BOARD OF TRUSTEES

REGULAR MEETING AGENDA

July 27, 2022
7:00 PM
9900 Park Avenue
Firestone, CO 80504

PRE-MEETING WORK SESSION 6:30 PM IN THE TRAINING ROOM

AGENDA FOR THE WORK SESSION IS A DISCUSSION OF THE REGULAR MEETING AGENDA BELOW

REGULAR MEETING 7:00 PM IN THE BOARD ROOM

1. **Call to Order & Roll Call**
2. **Pledge of Allegiance**
3. **Approval of Agenda**
4. **Public Comment** *(maximum time permitted for all Public Comment is 30 minutes)
5. **Consent Agenda**
   - **a.** Approval of July 13, 2022 Meeting Minutes
   - **b.** Appointment of a Director to serve on the St. Vrain Water Authority Board of Directors
6. **Presentation**
   - **a.** United Flight 629 Remembrance
7. **Land Development**
   - **a.** **PUBLIC HEARING: Ordinance 1018:** AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, ZONING CERTAIN LAND, FULLY DESCRIBED HEREIN, FROM RESIDENTIAL B (R-B) ZONE DISTRICT TO RESIDENTIAL A (R-A) AND NEIGHBORHOOD CENTER (NC) ZONING DISTRICTS
   - **b.** **PUBLIC HEARING: Ordinance 1019**: AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A DESIGN OVERLAY APPLICATION FOR THE VISTOSA DEVELOPMENT

* Individuals that desire to address the Board of Trustees are requested to sign up at the table at the entrance to the meeting room. Individuals are allotted 3 minutes of Public Comment during the entirety of the meeting. Maximum time permitted for all Public Comment during a meeting is 30 minutes.

If you need special assistance in order to participate in a Board of Trustees meeting, please contact the Town Clerk's Office at 303-531-6264 in advance of the meeting to make arrangements. A forty-eight-hour notice is requested.

c. **PUBLIC HEARING: Resolution 22-88**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PRELIMINARY SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN THE VISTOSA SUBDIVISION

8. Discussion/Action

a. **Resolution 22-89**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE COLORADO APPROVING CHANGE ORDER NO. 5 TO THE TOWN OF FIRESTONE AND E-Z EXCAVATING INC.'S AGREEMENT FOR THE INSTALLATION OF A POTABLE WATERLINE AND APPURTENANCES FOR THE ST. VRAIN WATER TREATMENT PLANT TRANSMISSION PIPELINE PROJECT

b. **Resolution 22-90**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE COLORADO AND STANTEC CONSULTING SERVICES INC. REGARDING CONSTRUCTION ENGINEERING SERVICES FOR THE ST VRAIN WATER TREATMENT PLANT PUMP STATION

c. **Resolution 22-91**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE COLORADO AND STANTEC CONSULTING SERVICES INC REGARDING CONSTRUCTION ENGINEERING SERVICES FOR THE ST VRAIN WATER TREATMENT PLANT TRANSMISSION PIPELINE

d. **Resolution 22-93:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE ENGINEERING SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND PLUMMER ASSOCIATES, INC.

e. **Resolution 22-85:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND STURGEON ELECTRIC, INC. FOR THE TRAFFIC SIGNAL AND HAWK SIGNAL PROJECT LOCATED AT KING SCOOPERS ACCESS AND COLORADO BLVD AND OAK MEADOWS CROSSING AND COLORADO BLVD.

f. **Resolution 22-94:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A CONSTRUCTION

CONTRACT BETWEEN THE TOWN OF FIRESTONE AND NORTHERN COLORADO CONSTRUCTORS FOR CONSTRUCTION WORK PERTAINING TO THE HISTORIC FIRESTONE WATERLINES REPLACEMENT PROJECT NO. 1

g. **Resolution 22-92**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING AN AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND DITESCO LLC FOR PRE-CONSTRUCTION BIDDING ASSISTANCE AND CONSTRUCTION ADMINISTRATION SERVICES FOR THE HISTORIC FIRESTONE WATER LINE REPLACEMENT PROJECT NO. 1

9. Public Comment *(maximum time permitted for all Public Comment is 30 minutes)

10. Reports

a. Staff

b. Mayor

c. Trustees

11. Adjournment

* Individuals that desire to address the Board of Trustees are requested to sign up at the table at the entrance to the meeting room. Individuals are allotted 3 minutes of Public Comment during the entirety of the meeting. Maximum time permitted for all Public Comment during a meeting is 30 minutes.

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AGENDA INFORMATION MEMORANDUM FIRESTONE TOWN BOARD OF TRUSTEES	**AIM#:** 5.a **Consent Agenda** **Meeting Date:** July 27, 2022 **Initiated By:** Jessica Koenig **Dept:** Town Clerk

AGENDA TITLE
Approval of July 13, 2022 Meeting Minutes

SUMMARY

HISTORY AND PREVIOUS BOARD ACTION

RECOMMENDATION
Approve the draft July 13, 2022 Meeting Minutes.

ALTERNATIVES
Provide further direction.

ATTACHMENTS
1. July 13, 2022 Draft Meeting Minutes

FINANCIAL CONSIDERATIONS

TOWN OF FIRESTONE, COLORADO
Board of Trustees Regular Meeting
MINUTES
July 13, 2022

1. Call to Order & Roll Call

The Board of Trustees of the Town of Firestone met for a Regular Meeting on July 13, 2022, at the Police Department & Municipal Court building, 9900 Park Avenue, Firestone, Colorado. Mayor Peterson called the meeting to order at 7:00 PM.

The following were present upon the call of the roll:

Mayor:	Drew Peterson
Mayor Pro-tem:	Frank A. Jimenez
Trustees:	Don Conyac David Whelan Matt Holcomb Sean Doherty Doug Sharp
Staff:	**Present:** Jan Sloat, Director of Human Resources; Matt Wiederspahn, Town Engineer; Paula Mehle, Director of FURA & Economic Development; Raelynn Ferrera, Assistant to the Town Manager; Katie Hansen, Director of Marketing & Communications; Jessica Clanton, Director of Finance; Julie Pasillas, Director of Public Works; Todd Bjerkaas, Director of Planning & Development; Marty Ostholhoff, Planning Manager; David Angelo, Chief of Police; Jessica Koenig, Town Clerk; AJ Krieger, Town Manager; & William Hayashi, Town Attorney

2. Pledge of Allegiance

Mayor Peterson led the pledge of allegiance.

3. Approval of Agenda

Motion by Trustee Conyac, **second** by Mayor Pro Tem Jimenez, to Approve the Agenda, All in Favor, **Motion carried**.

4. Public Comment *(maximum time permitted for all Public Comment is 30 minutes)

Becky Duckworth, a Firestone resident, gave public comment regarding a Mayor's Award and concerns regarding St. Vrain Water Treatment Plant project change orders and metropolitan districts.

Amy Schrader, a Firestone resident, gave public comment regarding a CORA request, the

DRAFT

Mayor's Award, and thanked the Board for their service.

Sam Meiring, a Firestone resident, gave public comment regarding her election as the Carbon Valley Recreation District Board representative and invited the Board and public to meet with her.

5. Consent Agenda

Trustee Sharp provided a disclosure that he is a member of Rocky Mountain HAM Radio, Inc.

Motion by Trustee Doherty, **second** by Trustee Whelan, to Approve the Consent Agenda.
Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

a. Approval of June 8, 2022 Board of Trustees Minutes.

b. **Resolution 22-77:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO APPROVING A SITE LICENSE AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND ROCKY MOUNTAIN HAM RADIO INC

c. **Resolution 22-87:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, ACCEPTING THE TERMS AND CONDITIONS OF AN AMENDED RESOLUTION OF THE NEW CONSOLIDATED LOWER BOULDER RESERVOIR & DITCH COMPANY

6. Presentation

a. TNT Home Services Colorado Companies To Watch Recognition

7. Land Development

a. PUBLIC HEARING: Resolution 22-78: A RESOLUTION MAKING CERTAIN FINDINGS OF FACT REGARDING THE PROPOSED ANNEXATION OF CERTAIN REAL PROPERTY LOCATED IN WELD COUNTY, COLORADO, TO THE TOWN OF FIRESTONE, COLORADO

Mayor Peterson opened the public hearing for Agenda Item 7a, Resolution 22-78 at 7:20 PM.

Trustee Holcomb disclosed that he is adjacent to the area and in the notification area.

Michelle Dollmaier, Senior Planner, presented to the Board of Trustees.

The applicant, Matthew Napier of Tri Pointe Homes, and Jeff Mark of Terracina Design, presented to the Board of Trustees.

There was no one present that wished to give public comment. Mayor Peterson closed the public comment portion of the public hearing at 7:37 PM.

Mr. Napier responded Board questions regarding the ESG report.

