS THROUGH STRUCTURE.
4. PROPERLY SUPPORT PIPING THROUGH STUD AND FOR EXPANSION AS REQUIRED.




## 2 PIPE THROUGH WALL DETAIL
N.T.S.




## 3 2-WAY BUILDING CLEANOUT DETAIL
N.T.S.




## 4 INTERIOR WALL/FLOOR CLEANOUT DETAIL
N.T.S.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COLORADO LICENSED JEFFREY A. GIVEN 32961 PROFESSIONAL ENGINEER
01/26/2026

PROJECT # 1252.50
DATE: 12/05/2025
DRAWN BY: AF/JC/RM
CHECKED BY: BAB
REVISIONS:
1 010626 ADDENDUM 1
2 012326 ADDENDUM 2 PERMIT SUBMITTAL


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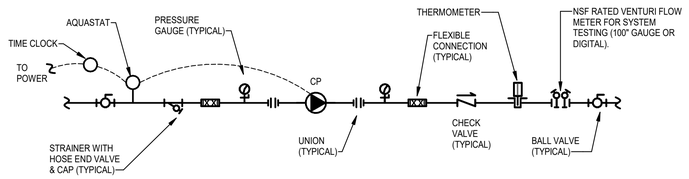
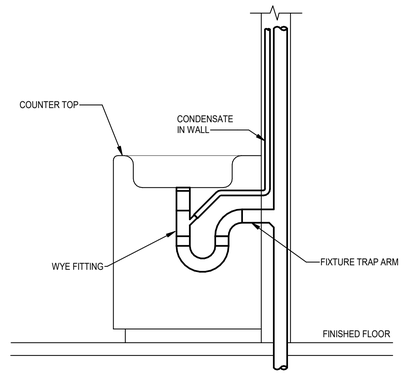
## GENERAL NOTES:

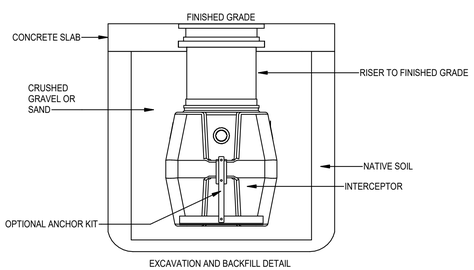
1. INDEPENDENTLY SUPPORT PUMP & PIPING. PROVIDE VIBERATION ISOLATION ON HANGERS.
2. THERMOMETERS & AQUASTATS STEMS SHALL BE IN THE WATER STREAM.

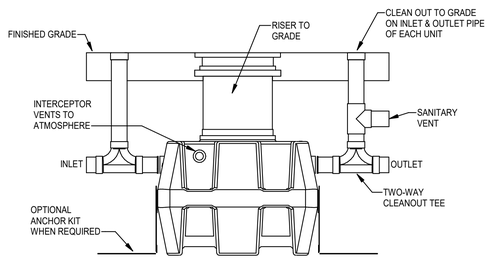



1 INLINE PUMP WITH AQUASTAT DETAIL
N.T.S.

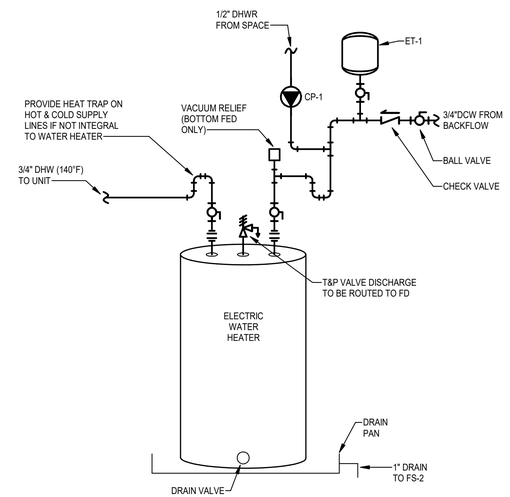



2 CONDENSATE TO SINK DETAIL
N.T.S.




4 1-RISER HYDROMECHNICAL INTERCEPTOR DETAIL
N.T.S.




3 INDIVIDUAL ELECTRIC WATER HEATER DETAIL
N.T.S.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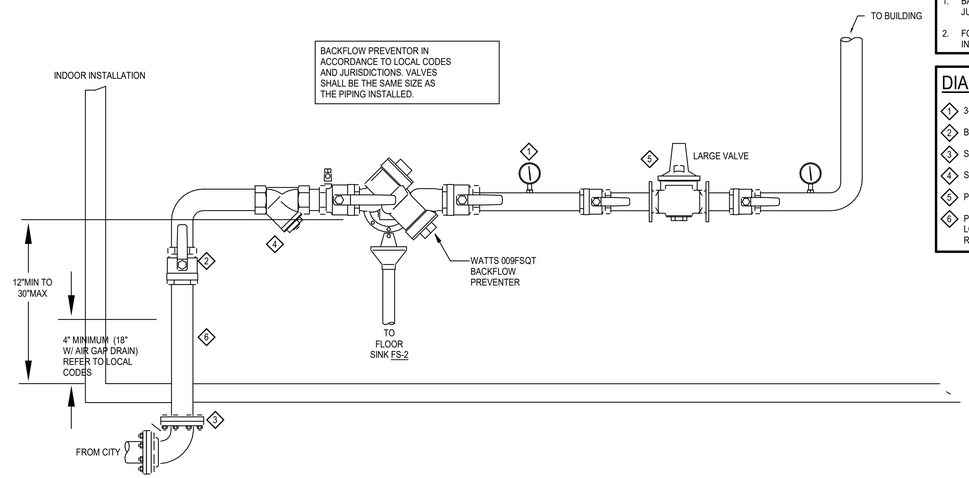



## GENERAL NOTES:

1. BACKFLOW PREVENTOR IN ACCORDANCE TO LOCAL CODES AND JURISDICTIONS. VALVES SHALL BE THE SAME SIZE AS THE PIPING INSTALLED.
2. FOR JOBS WITH A SITE BACKFLOW PREVENTOR, THE PRV IS ONLY REQUIRED IN THE BUILDING.