Motion by Mayor Pro Tem Jimenez, **second** by Trustee Sharp, to Approve **Resolution 22-78:** A RESOLUTION MAKING CERTAIN FINDINGS OF FACT REGARDING THE PROPOSED ANNEXATION OF CERTAIN REAL PROPERTY LOCATED IN WELD COUNTY, COLORADO, TO THE TOWN OF FIRESTONE, COLORADO

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

b. Ordinance 1015: AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO ANNEXING THE PROPERTY KNOWN AS THE DENMORE ANNEXATION TO THE TOWN OF FIRESTONE, COLORADO; AND APPROVING THE ASSOCIATED ANNEXATION AGREEMENT

Motion by Mayor Pro Tem Jimenez, **second** by Trustee Conyac, to Approve **Ordinance 1015:** AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO ANNEXING THE PROPERTY KNOWN AS THE DENMORE ANNEXATION TO THE TOWN OF FIRESTONE, COLORADO; AND APPROVING THE ASSOCIATED

ANNEXATION AGREEMENT
Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

c. PUBLIC HEARING: Ordinance 1016: AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO ZONING CERTAIN LAND, FULLY DESCRIBED HEREIN, TO TOWN OF FIRESTONE R-A (RESIDENTIAL A) AND NC (NEIGHBORHOOD CENTER) ZONING DISTRICTS

Mayor Peterson opened the public hearing regarding Agenda Item 7c, Ordinance 1016 at 7:40 PM.

Mayor Peterson entered into the record what had already been presented.

There was no one present that wished to give public comment. Mayor Peterson closed public comment portion of the public hearing at 7:41 PM.

The applicant, Matt Napier, of Tri Pointe Homes, responded to Board question regarding how many housing units.

Mr. Napier responded to Board questions regarding uses.

Motion by Trustee Conyac, **second** by Trustee Doherty, to Approve **Ordinance 1016:** AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO ZONING CERTAIN LAND, FULLY DESCRIBED HEREIN, TO TOWN OF FIRESTONE R-A (RESIDENTIAL A) AND NC (NEIGHBORHOOD CENTER) ZONING DISTRICTS
Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

d. PUBLIC HEARING: Resolution 22-79: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A MINOR SUBDIVISION PLAT; AND ACCEPTING THE PROPERTY INTERESTS DEDICATED BY THE MINOR SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN FIRELIGHT PARK MINOR SUBDIVISION PLAT; AND AUTHORIZING A SUBDIVISION DEVELOPMENT AGREEMENT PERTAINING TO THE FIRELIGHT PARK MINOR SUBDIVISION PLAT

Mayor Peterson opened the public hearing for Agenda Item 7d, Resolution 22-79, at 7:45 PM.

Michelle Dollmaier, Senior Planner, presented to the Board of Trustees.

Kerry Henry of Henry Design Group, Inc., and Dale Brens, the applicant, presented to the Board of Trustees.

There was no one present that wished to give public comment. Mayor Peterson closed the public comment portion of the public hearing at 7:54 PM.

Ms. Dollmaier responded to Board questions regarding technical corrections.

Motion by Trustee Whelan, **second** by Trustee Conyac, to Approve **Resolution 22-79:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A MINOR SUBDIVISION PLAT; AND ACCEPTING THE PROPERTY INTERESTS DEDICATED BY THE MINOR SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN FIRELIGHT PARK MINOR SUBDIVISION PLAT; AND AUTHORIZING A SUBDIVISION DEVELOPMENT AGREEMENT PERTAINING TO THE FIRELIGHT PARK MINOR SUBDIVISION PLAT

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

e. PUBLIC HEARING: Ordinance 1017: AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO APPROVING AN APPLICATION TO AMEND THE FIRELIGHT PARK OUTLINE DEVELOPMENT PLAN

Mayor Peterson opened the public hearing for Ordinance 1017 and Resolution 22-80 at 7:59 PM.

Michelle Dollmaier, Senior Planner, presented to the Board of Trustees.

Kerry Henry of Henry Design Group, and Dale Bruns, the applicant of the Firelight Development, presented to the Board of Trustees.

There was no one present that wished to give public comment.

Ms. Henry responded to Board questions regarding paired homes and trail connections.

Mr. Bruns responded to Board questions regarding house height, view impacts, potential businesses, oil and gas buffer, and water service.

Motion by Trustee Doherty, **second** by Trustee Conyac, to Approve **Ordinance 1017:** AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO APPROVING AN APPLICATION TO AMEND THE FIRELIGHT PARK OUTLINE DEVELOPMENT PLAN

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

f. PUBLIC HEARING: Resolution 22-80: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PRELIMINARY SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN THE FIRELIGHT PARK SUBDIVISION

Mayor Peterson opened the public hearing for Ordinance 1017 and Resolution 22-80 at 7:59 PM.

Michelle Dollmaier, Senior Planner, presented to the Board of Trustees.

Kerry Henry of Henry Design Group, and Dale Bruns, the applicant of the Firelight Development, presented to the Board of Trustees.

There was no one present that wished to give public comment.

Ms. Henry responded to Board questions regarding paired homes and trail connections.

Mr. Bruns responded to Board questions regarding house height, view impacts, potential businesses, oil and gas buffer, and water service.

Motion by Mayor Pro Tem Jimenez, **second** by Trustee Whelan, to Approve **Resolution 22-80:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PRELIMINARY SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN THE FIRELIGHT PARK SUBDIVISION

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

g. PUBLIC HEARING: Resolution 22-81: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING AN AMENDED AND RESTATED CONSOLIDATED SERVICE PLAN FOR THE FIRELIGHT IRRIGATION METROPOLITAN DISTRICT, FIRELIGHT COMMERICAL METROPOLITAN DISTRICT AND THE FIRELIGHT RESIDENTIAL METROPOLITAN DISTRICT

Mayor Peterson opened the public hearing for Agenda Item 7g, Resolution 22-81 at 8:30 PM.

Marty Ostholthoff, Planning Manager, presented to the Board of Trustees.

Jennifer Tanaka of White Bear Ankele Tanaka & Waldron presented to the Board of Trustees.

There was no one present that wished to give public comment.

Ms. Tanka responded to Board questions regarding the location of irrigation.

Motion by Trustee Doherty, **second** by Trustee Whelan, to Approve **Resolution 22-81:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING AN AMENDED AND RESTATED CONSOLIDATED SERVICE PLAN FOR THE FIRELIGHT IRRIGATION METROPOLITAN DISTRICT, FIRELIGHT COMMERICAL METROPOLITAN DISTRICT AND THE FIRELIGHT RESIDENTIAL METROPOLITAN DISTRICT

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

8. Discussion/Action

a. **Resolution 22-82:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PROCUREMENT AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND WATER TECHNOLOGY GROUP (A COGENT COMPANY) FOR THE MOUNTAIN SHADOWS PARK IRRIGATION PROJECT

Motion by Mayor Pro Tem Jimenez, **second** by Trustee Conyac, to Approve **Resolution 22-82:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PROCUREMENT AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND WATER TECHNOLOGY GROUP (A COGENT COMPANY) FOR THE MOUNTAIN SHADOWS PARK IRRIGATION PROJECT

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

b. **Resolution 22-83**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING CHANGE ORDER NO.2 TO THE AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND INTEGRATED WATER

SERVICES INC FOR CONSTRUCTION OF A PUMP STATION FOR THE ST. VRAIN WATER TREATMENT PLANT

Motion by Mayor Pro Tem Jimenez, **second** by Trustee Conyac, to Approve **Resolution 22-83**: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING CHANGE ORDER NO.2 TO THE AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND INTEGRATED WATER SERVICES INC FOR CONSTRUCTION OF A PUMP STATION FOR THE ST. VRAIN WATER TREATMENT PLANT

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

c. **Resolution 22-84:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING CHANGE ORDER NO. 2 TO THE CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND BRANNAN SAND AND GRAVEL COMPANY FOR THE MILL AND OVERLAY PAVING PROJECT FOR PORTIONS OF FIRESTONE AND COLORADO BOULEVARDS

Motion by Trustee Conyac, **second** by Trustee Whelan, to Approve **Resolution 22-84:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING CHANGE ORDER NO. 2 TO THE CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND BRANNAN SAND AND GRAVEL COMPANY FOR THE MILL AND OVERLAY PAVING PROJECT FOR PORTIONS OF FIRESTONE AND COLORADO BOULEVARDS

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty, Trustee Sharp, Trustee Holcomb

No: None

Abstain: None

Motion carried.

d. **RESOLUTION 22-86:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A SUBGRANTEE AGREEMENT FOR TRANSIT SERVICES BETWEEN THE DENVER REGIONAL COUNCIL OF GOVERNMENTS AND THE TOWN OF FIRESTONE

Motion by Trustee Whelan, **second** by Trustee Doherty, to Approve **RESOLUTION 22-86:** A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A SUBGRANTEE AGREEMENT FOR TRANSIT SERVICES BETWEEN THE DENVER REGIONAL COUNCIL OF GOVERNMENTS AND THE TOWN OF FIRESTONE

Roll Call Vote:

Yes: Trustee Conyac, Trustee Whelan, Mayor Pro Tem Jimenez, Trustee Doherty,

Trustee Sharp, Trustee Holcomb
No: None
Abstain: None
Motion carried.

9. Public Comment *(maximum time permitted for all Public Comment is 30 minutes)

Amy Schrader, a Firestone resident, gave public comment thanking the Board for working with Mayor Peterson. Ms. Schrader expressed that she wished Mayor Peterson would work better with the rest of the Board.

Pat Conner, a Firestone resident, gave public comment on the lack of video and live streaming of Board of Trustees meetings.

10. Reports

a. Staff

10.a.i. May and June Financial Reports

b. Mayor

Mayor Peterson thanked town staff for their work on the 4th at Firestone event.

c. Trustees

Trustee Conyac reported on a project to implement the live streaming of Board of Trustees meetings. Trustee Conyac asked for clarification regarding a couple of emails sent from the Mayor to the Board.

Mayor Peterson responded to Trustee Conyac's questions.

Trustee Sharp echoed Mayor Peterson's 4th at Firestone comments and thanked town staff. Trustee Sharp reported on a project to implement the live streaming of Board of Trustees meetings

Mayor Pro Tem Jimenez reported on a possible short-term solution on live streaming Board meetings and responded to Mayor Peterson's comments.

Trustee Whelan invited the public to attend work sessions on the 2023 budget.

11. Adjournment

Motion by Mayor Pro Tem Jimenez, **second** by Trustee Whelan, to Adjourn at 9:37 PM, All in Favor, **Motion carried**.

Introduced and Approved the 27th of July, 2022

TOWN OF FIRESTONE, COLORADO

ATTEST

Drew Peterson, Mayor

Jessica Koenig, Town Clerk

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 5.b

Consent Agenda

Meeting Date: July 27, 2022

Initiated By: Dave Lindsay

Dept: Public Works

AGENDA TITLE

Appointment of a Director to serve on the St. Vrain Water Authority Board of Directors

SUMMARY

The establishing contract for the St Vrain Water Authority allows Firestone to appoint 4 of the 5 Director positions based on the Town's reserved system capacity at the time of the formation. The Director terms were staggered so that no more than two positions would ever expire in the same year. Firestone initially chose to appoint a Trustee (Frank Jimenez), two staff (Julie Pasillas and Dave Lindsay), and an interested citizen (Julie Svaldi, who was a previous Trustee). Frank Jimenez's term expired in June, so the Board needs to reappoint him or appoint a new Director to serve the next three years.

HISTORY AND PREVIOUS BOARD ACTION

On April 24, 2019, the Board of Trustees approved Resolution 19-17 approving the Establishing Agreement between the Town and the Little Thompson Water District, forming the St. Vrain Water Authority.

On June 24, 2020, the Board of Trustees voted to reappoint Julie Svaldi to a 3-year term on the SVWA Board of Directors.

On June 23, 2021, the Board of Trustees voted to reappoint Julie Pasillas and Dave Lindsay to 3-year terms on the SVWA Board of Directors.

RECOMMENDATION

Staff recommends the Board of Trustees appoint Don Conyac as the Director to serve a three-year term on the Board of Directors of the St. Vrain Water Authority so that the Town maintains its full complement of Directors.

ALTERNATIVES

NA

ATTACHMENTS

None

FINANCIAL CONSIDERATIONS

None

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 6.a

Presentation

Meeting Date: July 27, 2022

Initiated By:

Dept: Town Clerk

AGENDA TITLE
United Flight 629 Remembrance

SUMMARY

HISTORY AND PREVIOUS BOARD ACTION

RECOMMENDATION

ALTERNATIVES

ATTACHMENTS
None

FINANCIAL CONSIDERATIONS

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 7.a

Land Development

Meeting Date: July 27, 2022

Initiated By: Michelle Dollmaier

Dept: Planning & Development

AGENDA TITLE

PUBLIC HEARING: Ordinance 1018: AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, ZONING CERTAIN LAND, FULLY DESCRIBED HEREIN, FROM RESIDENTIAL B (R-B) ZONE DISTRICT TO RESIDENTIAL A (R-A) AND NEIGHBORHOOD CENTER (NC) ZONING DISTRICTS

SUMMARY

The landowner is proposing that the Vistosa property be rezoned to Residential-A for 267.9 acres on both the north and the south side of Firestone Boulevard and east of Frontier Street. Neighborhood Center zoning is also proposed for 6.17 acres on the northeast corner of Firestone Boulevard and Frontier Street.

HISTORY AND PREVIOUS BOARD ACTION

The Vogl property was annexed and zoned by the Town in 2001. The property is now known as Vistosa.

RECOMMENDATION

Town staff recommends the Board of Trustees approve draft Ordinance 1018, an ordinance approving the Vistosa Rezoning application with the following condition:

1. Technical corrections to the Vistosa rezoning map shall be made to the Town's satisfaction.

ALTERNATIVES

n/a

ATTACHMENTS

1. Ordinance 1018
2. Staff Report
3. Vistosa Rezoning Map
4. Neighborhood Meeting Summary
5. PC 22-11 Rezone Certain Land From R-B to R-A Application Approval

FINANCIAL CONSIDERATIONS

n/a

ORDINANCE NO. 1018

AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, ZONING CERTAIN LAND, FULLY DESCRIBED HEREIN, FROM RESIDENTIAL B (R-B) ZONE DISTRICT TO RESIDENTIAL A (R-A) AND NEIGHBORHOOD CENTER (NC) ZONING DISTRICTS

WHEREAS, Prominence Partners I LLC (the "Applicant"), who is the fee owner of certain real property described in **Exhibit A** (the "Property"), which is approximately 274 acres more or less in size, has submitted an application for the rezoning of the Property from Residential B (R-B) zone district to Residential A (R-A) and Neighborhood Center (NC) zoning districts, to accommodate the development on the Property (the "Application"); and

WHEREAS, on July 7, 2022, the Planning and Zoning Commission, after conducting a public hearing on the Application, rendered a decision recommending approval of the Application; and

WHEREAS, on July 27, 2022, the Board of Trustees conducted a public hearing on the Application; and

WHEREAS, after reviewing the record of the Firestone Planning and Zoning Commission public hearing and the recommendation of the Firestone Planning and Zoning Commission following such hearing, and after considering the testimony, evidence and argument presented at the Board of Trustees public hearing, the Board of Trustees finds and determines that the Application is complete, and that the Applicant has met the applicable requirements and standards set forth in Section 16.7.4 of the Firestone Development Code, including Step 9 of Section 16.7.4.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The land legally described in **Exhibit A**, which is attached hereto and incorporated herein by this reference, and which consists of approximately 274 acres, more or less, shall be zoned Town of Firestone Residential A (R-A) and Neighborhood Center (NC) Zoning Districts.

Section 2. The Board of Trustees certifies a change in the Zoning Map zoning the property described herein to Town of Firestone Residential A (R-A) and Neighborhood Center (NC) Zoning Districts.

Section 3. The Board of Trustees directs that a certified copy of this Ordinance be filed with the Town Clerk and further, that the Town Clerk index, file and make the Ordinance available to the public.

Section 4. If any article, section, paragraph, sentence, clause, or phrase of this

ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The Board of Trustees hereby declare it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

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.

INTRODUCED, READ, ADOPTED, APPROVED, AND ORDERED PUBLISHED IN FULL this __th day of _____, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

EXHIBIT A
Vistosa Zoning Map

Staff Report

Vistosa

Rezoning

Prepared by the
Town of Firestone for the
Board of Trustees

July 27, 2022

GENERAL INFORMATION

Purpose: This staff report is for the Vistosa rezoning, proposing Residential-A (R-A) for the majority of the site, and Neighborhood Center (NC) at the corner of Firestone Boulevard and Frontier Street.

Applicant: Prominence Partners I LLC
PO Box 870
Firestone, CO

Location: The Vistosa property is located on the northeast and southeast corner of Firestone Boulevard and Frontier Street.



Existing Conditions:

Existing Zoning:	Residential-A (R-A), Residential-B (R-B) and Neighborhood Center (NC)
Existing Use:	Vacant land, agriculture and oil/gas operations

Adjacent Land Use/Zoning:

	ZONING	LAND USE
NORTH	AG (Weld County)	Agriculture, and oil/gas operations
SOUTH	AG (Weld County)	Large lot residential
EAST	AG (Weld County)	Agriculture
WEST	AG (Weld County)	Large lot residential and vacant land

Vistosa Rezoning - Plan Analysis
The landowner is proposing that the Vistosa property be rezoned to Residential-A for 267.9 acres on both the north and the south side of Firestone Boulevard and east of Frontier Street. Neighborhood Center zoning is also proposed for 6.17 acres on the northeast corner of Firestone Boulevard and Frontier Street.

The land is vacant and is currently used for agricultural purposes with an oil and gas facility on the northwest side of the property.

The current zoning for the residential portion is R-A and R-B which would allow for either R-A development or R-B development with a maximum density of 5-10 dwelling unit per acre. The proposed gross density of the subdivision is 3.84 dwelling units/acre in accordance with the proposed R-A residential regulations as outlined in the Firestone Development Code (FDC).

The proposed zoning of R-A is also in accordance with the Firestone Master Plan where the property is shown to be residential medium. Residential medium uses in the Firestone Master Plan are more based on housing types rather than density. As per the Firestone Master Plan, residential medium should contain housing types such as single family detached, and single family attached, including duplexes and townhomes, but not apartment buildings. The Vistosa property will be providing the 4 housing types included in the residential medium uses.