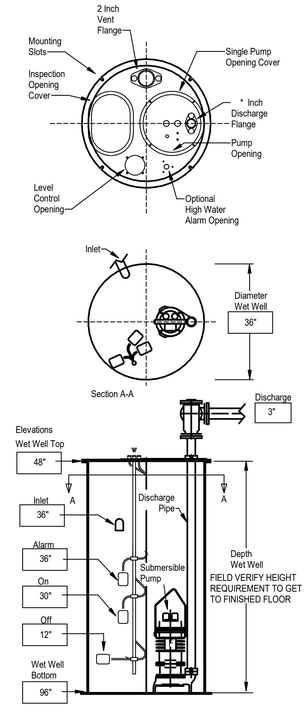
## DIAGRAM NOTES:

1. 3-1/2" FACE PRESSURE GAUGE (TYP)
2. BALL OR BUTTERFLY VALVE (TYP)
3. SWEET OR FALANGE UNION (TYP.)
4. STRAINER.
5. PRESSURE REDUCING VALVE(S).
6. PIPING FROM CIVIL TO INLET OF BUILDING ISOLATION VALVE SHALL BE PER LOCAL JURISDICTIONS OR MATCH CIVIL PIPING MATERIAL IF NO LOCAL REQUIREMENT.

# 1 DOMESTIC WATER ENTRY 3/4"-2" DETAIL
N.T.S.

## GENERAL NOTES:

1. MINIMUM WET WELL DIAMETER
   A. 2 INCH DISCHARGE - 30 INCH
   B. 3 INCH DISCHARGE - 36 INCH
   C. 4 INCH DISCHARGE
      a. 7 INCH PUMP CASE - 36 INCH
      b. 9 INCH PUMP CASE - 54 INCH
      c. 12 INCH PUMP CASE - 60 INCH
2. 10 STARTS PER HOUR MAXIMUM.
3. MINIMUM WATER LEVEL 1 INCH ABOVE PUMP CASE.
4. INSTALLATION OF THIS EQUIPMENT TO CONFORM TO LOCAL AND/OR NATIONAL CODES AND ORDINANCES AND IS THE RESPONSIBILITY OF THE INSTALLER.
5. PUMP OPENINGS WITH DOORS ON COVER:
   A. 2 AND 3 INCH DISCHARGE - 1
   B. 4 INCH DISCHARGE - 2
6. NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.
7. REFER TO MFG TO VERIFY ALL EQUIPMENT NOT PROVIDED TO COMPLETE INSTALL, AND PC SHALL BE RESPONSIBLE FOR PROVIDING IT.




# 2 DUPLEX SUMP PUMP TOP DISCHARGE DETAIL
N.T.S.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**RESOLUTION NO. 1**
**SERIES 2026**

**A RESOLUTION APPROVING OF AN ALTERATION CERTIFICATE FOR THE LOUISVILLE GRAIN ELEVATOR LOCATED AT 540 COUNTRY ROAD FOR EXTERIOR ALTERATIONS.**

**WHEREAS,** there has been submitted to the Louisville Historic Commission (HPC) an application requesting an alteration certificate for a historic structure located at 540 County Road, on property legally described as Lot 2 Louisville Mill Site, City of Louisville, State of Colorado; and

**WHEREAS,** the City Staff and the HPC have reviewed the application and found it to be in compliance with Chapter 15.36 of the Louisville Municipal Code, including Section 15.36.120, establishing criteria for alteration certificates; and

**WHEREAS,** the HPC held a properly noticed public hearing on the proposed alteration certificate on February 23, 2026, where evidence and testimony were entered into the record, including findings in the Louisville Historic Preservation Commission Staff Report.

**NOW, THEREFORE, BE IT RESOLVED THAT THE HISTORIC PRESERVATION COMMISSION OF THE CITY OF LOUISVILLE, COLORADO:**

Does hereby approve the application for an alteration certificate for the Grain Elevator as described in the Staff Report dated February 23, 2026:

**PASSED AND ADOPTED** this 23rd day of February, 2026.



_____
Sloane K. Whidden, Chairperson

**RESOLUTION NO. 2**
**SERIES 2026**

**A RESOLUTION MAKING FINDINGS AND RECOMMENDATIONS REGARDING A PRESERVATION, REHABILITATION, AND RESTORATION GRANT FOR THE GRAIN ELEVATOR LOCATED AT 540 COUNTY ROAD.**

**WHEREAS,** there has been submitted to the Louisville Historic Preservation Commission (HPC) an application requesting a preservation, rehabilitation, and restoration grant for the Grain Elevator, a historic structure located at 540 County Road on property legally described as Lot 2 Louisville Mill Site, City of Louisville, State of Colorado; and

**WHEREAS,** the City Staff and the HPC have reviewed the application and found it to be in compliance with Section 3.20.605.D and Section 15.36.120 of the Louisville Municipal Code; and

**WHEREAS,** the HPC has held a properly noticed public hearing on the preservation and restoration grant; and

**WHEREAS,** the preservation, rehabilitation, and restoration work being requested includes making repairs to the existing structure; and

**WHEREAS,** the Historic Preservation Commission finds these proposed improvements will assist in the preservation of the Louisville Grain Elevator;

**NOW, THEREFORE, BE IT RESOLVED BY THE HISTORIC PRESERVATION COMMISSION OF THE CITY OF LOUISVILLE, COLORADO:**

The Historic Preservation Commission recommends the City Council approve a total grant award of $1,571,789 as outlined in Exhibit A for the following categories:

a. Preservation, Rehabilitation and Restoration and grant up to $1,460,789.00
b. New Construction grant up to $111,000.00

**PASSED AND ADOPTED** this 23rd day of February 2025.



_____
Sloan K. Whidden, Chairperson

**EXHIBIT A**

| Table 1. Qualifying Grant Requests | | | |
|---|---|---|---|
| **Requests** | | **Analysis** | |
| Description | Amount | Preservation, Restoration, Rehabilitation | Eligible Expense |
| **Site** | | | |
| 1. Final site grading (includes excavation and backfill for foundation insultation/damproofing) | $117,694 | Preservation | Yes |
| 2. New water service for fire sprinklers | $128,836 | Rehabilitation | Yes |
| 3. New sanitary sewer service | $76,102 | Rehabilitation | Yes |
| **Foundation** | | | |
| 4. Granular backfill at all crawlspace areas (hand placed over vapor barrier) | $13,101 | Preservation | Yes |
| 5. Sump to drain at scale pit (Including plumbing equipment) | $74,627 | Rehabilitation | Yes |
| 6. Replace/reinforce section of wood foundation wall at Section 1 | | Preservation | Yes |
| 7. Complete miscellaneous foundation construction in areas not previously addressed in stabilization phase. | | Preservation | Yes |
| **Building Structural System** | | | |
| 8. First floor: Remove abandoned stairs; re-frame floor around stair opening at Section 1 and 2 - Reframe for new stairs as indicated | $103,965 | N/A | No |
| 9. At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge | | Preservation | Yes |
| 10. Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure that provides lateral bracing for the building. | | Preservation | Yes |
| ***All Sections; Lateral Force Resisting System*** | | | |