APPROVAL CRITERIA AND STAFF ANALYSIS

Rezoning Approval Criteria and Staff Analysis:
The Rezoning application for Vistosa was reviewed for compliance with the Approval Criteria from Section 16.7.4.E of the FDC. Staff makes the following findings:

A. The proposed zoning promotes the health, safety or welfare of the inhabitants of the Town and the purposes of this FDC; and

Staff: *The proposed R-A and NC zoning promotes the health, safety, and welfare of the inhabitants of the Town and the purposed of the FDC by providing multiple housing types, parks and open space.*

B. The proposed zoning is generally consistent with the Town's Comprehensive Master Plan, or the proposed zoning is necessary to provide land for a

community need that was not anticipated at the time of the adoption of the Town's plan.

Staff: *The proposed R-A and NC zoning is generally consistent with the Town's Master Plan by proposing the housing types outlined in the residential medium land use designation.*

C. Adequate facilities and services (including street and transportation, water, gas, electric, police and fire protection, and sewage and waste disposal, as applicable) will be available to serve the subject property while maintaining adequate levels of service to existing development;

Staff: *Adequate facilities and services are provided to serve the subject property and maintain adequate levels of service to existing development.*

D. The proposed zoning is not likely to result in significant adverse impacts upon the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated;

Staff: *The proposed R-A and NC zoning is not likely to result in significant adverse impacts upon the natural environment.*

E. The proposed zoning is not likely to result in significant adverse impacts upon other property in the vicinity of the subject property;

Staff: *Open space and single family detached homes are closest to existing developments. Therefore, the proposed R-A and NC zoning is not likely to result in significant adverse impacts upon the property in the vicinity of this property.*

F. Future uses on the subject property will be compatible in scale with uses on other properties in the vicinity of the subject property; and

Staff: *The proposed uses on the Vistosa property provides buffering to higher density housing types with single family detached to be compatible with existing scale and uses of other properties in the vicinity of this property.*

G. The proposed zoning is generally consistent with the Towns' economic development goals and objectives in bringing positive growth and sustainable revenues to the Town.

Staff: *The proposed R-A and NC zoning is generally consistent with the Town's economic development goals and objectives in bringing positive growth via residential lots and revenue via a commercial parcel to the Town.*

NEIGHBORHOOD MEETING

As required by the Firestone Development Code, a Neighborhood Meeting was held on April 18, 2022 at 4:30 pm at the Rocky Mountain Christian Church. The required notice for the Neighborhood Meeting was provided.

PUBLIC NOTICE

Notice of the Public Hearings has been provided as follows:

Published in the Longmont Times Call:	June 22, 2022
Property Posted:	June 21, 2022
Letters to Adjacent Property Owners:	June 21, 2022

RECOMMENDATIONS

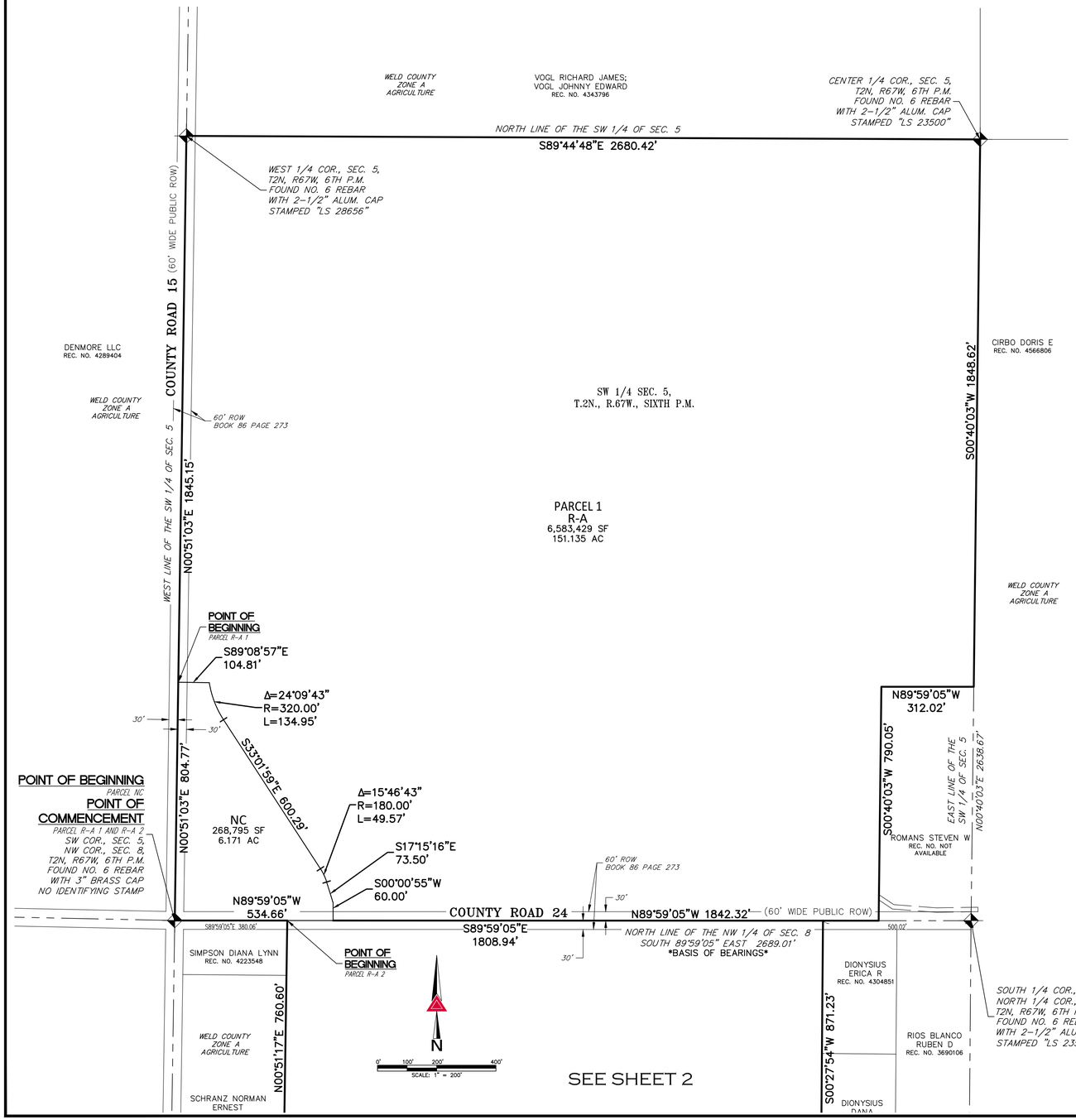
Staff:
Town staff recommends the Board of Trustees approve draft Ordinance 1018, an ordinance approving the Vistosa Rezoning application with the following condition:

a. Technical corrections to the Vistosa rezoning map shall be made to the Town's satisfaction.

Planning and Zoning Commission:
After conducting a Public Hearing on the proposed preliminary plat on July 7, 2022, the Planning and Zoning Commission rendered a decision recommending approval of the Preliminary Plat as more fully set forth in PC-22-11.

VISTOSA ZONING MAP

LOCATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO
274.082 ACRES
RZ-22-023



SEE SHEET 2

ZONING LEGAL DESCRIPTION

PARCEL 1:
RESIDENTIAL A (R-A)

A PARCEL OF LAND BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 5, FROM WHICH THE SOUTH QUARTER CORNER OF SAID SECTION 5 BEARS SOUTH 89°59'05" EAST, A DISTANCE OF 2,689.01 FEET, WITH ALL BEARINGS HEREIN RELATIVE THERETO;

THENCE NORTH 00°51'03" EAST, ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF SECTION 5, A DISTANCE OF 804.77 TO THE POINT OF BEGINNING;

THENCE NORTH 00°51'03" EAST, CONTINUING ALONG SAID WEST LINE, A DISTANCE OF 1,845.15 FEET TO THE WEST QUARTER CORNER OF SAID SECTION 5;

THENCE SOUTH 89°44'48" EAST, ALONG THE NORTH LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 2,680.42 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 5;

THENCE SOUTH 00°40'03" WEST, ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 1,848.62 FEET;

THENCE NORTH 89°59'05" WEST, A DISTANCE OF 312.02 FEET;

THENCE SOUTH 00°40'03" WEST, A DISTANCE OF 790.05 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER;

THENCE NORTH 89°59'05" WEST, ALONG SAID SOUTH LINE, A DISTANCE OF 1,842.32 FEET;

THENCE NORTH 00°00'55" EAST, A DISTANCE OF 60.00 FEET;

THENCE NORTH 17°15'16" WEST, A DISTANCE OF 73.50 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 180.00 FEET;

THENCE NORTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 15°46'43", AN ARC LENGTH OF 49.57 FEET;

THENCE NORTH 33°01'59" WEST, A DISTANCE OF 600.29 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE EASTERLY HAVING A RADIUS OF 320.00 FEET;

THENCE NORTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 24°09'43", AN ARC LENGTH OF 134.95 FEET;

THENCE NORTH 89°08'57" WEST, A DISTANCE OF 104.81 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 151.135 ACRES, (6,583,429 SQUARE FEET), MORE OR LESS.