| | | | |
|---|---|---|---|
| 11. Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation | $32,040 | Preservation | Yes |
| 12. Miscellaneous drag strut and collector elements as indicated Will drag some force into existing bin walls in order to minimize number of new wood shear walls. | | Preservation | Yes |
| ***All Sections; Floor framing and wall framing at all sections*** | | | |
| 13. Repair, re-frame, or replace percentage of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc. | $279,920 | Preservation | Yes |
| 14. Sister or replace floor framing having grade limiting size knots or slope | | Preservation | Yes |
| 15. Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated | | Preservation | Yes |
| 16. Remove and replace structural elements affected by previous fire damage (to be reviewed on site with structural engineer and architect) | | Preservation | Yes |
| 17. New structural steel elements for reinforcing structure | $254,395 | Preservation | Yes |
| ***Restoration of wagon ramp, porte cochere & boardwalk*** | | | |
| 18. Reconstruction of original Porte Cochere wall and roof to cover wagon ramp | $109,887 | Restoration | Yes |
| 19. Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp | | Restoration | Yes |
| 20. Reconstruct wood boardwalk along west side of building with stairs on each end. Add railings for safety where required. | | Restoration | Yes |
| 21. Disassemble scales, move and reassemble scale equipment and infill excavated scale pit at existing site | $20,000 | Restoration | Yes |

| | | | |
|---|---|---|---|
| 22. Miscellaneous structural repairs and unknown conditions | $30,000 | N/A | No |
| **Exterior Wall Construction & Envelope** | | | |
| 23. Selective repair or replacement of severely damaged wood shiplap siding. Additional siding replacement as required | $131,562 | Preservation | Yes |
| 24. Selective repair or replacement of severely damaged wood tongue and groove siding | | Preservation | Yes |
| 25. Repaint exterior of building including moderate preparation and some siding repair remains. | | Restoration | Yes |
| 26. Paint new boardwalk, porte cochere, and wagon ramp) with two pain coats | | Restoration | Yes |
| 27. Code compliant wall and roof/attic insulation enclosing conditioned spaces | $79,764 | N/A | Yes |
| **Envelope - Roofing & Waterproofing** | | | |
| 28. New metal roofing, flashings gutters & downspouts for new (Porte Cochere only) | $13,319 | Restoration | Yes |
| 29. Membrane roofing and flashing at wagon ramp over basement space | $3,897 | Restoration | Yes |
| 30. Below Grade Damproofing for entire perimeter of existing building | $6,245 | Preservation | Yes |
| 31. Reconfigure gutters as required for proper drainage, discharge to rain gardens for water quality | $24,230 | Preservation | Yes |
| **Windows and Doors** | | | |
| 32. Replace (7) eight lite double hung wood windows and frames to match original. | $74,163 | Restoration | Yes |
| 33. Replace (4) two lite double hung windows. | | Restoration | Yes |
| 34. Repair (2) fixed four lite windows (2'x2') | | Restoration | Yes |
| 35. Reconstruct existing eight lite double hung wood window | | Restoration | Yes |
| 36. Replace 50% of the wood on the sliding doors (6'x7'). | $26,113 | Restoration | Yes |
| 37. Sand and refinish 4 panel wood door, refurbish hardware non-operating. | | Restoration | Yes |

| | | | |
|---|---|---|---|
| 38. Replace 50% of the wood boards composing exterior doors (3'x7'). | | Restoration | Yes |
| 39. Remove, wire brush and oil all hardware that remains. | | Restoration | Yes |
| 40. Install new hardware to match historic as closely as possible. | | Restoration | Yes |
| 41. New barn door rollers and track for sliding door to match original | | Restoration | Yes |
| **Interior Rehabilitation (Code, Safety, and Structure)** | | | |
| 42. Code compliant stairs from first to second level and from first level to basement in similar location to existing. | $84,223 | Rehabilitation | No |
| 43. Replace floorboard subfloor | | | No |
| 44. Remove non-compliant access ladders (ship ladders). | | | No |
| 45. Media blast wood surfaces in the building | | | No |
| 46. Treat charred wall areas to avoid dusting for safety. | | | No |
| **Mechanical Systems and Fire Protection** | | | |
| 47. Crawlspace ventilation to mitigate moisture and potential wood deterioration and mold. | $26,724 | Rehabilitation | Yes |
| 48. Fire sprinkler system | $136,226 | Rehabilitation | Yes |
| 49. Dry system to avoid freezing | | Rehabilitation | Yes |
| 50. Fire alarm system | | Rehabilitation | Yes |
| 51. Plumbing system rough-in (no interior tenant finish) | $269,929 | Rehabilitation | Yes |
| 52. Electric heat pump system | $187,417 | Rehabilitation | Yes |
| **Electrical Systems** | | | |
| 53. Electric Main Switchgear and Service to Transformer | $ 370,482 | Rehabilitation | Yes |
| 54. Branch Circuits, Panels, Outlets & Lighting | | Rehabilitation | Yes |
| 55. Xcel New Service Connection | $50,000 | Rehabilitation | Yes |
| **Hazardous Material Mitigation** | | | |
| 56. Follow up testing and mitigation allowance due to time of vacancy | $18,000 | Rehabilitation | Yes |
| **Miscellaneous Soft Costs** | | | |
| 57. 10% Owner's Construction Contingency for Hidden Conditions | $274,286 | N/A | No |

| | | | |
|---|---|---|---|
| & Unforeseen Events | | | |
| 58. Building Permit & Plan Review Fees | $35,657 | N/A | No |
| 59. Taxes, other fees, etc. paid at permit | $90,514 | N/A | No |
| 60. Builder's Risk Insurance - Carried by Owner | $76,800 | N/A | No |
| 61. Engineering Fees subsequent to initial stabilization | $109,714 | Preservation | Yes |
| 62. Architecture Fees subsequent to initial stabilization | $174,857 | Preservation | Yes |
| 63. Geotechnical Engineering Fees & Construction Phase Material Testing | $5,368 | Preservation | Yes |
| 64. Wood Scientist to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | $1,000 | Restoration | Yes |
| 65. Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive re-use | $2,000 | Preservation | Yes |
| **Total Project Cost from Applicant** | $3,513,058 | | |
| **Adjusted Eligible Expenses** | $2,921,578 | Not eligible:<br>• Fees ($35,657)<br>• Taxes ($90,514)<br>• Builders Risk Insurance ($76,800)<br>• Interior Rehabilitation ($84,223)<br>• Miscellaneous structure repairs and unknown conditions ($30,000)<br>• Owners Contingency ($274,286)<br><br>Total ineligible: $591,480 | |
| **Half of Eligible Project Cost** | $1,460,789 | | |
| **Total Requested** | $1,475,000 | | |
| **Total Recommended Grant** | $1,460,789 | | |

| Table 2. New Construction Grant Request | |
|---|---|
| **Requests** | |
| Description | Amount |
| All work related to the east addition to the grain elevator, similar to a train boxcar | $838,622 |
| Owner costs, including contingency, permit and professional fees, taxes and insurance | $232,960 |
| **Half of Project Cost** | $1,071,582 |
| **Total Requested** | $111,000 |
| **Total Recommended** | $111,000 |




City of Louisville

# 540 County Road (Grain Elevator

## Historic Preservation Fund (HPF) Grant Request

# Summary

- Historic Preservation Fund (HPF) grant request to restore and rehabilitate the Louisville grain elevator for a commercial use
- Staff recommend approval of Resolution XX, Series 2026 for a grant totaling $1,571,789.00:
    a. Extraordinary Circumstances grant up to $1,535,789.00
    b. New Construction grant up to $75,000.00

City of Louisville

# Background

- Unique part of Louisville's agricultural history
- One of the last historic grain elevators in Colorado
- High value property for local historic preservation:
  - National landmark in 1986
  - Local landmark in 2015
  - Conservation easement (no build view corridor) in 2015
- Reports and surveys highlight its unique architectural style and social importance:
  - *Stories in Places: Putting Louisville's Agricultural, Railroad, and Mining Development in Context*
  - State of Colorado Survey, 1982
  - National Designation Statement of Significance,1986
  - State of Colorado Survey, 2000
  - Historic Structure Assessment, 2011

# Grant Request – Relation to Current Proposal

- Planned Unit Development (PUD)/Special Review Use (SRU)
  - Outdoor Eating and Drinking Establishment and Mobile Food Court
  - **Grant Request applies only to Lot 2 (landmarked): Renovation of the Grain Elevator (includes preservation, restoration, and rehabilitation of the building)**
  - Outlet A (not landmarked): outdoor gathering area, fenced, food truck pads, outdoor seating, relocated historic accessory structure (tap house), small stage
  - Lot 1 & 3 (not landmarked): parking, drive aisles, and drainage infrastructure
  - Grain Yard, LLC, to lease/occupy space as a bar, gathering space, and Mobile Food Court
  - PUD and SRU applications recommended to City Council for approval by the Planning Commission on November 13, 2025

# Conditions Over Time




Grain Elevator, 1916




Recent image

City of Louisville

# Grant Request - Scope of Work

**Grain Elevator Renovation – Preservation, Rehabilitation, and Restoration:**

- Site work (grading, water, sanitary sewer)
- Foundation work (stabilization)
- Building Structural System (floor/wall framing, lateral force resisting system)
- Restoration of wagon ramp, porte cochere & boardwalk
- Exterior Wall Construction & Envelope (siding, painting restored features)
- Envelope (Roofing & Waterproofing)
- Windows and Doors
- Interior Rehabilitation
- Mechanical Systems and Fire Protection
- Electrical Systems
- Hazardous Material Mitigation
- Project Management/Soft Costs

City of Louisville

# Staff Analysis - Grant Request

- Total Project Cost: $3,513,058
- Adjusted Eligible Historic Preservation Expenses: $2,921,578
  - Ineligible costs:
    - Fees ($35,657)
    - Taxes ($90,514)
    - Builders Risk Insurance ($76,800)
    - Interior Rehabilitation ($84,223)
    - Miscellaneous structure repairs and unknown conditions ($30,000)
    - Owners Contingency ($274,286)
- Half of Eligible Historic Preservation Expenses: $1,460,789
- **Recommended grant cap of $1,535,789.00 to allow flexibility for eligible preservation, rehabilitation, and restoration expenses**

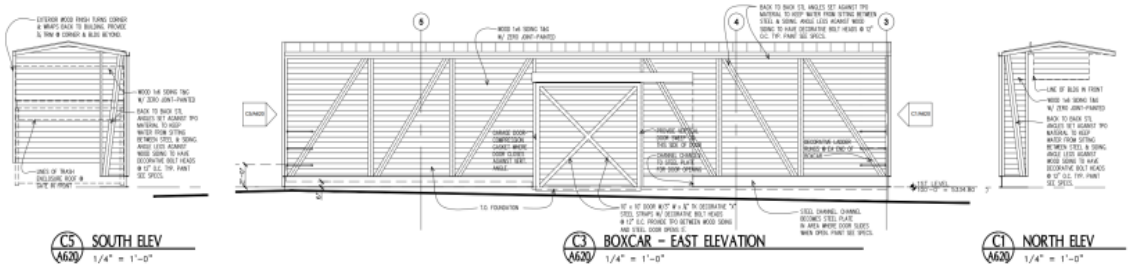
# New Construction Grant Request

**New one-story boxcar addition**

- To represent historic context and include restrooms

Grant Request:

- All work related to the east addition: $838,622
- Contingency, permit, professional fees, taxes and insurance: $232,960
- Total Project Cost: $1,071,582
- **Total Recommended: $75,000.00**




City of Louisville

# Historic Preservation Commission (HPC) Recommendation

- February 23, 2026 – Public Hearing
- Approved Alteration Certificate consistent with development plans
- Recommended approval of grants totaling $1,571,789.00:
  - Included a new construction grant totaling $111,000.00 as per current HPF funding Resolution 102, Series 2025

# Staff Recommendation

1. Resolution in effect at time of landmarking applies:
   a. Resolution No. 2, Series 2012 allowed for $75,000.00 new construction grant
2. Approval of Resolution XX, Series 2026, for a historic preservation fund grant totaling $1,571,789:
   a. Extraordinary Circumstances grant up to $80,000.00
   b. New Construction grant up to $75,000.00

*Note: Gap of $36,000.00 between Staff and HPC recommended grant amounts has been addressed by increased LRC Façade Improvement Grant

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**City Council Communication**
**Agenda Item 8.E.i.**

**Subject:** Ordinance No. 1921, Series 2026 — An Ordinance Amending the Louisville Municipal Code Concerning Temporary Short-Term Rentals - 2nd Reading, Public Hearing (advertised City of Louisville Website 04/08/2026)

**Date:** April 21, 2026

**Prepared By:** Vanessa Zarate, Economic Vitality Manager
Rob Zuccaro, Director

**Presented By:** Vanessa Zarate, Economic Vitality Manager

**Summary:**
Attached for consideration is an ordinance amending the Louisville Municipal Code concerning temporary short-term rentals. The ordinance provides a limited allowance for short-term rentals during and around the Sundance Film festival dates, and outlines minimum standards that need to be met to receive a license.