PARCEL 2:
RESIDENTIAL A (R-A)

A PARCEL OF LAND BEING A PORTION OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 8, FROM WHICH THE NORTH QUARTER CORNER OF SAID SECTION 8 BEARS SOUTH 89°59'05" EAST, A DISTANCE OF 2,689.01 FEET, WITH ALL BEARINGS HEREIN RELATIVE THERETO;

THENCE SOUTH 89°59'05" EAST, ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER OF SECTION 8, A DISTANCE OF 380.06 TO THE POINT OF BEGINNING;
THENCE SOUTH 89°59'05" EAST, CONTINUING ALONG SAID NORTH LINE, A DISTANCE OF 1,808.94 FEET;

THENCE SOUTH 00°27'54" WEST, A DISTANCE OF 871.23 FEET;

THENCE SOUTH 89°59'05" EAST, A DISTANCE OF 500.02 FEET TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER;

THENCE SOUTH 00°27'54" WEST, ALONG SAID EAST LINE, A DISTANCE OF 1,789.35 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 8;

THENCE NORTH 89°57'24" WEST, ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 8, A DISTANCE OF 1,987.26 FEET;

THENCE NORTH 00°51'17" EAST, A DISTANCE OF 1,888.20 FEET;

THENCE NORTH 88°07'43" WEST, A DISTANCE OF 339.80 FEET;

THENCE NORTH 00°51'17" EAST, A DISTANCE OF 760.60 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 116.776 ACRES, (5,086,759 SQUARE FEET), MORE OR LESS.

NEIGHBORHOOD CENTER (NC)

A PARCEL OF LAND BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 5, FROM WHICH THE SOUTH QUARTER CORNER OF SAID SECTION 5 BEARS SOUTH 89°59'05" EAST, A DISTANCE OF 2,689.01 FEET, WITH ALL BEARINGS HEREIN RELATIVE THERETO;

THENCE NORTH 00°51'03" EAST, ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF SECTION 5, A DISTANCE OF 804.77 FEET;

THENCE SOUTH 89°08'57" EAST, A DISTANCE OF 104.81 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE EASTERLY HAVING A RADIUS OF 320.00 FEET, THE RADIUS POINT OF SAID CURVE BEARS NORTH 81°07'44" EAST;

THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 24°09'43", AN ARC LENGTH OF 134.95 FEET;

THENCE SOUTH 33°01'59" EAST, A DISTANCE OF 600.29 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 180.00 FEET;

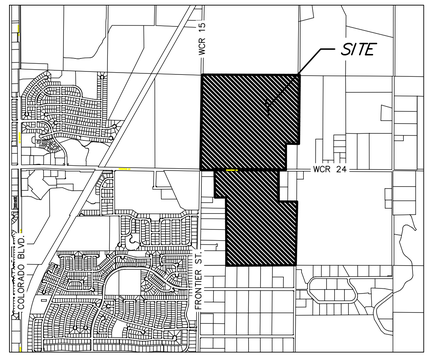
THENCE SOUTHEASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 15°46'43", AN ARC LENGTH OF 49.57 FEET;

THENCE SOUTH 17°15'16" EAST, A DISTANCE OF 73.50 FEET;

THENCE SOUTH 00°00'55" WEST, A DISTANCE OF 60.00 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 5;

THENCE NORTH 89°59'05" WEST, ALONG SAID SOUTH LINE, A DISTANCE OF 534.66 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 6.171 ACRES, (268,795 SQUARE FEET), MORE OR LESS.



VICINITY MAP
SCALE: 1"=2000'

GENERAL NOTES

1. THE FIELD WORK FOR THIS SURVEY WAS PERFORMED BY AN AZTEC CONSULTANTS, INC. SURVEY CREW AND COMPLETED ON MARCH 11, 2022.
2. PER C.R.S. 38-51-106, "ALL LINEAL UNITS DEPICTED ON THIS ZONING MAP ARE U.S. SURVEY FEET. ONE METER EQUALS 39.37/12 U.S. SURVEY FEET, EXACTLY ACCORDING TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY."
3. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.
4. BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM GPS OBSERVATION BASED UPON THE COLORADO COORDINATE SYSTEM OF 1983 NORTH ZONE (NAD 83, 2011) REFERENCED TO THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST, SIXTH PRINCIPAL MERIDIAN, TAKEN TO BEAR SOUTH 89°59'05" EAST, A DISTANCE OF 2689.01 FEET.

SURVEYOR'S STATEMENT

I, JAMES E. LYNCH, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE ZONING MAP SHOWN HEREON IS A CORRECT DELINEATION OF THE ABOVE DESCRIBED PARCEL OF LAND AND THAT THE ZONING PARCEL DESCRIPTION WAS PREPARED FOR ZONING PURPOSES ONLY.

I FURTHER CERTIFY THAT THIS MAP AND LEGAL DESCRIPTION WERE PREPARED UNDER MY PERSONAL SUPERVISION ON THIS _____, DAY OF _____ 20_____.

BY: JAMES E. LYNCH, PLS NO. 37933
COLORADO LICENSED PROFESSIONAL LAND SURVEYOR
FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC.

NOTICE: 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.

NOTICE: PER THE STATE OF COLORADO BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS RULE 1.6.B.2 THE WORD "CERTIFY" AS USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED. THE SURVEY REPRESENTED HEREON HAS BEEN PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF.

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS IS TO CERTIFY THAT THE **VISTOSA ZONING MAP** WAS APPROVED ON THE _____ DAY OF _____, 2022 BY ORDINANCE NO._____

AND THAT THE MAYOR OF THE TOWN OF FIRESTONE ON BEHALF OF THE TOWN OF FIRESTONE, HEREBY ACKNOWLEDGES SAID ZONING UPON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED THEREON.

_____
MAYOR

_____
ATTEST: TOWN CLERK

AZTEC CONSULTANTS, INC.
300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

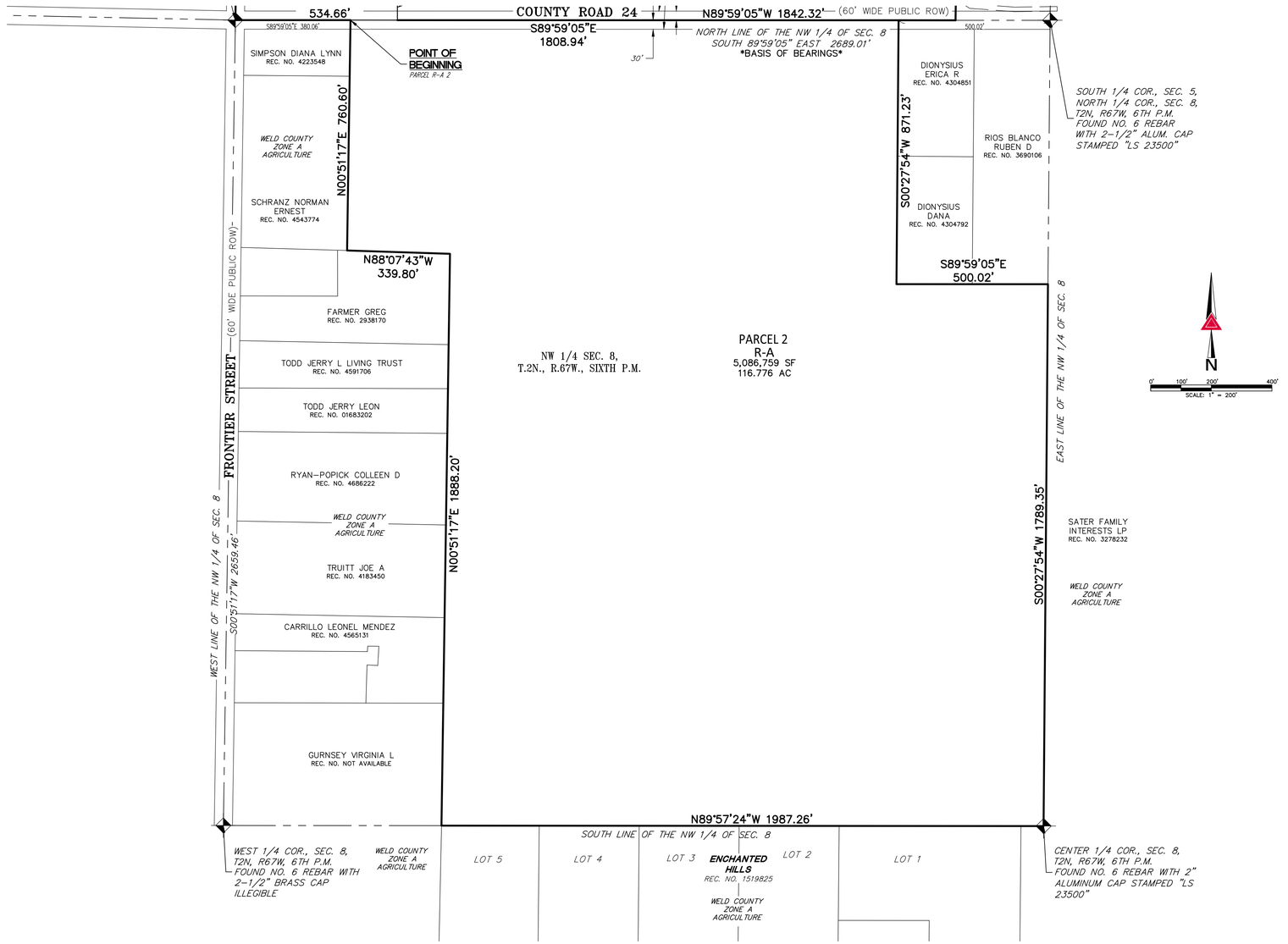
DATE OF PREPARATION:	6-30-2022
SCALE:	1" = 200'
SHEET 1 OF 2	