**Background / Prior Discussions:**
Sundance Film Festival has announced that their annual 10-day event will occur in Boulder, Colorado from 2027 through 2037. In 2025, the festival hosted 85,000 attendees and sold 131,000 tickets. In addition, the festival is estimated to have had $196,000,000 in economic impact ($162,000,000 of which is estimated to have been generated from out of state attendees) and created 2,697 jobs (in addition to permanent Institute staff and over 5,000 volunteers).

The City currently does not allow short-term home rentals, only rentals for 30 days or longer. This policy is established through the definition of Dwelling under Section 17.08.130 of the Louisville Municipal Code, which specifies that rentals of any Dwellings must be on a monthly or longer basis. In addition, the City currently allows Rooming Units, which is defined and regulated under Section 17.08.415 and Section 17.16.150 of the Louisville Municipal Code. This allows renting of an individual room within a Dwelling, but includes restrictions to only allow the rental of one room within a Dwelling, a limit on the area of the Dwelling that may be rented, and does not allow for provision of separate cooking facilities for a Rooming Unit.

At their February 19, 2026 meeting, the Economic Vitality Committee (EVC) reviewed background information and discussed policy considerations around allowing short-term rentals throughout the City during the Sundance Film Festival. The EVC provided direction to Staff to move forward with further discussions with the full Council on development of a ordinance to establish a licensing program to support the Festival.

At the March 10, 2026 City Council meeting, staff presented proposed parameters for a focused short-term rental program, as well as policy questions for Council to consider for implementation. Council provided feedback to move forward with drafting an ordinance for consideration, with a desire for regional alignment with nearby jurisdictions. The City Council adopted the ordinance on first reading on April 7, 2026 and set a public hearing and second reading of the ordinance for April 21, 2026.

**Development Proposal:**
N/A

**Analysis:**
As part of the preparation for this large-scale festival, Staff has been working with partners to address regional needs such as housing and transportation, generate promotional materials, and celebrate the new event coming to the region. The festival is estimating the need for 30,000 rooms across the region to include hotels and short-term rentals. Boulder proper has 3,000 hotel rooms. Staff is working with local hotels to encourage them to become official lodging partners with the festival as part of the effort to engage Louisville with the Sundance Film Festival.

In an effort to align regionally, Staff has looked at numerous surrounding jurisdictions and their adopted short-term rental policies.

LINK: City of Boulder STR Website
LINK: Boulder County STR Website
LINK: Town of Superior STR Website
LINK: City of Lafayette STR Website
LINK: City/County of Broomfield STR Website

Staff believes this policy will help support Louisville in engaging with the Sundance Film Festival, encourage visitors to visit our local establishments and bring economic benefits to businesses, residents and the City. In addition, as the policy is proposed to surround the Sundance Film Festival, the policy encourages homes to be primarily reserved for year-round City residents.

Based on City Council feedback to date, Staff is proposing the attached ordinance with the below parameters:

- All home types are eligible to participate (single-family detached, single-family attached, apartments, condos, mobile homes, ADUs)
- City-wide eligibility
- Policy would be in effect for dates established by City Council resolution each year
    - The Sundance Film Festival is scheduled for January 21-31 in 2027. A resolution is proposed for City Council to establish the application fee and establish the 2027 short-term rental dates as January 11, 2027 through

February 9, 2027.

- Rental for 29 days or less
    - A single rental agreement would be for 29 days or less
    - Any rental over 29 days is already allowed without a City license through a lease agreement with the property owner.
- Must submit sales/use and lodging tax per City policy
- The term of the license will expire on the date following the permitted dates listed in the license
- Enforcement would be conducted through existing City policies
- Should a complaint be made regarding the safety of a building, the Building Official may inspect the property at their discretion.

Application Materials Include:

- Fully completed and signed application
    - If awarded, the license number must accompany any advertising/listing for the property
- Proof of ownership.
    - If you do not own the property, ownership permission included with application
- Signed safety affidavit
    - Verifying the building is in compliance with the City's property maintenance code, including life-safety standards such as having smoke and carbon monoxide detectors, adequate ingress/egress and is compliant with all other City codes
    - Confirming that you are following the City’s already adopted building code requirements for occupancy
    - Stating you and any renters will follow the City’s noise policy
- Proof of Insurance
    - Every temporary short-term rental shall be continuously insured, with minimum limits of one million dollars ($1,000,000) per occurrence. The insurance may be in any of the following forms: property liability insurance; commercial liability insurance; or an endorsement to a homeowner's policy for coverage of temporary short-term rental activities.
- Sales/Use Tax License
    - Must obtain a sales/use tax license
    - Must submit sales/use tax and lodging tax per City policy
- Contact Information
    - Include a local contact, yourself or someone else, who can be on site within 60 minutes of a call to address issues that arise.
- $200 Application Fee
    - Renew annually for $100

Direction given at the March 10, 2026 City Council meeting declined to mandate parking

requirements or establish occupancy limits beyond what is already established per City Code for temporary short-term rental licenses.

Additional Information:

- Application will be reviewed and issued in partnership between Community Development and Finance.
- In accordance with existing policy, the licensee would submit sales, use and lodging tax. This is the same requirement and procedure for hotels.
- The application form would either be created through the existing Customer Self Service portal that we utilize for building permits or a separate online form would be created.
- The City would create a communications plan and website so that residents are aware of the new opportunity for short-term rentals, the purpose of the program, and provide resources for how to apply, ask questions and register complaints.
- Enforcement and compliance issues would primarily be addressed by the Community Development Department's Community Resource Officer through the existing complaint and review process.
- Noncompliance with the regulations would result in enforcement and penalties established through the City’s zoning ordinance (LMC Sections 17.521.140 and 150).
    - The City will contact the owner and any owners' representatives if there is a potential violation and provide necessary information for the property to come into compliance. If there is ongoing noncompliance following the City's initial warning, the City would have the ability to issue a municipal summons, and the violation would be addressed through the municipal court system. Penalties are outlined in LMC Chapter 1.28.
    - Continued violations or ignorance of violation could result in the Temporary Short Term Rental license to be revoked and not-reinstated for a year.

This ordinance is limited to consideration of a short-term rental allowance to support the Sundance Film Festival. This is to expedite this review and consideration so that the City can establish a short-term rental program as soon as possible for booking visitors for 2027's Sundance Film Festival, as the dates have been announced. If Council desires to explore allowing short-term rentals more broadly, Staff would follow up with a separate discussion/direction session with more in-depth analysis on the policy considerations around expanding the program.

**Council Work Plan:**
This is identified in the 2026 work plan as both an Economic Vitality Committee Policy Recommendation and Sundance Film Festival Engagement and partnership.

**Fiscal Impact:**
The City would receive application fees and sales and accommodation tax revenues as

part of the Temporary Short Term Rental program. This will help offset the costs to implement and enforce the program. Creation and implementation of the program is currently being planned using existing staff across multiple departments. Continued implementation will require additional staff time and impact capacity across departments.

Potential revenues and expenditures are unknown at this time, and will be dependent on the number of licenses submitted and issued, as well as any enforcement needed. After the first year, fiscal impact will be more known and amendments can be made as needed.

**Alternatives:**

- Approve Ordinance No. 1921, Series 2026 on second reading as drafted.
- Approve Ordinance No. 1921, Series 2026 on second reading and direct any desired amendments.
- Not approve Ordinance No. 1921, Series 2026 on second reading.

**Recommendation:**
Staff recommends City Council approve Ordinance No. 1921, Series 2026 on second reading.

**Attachments:**
1. Ordinance No. 1921, Series 2026
2. Festival Short Term Rental Presentation

**ORDINANCE NO. 1921**
**SERIES 2026**

**AN ORDINANCE AMENDING THE LOUISVILLE MUNICIPAL CODE CONCERNING TEMPORARY SHORT-TERM RENTALS**

**WHEREAS,** the City Council finds that short-term rentals can result in over-occupancy, excessive noise, and otherwise strain the residential character of the City's neighborhoods, and are currently not permitted anywhere within the City; and

**WHEREAS,** the Sundance Film Festival has announced its move to nearby Boulder, which will create a temporary need for additional lodging in the City and surrounding areas; and

**WHEREAS,** the City Council finds the Sundance Film Festival will benefit the City, its businesses, and its residents in many ways, and therefore the City Council finds that allowing temporary short-term rentals during the limited time periods to address the additional lodging needs during the Sundance Film Festival will enhance the public health and welfare of the City, its businesses, and its residents; and

**WHEREAS,** temporary short-term rentals are required to pay the City's lodging tax, and such amounts may be collected by online marketplace facilitators or marketplace sellers; and

**WHEREAS,** the intent of the amendments to the City's lodging tax ordinances set forth herein is to clarify the obligation for collection and remittance by marketplace facilitators and marketplace sellers that already exists, and are not a new obligation or tax policy change as that term is used in the Taxpayer's Bill of Rights ("TABOR") in Article X, Section 20 of the Colorado Constitution.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:**

**Section 1.** Title 5 of the Louisville Municipal Code is hereby amended by the addition of a new Chapter 5.28 to read as follows:

**TITLE 5**
**BUSINESS LICENSES AND REGULATIONS**

**Chapter 5.28**
**Temporary Short-Term Rentals**

**Sec. 5.28.010 Purpose and applicability.**

A. The purpose of this Chapter is to establish a comprehensive licensing program to safeguard the public health, safety, and welfare by regulating and controlling the use, occupancy, location, and maintenance of temporary short-term rentals in the City.

B. This Chapter shall apply to temporary short-term rentals only, as defined herein. This Chapter shall not supersede or affect any private conditions, covenants, or restrictions applicable to temporary short-term rentals.

**Sec. 5.28.020 Definitions.**

For purposes of this Chapter, the following terms shall have the following meanings:

*Accessory dwelling unit* means a residential dwelling unit constructed and occupied in compliance with Chapter 17 of this Code.

*Principal place of residence* means the home or place in which one's habitation is fixed and to which one has a present intention of returning after a departure or absence therefrom. In determining what is a principal place of residence, the City shall consider the criteria set forth in C.R.S. § 31-10-201(3), as amended.

*Temporary short-term rental* means a residential dwelling unit, or any room therein, or a permitted accessory dwelling unit available for lease for a term of less than thirty (30) consecutive days during the period specified in the license issued by the City, excluding bed and breakfasts and accommodation units.

**Sec. 5.28.030 License required.**

A. General. A current, valid license is required for each temporary short-term rental in the City. Each temporary short-term rental license is non-transferable and is only valid for the dates specified in the license.

B. Application. For new licenses and renewals, the temporary short-term rental owner shall file an application with the City Clerk, on forms supplied by the City, accompanied by the following:

1. An application fee as set by resolution of the City Council;

2. An affidavit, signed by the owner, under penalty of perjury, certifying that the temporary short-term rental is in

habitable condition, that the owner's principal place of residence is in the City, that the temporary short-term rental complies with the health and safety standards set forth in this Chapter, that the owner has complied with subsection (3) hereof, when applicable, and that the owner has complied with all other applicable provisions of the Code; and

3. If the temporary short-term rental is subject to a homeowners' association or private covenant, the temporary short-term rental owner shall certify in the affidavit that the temporary short-term rental is allowed under the homeowners' association or private covenant terms and has received approval to operate.

C. Expiration. Each temporary short-term rental license shall expire on the date following the permitted dates listed in the license or when title of the temporary short-term rental transfers to a new owner, whichever occurs first. Each change in ownership of a temporary short-term rental shall require a new license.

D. Revocation. In addition to any other penalties allowed by this Chapter, the City may revoke any temporary short-term rental license if the City finds and determines that any violation of this Chapter exists at the temporary short-term rental; provided that the City provides the licensee with at least fourteen (14) days' prior written notice and an opportunity to be heard prior to revocation. The notice shall include a description of the violation and the date and time when the temporary short-term rental owner may appear and be heard, and the notice shall be either personally served on the temporary short-term rental owner or mailed by first-class United States mail to the last-known address of the temporary short-term rental owner.

**Sec. 5.28.040 Term of temporary short-term rental license.**

A temporary short-term rental license shall authorize rental or lease for limited dates as specified in the license. Such dates shall be established annually by resolution of the City Council. Any rental outside the authorized dates, or advertising for rental for unauthorized dates, is unlawful and subject to enforcement pursuant to Section 5.28.090 of this Code.

**Sec. 5.28.050 Insurance.**

Every temporary short-term rental shall be continuously insured, with minimum limits of one million dollars ($1,000,000) per occurrence. The insurance may be in any of the following forms: property liability insurance; commercial liability insurance; or an endorsement to a homeowner's policy for coverage of temporary short-term rental activities.