AzTec Proj. No.: 157922-01 Drawn By: JEL

VISTOSA ZONING MAP

LOCATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO
274.082 ACRES
RZ-22-023

SEE SHEET 1



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DATE OF PREPARATION:	6-30-2022
SCALE:	1" = 200'
SHEET 2 OF 2	

AzTec Proj. No.: 157922-01 Drawn By: JEL

Town of Firestone
Michelle Dollmaier
9950 Park Ave.
Firestone, CO 80504

RE: Neighborhood meeting summary from April 18th, 2022

Dear Ms. Dollmaier;

The Vistosa project team was proud to host a neighborhood meeting for the surrounding property owners on Monday April 18th, 2022 at Rocky Mountain Christian Church, room 2017. The meeting was hosted in an open house style with 3 different stations. Each station had a different project focus with the associated project consultant hosting that particular station. The stations were hosted as follows: Mr. Chris March, our landscape architect, hosted the station for Parks, Open Space, Landscaping and site design/layout. Ms. Tess Hogan, our civil engineer, hosted a station for Utilities, Traffic, Drainage and Site construction. Mr. Blake Carlson, the project applicant, hosted the final station for general questions and site layout/design. Attached to this document is a copy of the notice that was mailed out the surround property owners.

The following surrounding property owners signed in at the meeting:

Sheldon Simpson
Diana Simpson
Norman Schranz
Melinda Shotts
Kenneth Voss
Lisa Bergesser
Michael Pummer
Noel Pummer
Ronald Gilberts nice Alexis

.

Sincerely,



Blake Carlson

March 22, 2022

Dear Property Owner,

To facilitate the development of the project formally known as Wildrose/Vogl, the Applicant is processing a re-zone and Plat in the town of Firestone to create the Vistosa Subdivision. The property is generally located at the northeast and southeast corner of Firestone Blvd. & Frontier street.

The application if approved, would allow for the development of 1,053 residences. The total project consists of 274 acres.

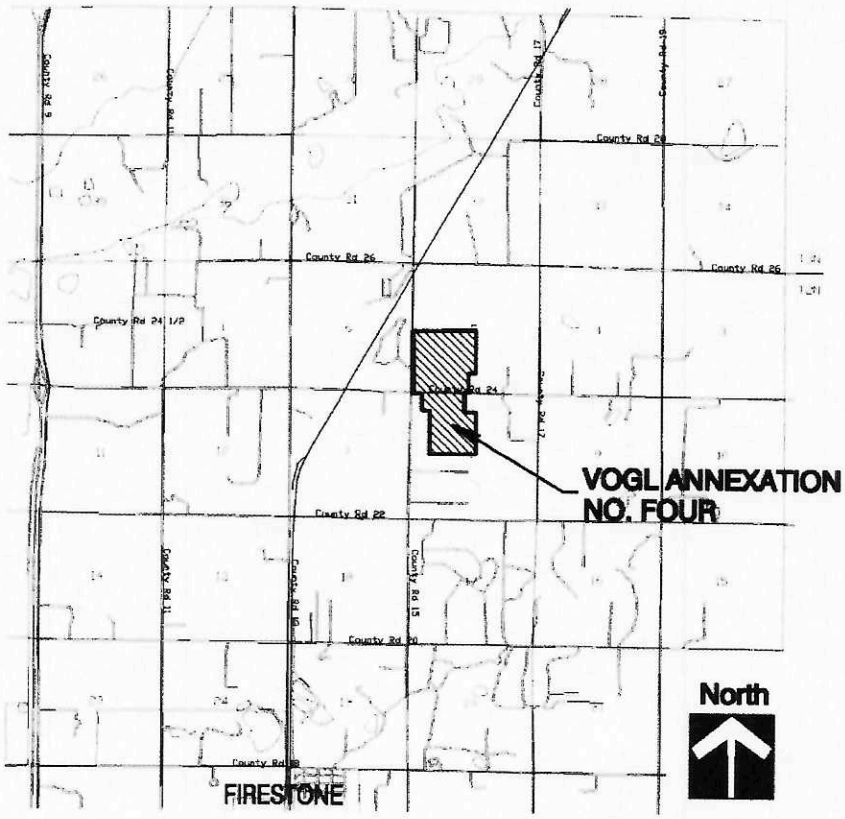
In conjunction with this application, a neighborhood meeting has been scheduled by the Applicant which you are invited to attend. Details of the meeting are as follows:

Date: April 18th, 2022

Time: 4:30 pm- 5:30 pm MDT

Where: 5860 Majestic St Frederick, CO 80504 Room 2017

Sincerely,
Carlson Land Development



VICINITY MAP

FIRESTONE PLANNING AND ZONING COMMISSION

RESOLUTION NO. PC-22-11

A RESOLUTION OF THE PLANNING AND ZONING COMMISSION OF THE TOWN OF FIRESTONE, COLORADO, RECOMMENDING APPROVAL OF AN APPLICATION TO REZONE CERTAIN LAND, FROM RESIDENTIAL B (R-B) TO RESIDENTIAL A (R-A) AND NEIGHBORHOOD CENTER (NC) ZONE DISTRICTS

WHEREAS, Prominence Partners I LLC ("Applicant"), as owner of certain real property located within the Town of Firestone, Colorado (the "Property"), has submitted a proposed rezoning for the Property (the "Application"); and

WHEREAS, the Property is located in the Residential B (R-B) zone district; and

WHEREAS, Applicant has applied for the rezoning of the Property from Residential B (R-B) zone district to Residential A (R-A) and Neighborhood Center (NC) zone districts; and

WHEREAS, the Firestone Planning and Zoning Commission, at its meeting on July 7, 2022, reviewed the Application and considered the approval criteria set out in Section 16.7.4 of the Firestone Development Code; and

WHEREAS, the Firestone Planning and Zoning Commission wishes to make a recommendation to the Town of Firestone Board of Trustees regarding the Application.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING AND ZONING COMMISSION OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The Planning and Zoning Commission hereby recommends the Board of Trustees approve the Application for the rezoning of the Property from Residential B (R-B) zone district to Residential A (R-A) and Neighborhood Center (NC) zone districts as shown on **Exhibit A**, attached hereto and incorporated herein by this reference, subject to and contingent upon compliance with the following conditions:

1. Technical corrections to the Vistosa Zoning Map shall be made to the Town's satisfaction.

PASSED AND ADOPTED this 7th day of July, 2022

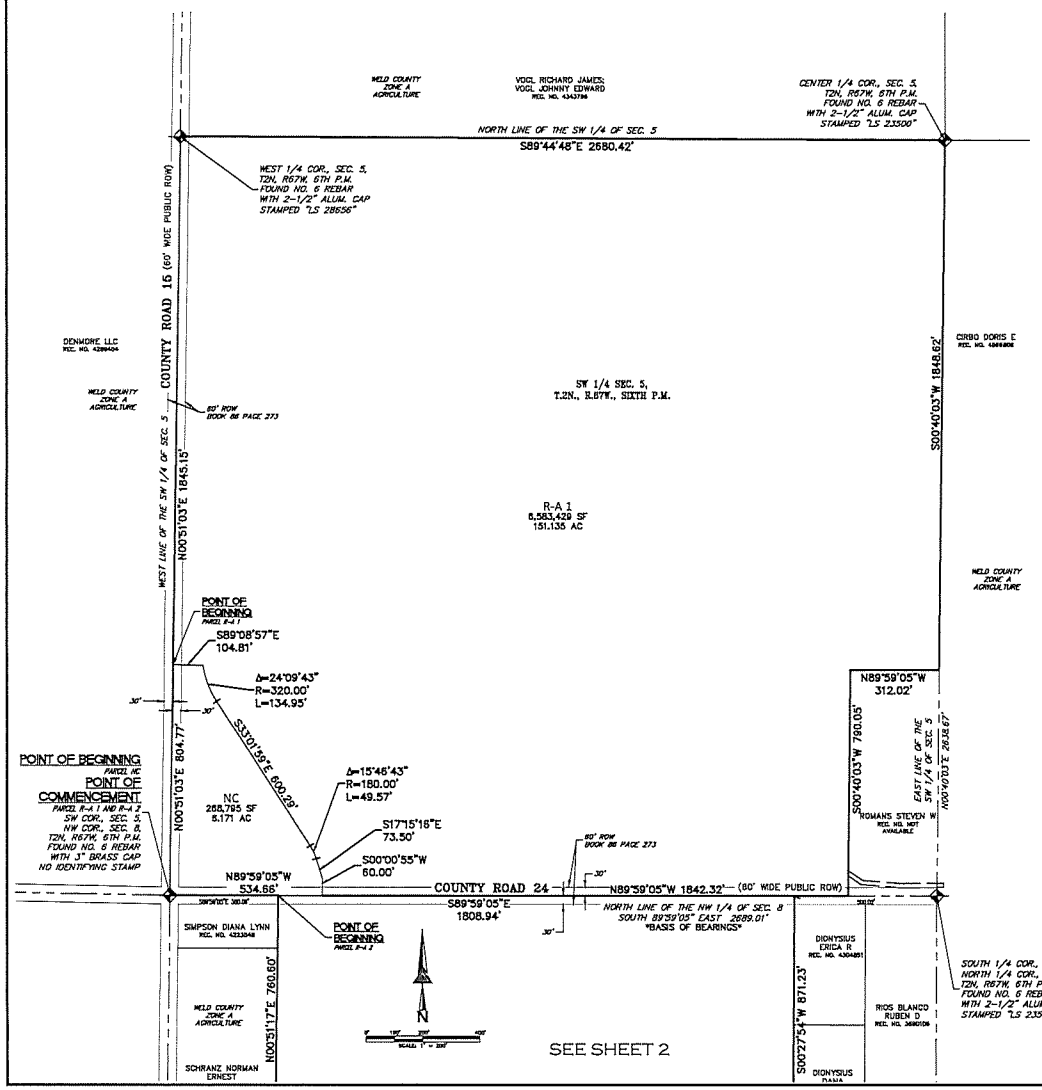
FIRESTONE TOWN SEAL PLANNING AND ZONING COMMISSION