Insurance provided by online short-term rental platforms does not qualify as valid insurance under this subsection.

**Sec. 5.28.060 Health and safety.**

A. Standards. Each temporary short-term rental shall comply with all applicable building, health and safety standards adopted by the City, and the following additional standards:

1. Buildings, structures and rooms shall not be used for purposes other than those for which they were designed or intended.

2. Roofs, floors, walls, foundations, ceilings, stairs, handrails, guardrails, doors, porches, all other structural components and all appurtenances thereto shall be capable of resisting any and all forces and loads to which they may be normally subjected and shall be kept in sound condition and in good repair.

3. An operable toilet, sink, and either a bathtub or shower shall be located within the same building, and every room containing a toilet or bathtub/shower shall be completely enclosed by walls, doors, or windows that will afford sufficient privacy.

4. There shall be a sufficient number of trash receptacles to accommodate all trash generated by the occupants.

5. Outdoor fires are prohibited, including without limitation those outdoor fires contained to a fire pit, grill, or outdoor fireplace.

6. Electrical panels shall be clearly labeled.

7. Each temporary short-term rental shall have operational smoke and carbon monoxide detectors as required by all applicable building, health and safety standards adopted by the City, provide for evacuation routes, and have operational fire extinguishers.

B. Signage. A sign, in a form approved by City, shall be conspicuously posted inside each temporary short-term rental with the temporary short-term rental license number, the owner's current contact information, and the physical address of the temporary short-term rental, including unit number if applicable.

C. Maximum occupancy. The maximum number of persons allowed to occupy a temporary short-term rental shall not exceed that permitted by the City's adopted building codes.

D. Multiple temporary short-term rentals.

1. Multiple temporary short-term rentals within the same dwelling or accessory dwelling unit are prohibited.

2. An owner of a temporary short-term rental shall only operate a temporary short-term rental in the City on a single parcel of real property. This may include a temporary short-term rental of both the primary dwelling and an accessory dwelling unit.

E. Inspection. The City Manager may, in the City Manager's sole discretion, order an inspection of the temporary short-term rental by the City Manager or their designee certifying that the temporary short-term rental complies with this Chapter and with all applicable building, health and safety codes adopted by the City. The City shall give the owner of the short-term rental twenty-four (24) hours' notice prior to the inspection, using the owner's current contact information.

**Sec. 5.28.070 Advertising.**

Advertising for a temporary short-term rental shall include the temporary short-term rental license number immediately following the description of the temporary short-term rental. If the temporary short-term rental is being advertised by a marketplace facilitator, it shall be the responsibility of the marketplace facilitator to ensure the temporary short-term rental license is included in the advertisement.

**Sec. 5.28.080 Taxes.**

All applicable taxes for temporary short-term rentals, including the City's lodging tax, shall be timely collected and remitted.

**Sec. 5.28.090 Violation and penalties.**

A. Violation. It is unlawful to violate any provision of this Chapter. Each day of violation shall be deemed a separate offense.

B. Liability. Each temporary short-term rental owner shall be liable for any and all violations occurring at the temporary short-term rental.

C. Civil enforcement.

1. If the City chooses civil enforcement, a citation may be served by posting on the front door of the temporary short-term rental, or by personal service on the temporary short-term rental owner, or by mailing first-class U.S. Mail to the last known address of the temporary short-term rental owner.

2. Civil violations shall be subject to the following fines and penalties, per short-term rental:

First violation in any twelve (12) month period: $150.00

Second violation in any twelve (12) month period: $300.00

3. All penalties shall be paid within fourteen (14) days of the date of the citation. If the civil violation is paid, there shall be no opportunity to challenge or otherwise appeal the violation. If the temporary short-term rental owner disputes the violation, the temporary short-term rental shall file a written protest with the City within fourteen (14) days of the date of the citation.

4. If the temporary short-term rental owner protests the citation, the City shall cancel the citation and proceed to criminal enforcement.

5. If the penalty is not timely paid and no protest is timely filed, the City may summarily suspend the temporary short-term rental license until the penalty is fully paid. Written notice of such suspension shall be provided to the last-known address of the temporary short-term rental owner.

D. Criminal enforcement. If the City chooses criminal enforcement or a protest is filed and the civil citation is canceled, a summons and complaint may be served as provided in the Colorado Municipal Court Rules of Procedure. The penalties shall be as set forth in Chapter 1.28 of this Code.

E. Suspension. Regardless of the type of enforcement, the third violation for a single temporary short-term rental shall result in a three (3) year suspension, commencing on the date of the last violation, during which no license shall be granted for such temporary short-term rental.

F. Other Remedies. In addition to the penalties described above, the City shall have any and all remedies provided by law and in equity for a violation of this Chapter, including without limitation: damages; specific performance; and injunctive relief, including without limitation an injunction requiring eviction of any occupants of the temporary short-term

rental and an injunction to prohibit the occupancy of any property in violation of this Chapter.

**Section 2.** Section 3.22.020 of the Louisville Municipal Code is hereby amended to read as follows (words to be deleted ~~stricken~~; words to be added underlined):

**Sec. 3.22.020 Definitions.**

A. For purposes of this chapter, the following words shall have the following meanings:

1. *Lodging* means hotel rooms, apartment hotel rooms, motel rooms, lodging house rooms, motor hotel rooms, guesthouse rooms, guest ranch rooms, extended stay lodging rooms, or other similar accommodations that are rented to persons for a period of less than one month or 30 consecutive days, but shall not include rentals under a written agreement for occupancy for a period of at least one month or 30 days.

2. *Marketplace* means a physical or electronic forum, including, but not limited to, a store, a booth, an internet website, a catalog, or a dedicated sales software application, where tangible personal property, taxable products, or taxable services are offered for sale.

3. *Marketplace facilitator* means a person who:

a. Contracts with a marketplace seller or multichannel seller to facilitate for consideration, regardless of whether or not the consideration is deducted as fees from the transaction, the sale of the marketplace seller's tangible personal property, products, or services through the person's marketplace;

b. Engages directly or indirectly, through one or more affiliated persons, in transmitting or otherwise communicating the offer or acceptance between a purchaser and the marketplace seller or multichannel seller; and

c. Either directly or indirectly, through agreements or arrangements with third parties, collects payment from the purchaser on behalf of the seller.

Marketplace facilitator does not include a person that exclusively provides internet advertising services or lists products for sale, and that does not otherwise meet this definition.

4. *Marketplace seller* means a person, regardless of whether or not the person is engaged in business in the city, which has an agreement with a marketplace facilitator and offers for sale tangible personal property, products, or services through a marketplace owned, operated, or controlled by a marketplace facilitator.

5~~2~~. *Sale* means the furnishing for consideration by any person of lodging within the city.

6~~3~~. *Tax* means the tax paid or payable by the taxpayer or the aggregate amount of taxes collected or to be collected and remitted to the city by the vendor during the period for which the vendor is required to collect and remit the tax upon lodging under this chapter.

7~~4~~. *Taxpayer* means the person obligated to pay the tax under the terms of this chapter.

8~~5~~. *Vendor* means a person furnishing lodging for consideration within the city and includes a marketplace facilitator or marketplace seller.

B. Words and phrases not otherwise defined herein shall have the meanings set forth in section 3.20.020, as it currently exists or may hereafter be amended, and such definitions are incorporated herein by reference.

**Section 3.** If any portion of this ordinance is held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares it would have passed and approved this ordinance and each part hereof irrespective of the fact that any one part be declared invalid.

**Section 4.** The repeal or modification of any provision of the Municipal Code of the City of Louisville by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture, or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining any and all proper actions, suits, proceedings, and prosecutions for the enforcement of the penalty, forfeiture, or liability, as well as for the purpose of sustaining any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

**Section 5.** All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

**Section 6.** Except as otherwise set forth herein, any person convicted of violating this ordinance may be punished as set forth in 1.28.010 of the Louisville Municipal Code, as may be amended but which currently provides violations shall be punished by a fine of not more than $2,650.00, as shall be adjusted for inflation on January 1, 2014 and on January 1 of each year thereafter, or by imprisonment not to exceed 364 days, or by both such fine and imprisonment.

**INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED** this ____ day of _____, 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

**PUBLIC HEARING AND SECOND READING WILL BE THE ____ DAY OF _____, 2026, AT 6:00 P.M. AT LOUISVILLE CITY HALL, 749 MAIN STREET, LOUISVILLE, CO 80027.**

**PASSED AND ADOPTED ON SECOND AND FINAL READING,** this ____ day of _____, 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk

APPROVED AS TO FORM:
Kelly PC

_____
Kathleen M. Kelly, City Attorney

City of Louisville
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# Ordinance No. 1921, Series 2026 - An Ordinance Amending the Louisville Municipal Code Concerning Temporary Short-Term Rentals

# 2nd Reading

# Sundance Background

- Sundance Film Festival has announced that their annual 10-day event will occur in Boulder, Colorado from 2027 through 2037.
- In 2025, the festival hosted 85,000 attendees and sold 131,000 tickets. In addition, the festival is estimated to have had $196,000,000 in economic impact ($162,000,000 of which is estimated to have been generated from out of state attendees) and created 2,697 jobs (in addition to permanent Institute staff and over 5,000 volunteers).
- Sundance Film Festival is estimating a regional need of 30,000 rooms

# Previous Discussions

- December 11, 2025- EVC Discussion
- February 12, 2026- EVC Direction
- March 10, 2026- City Council Discussion/Direction
- April 7, 2026- City Council First Reading

City of Louisville

# Short-Term Rental Framework

- Rental of homes, townhomes, condos, ADUs, mobile homes
- Dates surrounding the Sundance Film Festival- set by City Council Resolution each year
- For a time period of 29-days or less
- Must pay all applicable sales and lodging taxes – must display license number with all advertising
- Leases able to rent the property with written permission from the owner
- Signed safety affidavit at time of application- includes insurance coverage (min. of $1,000,000) and point of contact (onsite within 60 minutes)
- $200 application to the City and renewed annually for $100

City of Louisville

# Additional Information

- Application will be reviewed and issued in partnership between Community Development and Finance.
- The application form would either be created through the existing Customer Self Service portal that we utilize for building permits or a separate online form would be created.
- The City would create a communications plan and website so that residents are aware of the new opportunity for short-term rentals, the purpose of the program, and provide resources for how to apply, ask questions and register complaints.
- Enforcement and compliance issues would primarily be addressed by the Community Development Department's Community Resource Officer through the existing complaint and review process.
- Noncompliance with the regulations would result in enforcement and penalties established through the City's zoning ordinance (LMC Sections 17.521.140 and 150).
  - The City will contact the owner and any owners' representatives if there is a potential violation and provide necessary information for the property to come into compliance. If there is ongoing noncompliance following the City's initial warning, the City would have the ability to issue a municipal summons, and the violation would be addressed through the municipal court system. Penalties are outlined in LMC Chapter 1.28.
  - Continued violations or ignorance of violation could result in the Temporary Short Term Rental license to be revoked and not-reinstated for a year.

City of Louisville

# Neighboring Communities

| Community | Period | STR Beyond Special Events | Fee | Website |
|---|---|---|---|---|
| City of Boulder | 29 days or less | Yes | $190<br>$20 yearly renewal | Boulder STR |
| Boulder County | Less than 30 days | Yes | $350<br>$250 every 2 years | B County STR |
| Superior | Less than 30 days | Yes | $200<br>$100 yearly renewal | Superior STR |
| Lafayette | Less than 30 days | Yes | $200 | Lafayette STR |
| Broomfield | Less than 30 days | Yes | $100 every 5 years | Broomfield STR |
| Longmont | Less than 30 days | Yes | $100<br>$100 yearly renewal | Longmont STR |

City of Louisville

# Questions

City of Louisville

**RESOLUTION NO. 41**
**SERIES 2026**

**A RESOLUTION ESTABLISHING AN APPLICATION FEE AND ELIGIBLE DATES FOR TEMPORARY SHORT-TERM RENTALS IN 2027**

**WHEREAS,** by Ordinance No. 1921, Series 2026, adopted on _____, the City Council authorized temporary short-term rentals for a period of less than thirty (30) days to provide supplemental lodging during the Sundance Film Festival; and

**WHEREAS,** such Ordinance provides the City Council shall establish an application fee and annually designate eligible dates for such licenses by resolution; and

**WHEREAS,** by this resolution, the City Council desires to establish the application fee and the eligible dates for 2027.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO THAT:**

**Section 1.** The Louisville City Council hereby establishes the application fee for temporary short-term rental license pursuant to Section 5.28.030.B.1 as $200.00 for the initial application and $100.00 for annual renewal applications.

**Section 2.** The eligible dates for a temporary short-term rental license for year 2027 shall be the twenty-nine day period from January 11, 2027 to February 9, 2027.

**PASSED AND ADOPTED** this 21st day of April 2026.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, City Clerk