Dennis Haney, Chairperson

ATTEST:

VISTOSA ZONING MAP

LOCATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF WELD, STATE OF COLORADO



ZONING DESCRIPTION

R-A 1

A PARCEL OF LAND BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 5, FROM WHICH THE SOUTH QUARTER CORNER OF SAID SECTION 5 BEARS SOUTH 89°59'05" EAST, A DISTANCE OF 2,689.01 FEET, WITH ALL BEARINGS HEREIN RELATIVE THERETO;

THENCE NORTH 00°51'03" EAST, ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF SECTION 5, A DISTANCE OF 804.77 TO THE POINT OF BEGINNING;

THENCE NORTH 00°51'03" EAST, CONTINUING ALONG SAID WEST LINE, A DISTANCE OF 1,845.15 FEET TO THE WEST QUARTER CORNER OF SAID SECTION 5;

THENCE SOUTH 89°44'48" EAST, ALONG THE NORTH LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 2,680.42 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 5;

THENCE SOUTH 00°40'03" WEST, ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 1,848.62 FEET;

THENCE NORTH 89°59'05" WEST, A DISTANCE OF 312.02 FEET;

THENCE SOUTH 00°40'03" WEST, A DISTANCE OF 780.05 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER;

THENCE NORTH 89°59'05" WEST, ALONG SAID SOUTH LINE, A DISTANCE OF 1,842.32 FEET;

THENCE NORTH 00°00'55" EAST, A DISTANCE OF 60.00 FEET;

THENCE NORTH 17°15'18" WEST, A DISTANCE OF 73.50 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 180.00 FEET;

THENCE NORTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 15°46'43", AN ARC LENGTH OF 49.57 FEET;

THENCE NORTH 33°01'58" WEST, A DISTANCE OF 600.29 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE EASTERLY HAVING A RADIUS OF 320.00 FEET;

THENCE NORTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 24°09'43", AN ARC LENGTH OF 134.95 FEET;

THENCE NORTH 89°08'57" WEST, A DISTANCE OF 104.81 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 151.135 ACRES, (6,583,429 SQUARE FEET), MORE OR LESS.

R-A 2

A PARCEL OF LAND BEING A PORTION OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 8, FROM WHICH THE NORTH QUARTER CORNER OF SAID SECTION 8 BEARS SOUTH 89°59'05" EAST, A DISTANCE OF 2,689.01 FEET, WITH ALL BEARINGS HEREIN RELATIVE THERETO;

THENCE SOUTH 89°59'05" EAST, ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER OF SECTION 8, A DISTANCE OF 380.06 TO THE POINT OF BEGINNING;
THENCE SOUTH 89°59'05" EAST, CONTINUING ALONG SAID NORTH LINE, A DISTANCE OF 1,808.94 FEET;

THENCE SOUTH 00°27'54" WEST, A DISTANCE OF 871.23 FEET;

THENCE SOUTH 89°59'05" EAST, A DISTANCE OF 500.02 FEET TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER;

THENCE SOUTH 00°27'34" WEST, ALONG SAID EAST LINE, A DISTANCE OF 1,789.35 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 8;

THENCE NORTH 89°57'24" WEST, ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 8, A DISTANCE OF 1,887.28 FEET;

THENCE NORTH 00°51'17" EAST, A DISTANCE OF 1,888.20 FEET;

THENCE NORTH 88°07'43" WEST, A DISTANCE OF 339.80 FEET;

THENCE NORTH 00°51'17" EAST, A DISTANCE OF 780.80 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 116.776 ACRES, (5,086,759 SQUARE FEET), MORE OR LESS.

NC

A PARCEL OF LAND BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 5, FROM WHICH THE SOUTH QUARTER CORNER OF SAID SECTION 5 BEARS SOUTH 89°59'05" EAST, A DISTANCE OF 2,689.01 FEET, WITH ALL BEARINGS HEREIN RELATIVE THERETO;

THENCE NORTH 00°51'03" EAST, ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF SECTION 5, A DISTANCE OF 804.77 FEET;

THENCE SOUTH 89°08'57" EAST, A DISTANCE OF 104.81 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE EASTERLY HAVING A RADIUS OF 320.00 FEET, THE RADIUS POINT OF SAID CURVE BEARS NORTH 81°07'44" EAST;

THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 24°09'43", AN ARC LENGTH OF 134.93 FEET;

THENCE SOUTH 33°01'58" EAST, A DISTANCE OF 600.29 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 180.00 FEET;

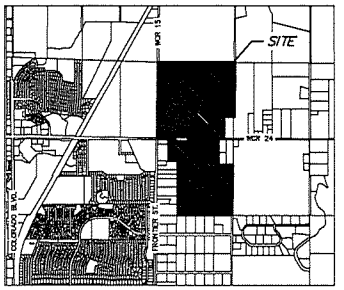
THENCE SOUTHEASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 15°46'43", AN ARC LENGTH OF 49.57 FEET;

THENCE SOUTH 17°15'18" EAST, A DISTANCE OF 73.50 FEET;

THENCE SOUTH 00°00'55" WEST, A DISTANCE OF 60.00 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 5;

THENCE NORTH 89°59'05" WEST, ALONG SAID SOUTH LINE, A DISTANCE OF 534.66 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 8.171 ACRES, (258,795 SQUARE FEET), MORE OR LESS.



VICINITY MAP
SCALE: 1"=2000'

GENERAL NOTES

1. THE FIELD WORK FOR THIS SURVEY WAS PERFORMED BY AN AZTEC CONSULTANTS, INC. SURVEY CREW AND COMPLETED ON MARCH 11, 2022.
2. PER C.R.S. 38-51-106, "ALL LINEAL UNITS DEPICTED ON THIS ZONING MAP ARE U.S. SURVEY FEET. ONE METER EQUALS 39.37/12 U.S. SURVEY FEET, EXACTLY ACCORDING TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY."
3. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.
4. BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM GPS OBSERVATION BASED UPON THE COLORADO COORDINATE SYSTEM OF 1983 NORTH ZONE (NAD 83, 2011) REFERENCED TO THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST, SIXTH PRINCIPAL MERIDIAN, TAKEN TO BEAR SOUTH 89°59'05" EAST, A DISTANCE OF 2689.01 FEET.

SURVEYOR'S STATEMENT

I, JAMES E. LYNCH, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE ZONING MAP SHOWN HEREON IS A CORRECT DELINEATION OF THE ABOVE DESCRIBED PARCEL OF LAND AND THAT THE ZONING PARCEL DESCRIPTION WAS PREPARED FOR ZONING PURPOSES ONLY.

I FURTHER CERTIFY THAT THIS MAP AND LEGAL DESCRIPTION WERE PREPARED UNDER MY PERSONAL SUPERVISION ON THIS _____, DAY OF _____ 20_____.

BY: JAMES E. LYNCH, PLS NO. 37933
COLORADO LICENSED PROFESSIONAL LAND SURVEYOR
FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC.

NOTICE: 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.

NOTICE: PER THE STATE OF COLORADO BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS RULE 1.8.9.2 THE WORD "CERTIFY" AS USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED. THE SURVEY REPRESENTED HEREON HAS BEEN PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF.

TOWN APPROVAL

THIS IS TO CERTIFY THAT THE VISTOSA ZONING MAP WAS APPROVED ON THE _____ DAY OF _____, 2022 BY ORDINANCE NO._____

AND THAT THE MAYOR OF THE TOWN OF FIRESTONE ON BEHALF OF THE TOWN OF FIRESTONE, HEREBY ACKNOWLEDGES SAID ZONING UPON WHICH THIS CERTIFICATE IS ENDORSED FOR ALL PURPOSES INDICATED THEREON.

_____
MAYOR

_____
ATTEST: TOWN CLERK

AzTec Consultants, Inc.
200 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

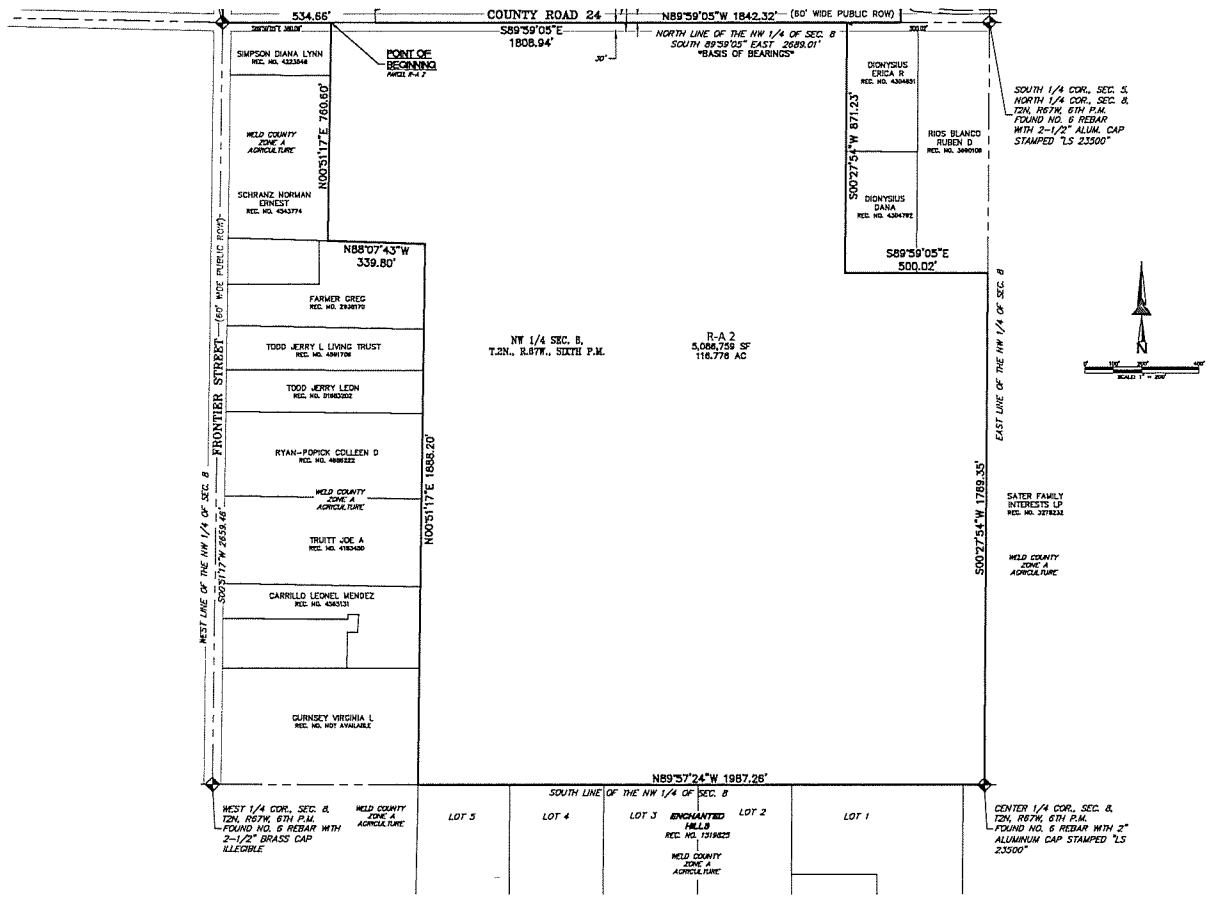
DATE OF PREPARATION	04-08-2022
SCALE	1" = 200'
SHEET 1 OF 2	

AzTec Proj. No.: 167922-01 Drawn By: JEL

VISTOSA ZONING MAP

LOCATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF WELD, STATE OF COLORADO

SEE SHEET 1



AZTEC CONSULTANTS, INC.
300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

DATE OF PREPARATION:	04-08-2022
SCALE:	1" = 200'
SHEET 2 OF 2	

AzTec Proj. No.: 207922-01 Drawn By: JEL

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 7.b

Land Development

Meeting Date: July 27, 2022

Initiated By: Michelle Dollmaier

Dept: Planning & Development

AGENDA TITLE

PUBLIC HEARING: Ordinance 1019: AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A DESIGN OVERLAY APPLICATION FOR THE VISTOSA DEVELOPMENT

SUMMARY

The Vistosa design overlay area is approximately 274.1 acres in size, proposing a decrease in lot size for single family detached, and a decrease in lot size and width for single family detached alley loaded.

HISTORY AND PREVIOUS BOARD ACTION

The Vogl property was annexed and zoned by the Town in 2001. The property is now known as Vistosa.

RECOMMENDATION

Town Staff recommends the Board of Trustees approve draft Ordinance 1019, an ordinance approving the Vistosa Design Overlay application with the following condition:

1. Technical corrections to the Vistosa design overlay map shall be made to the Town's satisfaction.

ALTERNATIVES

n/a

ATTACHMENTS

1. Ordinance 1019
2. Staff Report
3. Vistosa Design Overlay Map
4. Neighborhood Meeting Summary
5. PC 22-12 Vistosa Design Overlay Approval

FINANCIAL CONSIDERATIONS

n/a

ORDINANCE NO. 1019

AN ORDINANCE OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A DESIGN OVERLAY APPLICATION FOR THE VISTOSA DEVELOPMENT

WHEREAS, Prominence Partners I LLC (the "Applicant"), as owner of certain real property located within Vistosa (the "Property"), has submitted a design overlay district map and text amendment application, to be known as Vistosa Design Overlay (the "Application"); and

WHEREAS, the Firestone Planning and Zoning Commission, after conducting a public hearing on the proposed Application on July 7, 2022, rendered a decision recommending approval of the Application with one (1) condition as more fully set forth in PC-22-12, dated July 7, 2022; and

WHEREAS, on July 27, 2022, the Board of Trustees conducted a public hearing on the Application; and

WHEREAS, after reviewing the record of the Planning and Zoning Commission public hearing, and after considering the testimony, evidence and argument presented at the Board of Trustees public hearing, the Board of Trustees finds and determines that the proposed Application is in substantial conformance with the technical requirements of the Firestone Development Code, and that the proposed development plan meets the applicable requirements and standards set forth in the Firestone Municipal Code and Firestone Development Code.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The Board of Trustees acknowledges the Planning and Zoning Commission's findings of fact in this case, as detailed in Resolution PC-22-12.

Section 2. The above Recitals and Findings of the Board of Trustees are hereby incorporated into this ordinance.

Section 3. The Board of Trustees hereby approves a design overlay zoning district, to be known as the "Vistosa Design Overlay," to be applied to the land legally described in **Exhibit A**, attached hereto and incorporated herein by this reference.

Section 4. The Vistosa Design Overlay plan, attached hereto as **Exhibit A**, is hereby approved, subject to satisfaction of the following conditions:

1. All remaining technical corrections to the Vistosa Design Overlay plan requested by Town staff shall be made to the Town staff's satisfaction.

Section 5. Upon satisfaction of the conditions in Section 4 above, the Vistosa Design Overlay plan, as it relates to the Property, hereby establishes development and design standards that modify otherwise applicable standards for the Town of Firestone Residential A (R-A) and Neighborhood Center (NC) Zoning Districts; and, as it relates to the Property and the R-A and NC development and design standards, the Vistosa Design Overlay plan hereby changes Section 16.4.1 of the Firestone Development Code ("the Code"), to establish modified lot size and lot width standards. Except as explicitly provided in the Vistosa Design Overlay plan, the zoning regulations, development standards,

design standards, or any other land-use standards in the underlying R-A and NC zone districts shall apply to the Property and any property within the design overlay district, provided, however, that if there is a conflict between any applicable underlying R-A and NC zoning regulation or standard, the more restrictive regulation or standard shall apply.

Section 6. Upon satisfaction of the conditions in Section 4 above, the Board of Trustees certifies a change in the Zoning Map to designate the property described herein with the Vistosa Design Overlay District on the official Zoning Map.

Section 7. The Board of Trustees directs that a certified copy of this Ordinance be filed with the Town Clerk and further, that the Town Clerk index, file and make the Ordinance available to the public.

Section 8. If any article, section, paragraph, sentence, clause or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision will not affect the validity or constitutionality of the remaining portions of this ordinance. The Board of Trustees hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 9. 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, ADOPTED, APPROVED, AND ORDERED PUBLISHED BY TITLE this __ day of _____, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

EXHIBIT A
Vistosa Design Overlay

Staff Report

Vistosa

Design Overlay

Prepared by the
Town of Firestone for the
Board of Trustees

July 27, 2022

GENERAL INFORMATION

Purpose: This staff report is for the Vistosa design overlay, proposing a decrease in lot size for single family detached, and a decrease in lot size and width for single family detached alley loaded.

Applicant: Prominence Partners I LLC
PO Box 870
Firestone, CO

Location: The Vistosa property is located on the northeast and southeast corner of Firestone Boulevard and Frontier Street.



Existing Conditions:

Existing Zoning:	Residential-A (R-A), Residential-B (R-B) and Neighborhood Center (NC)
Existing Use:	Vacant land, agriculture and oil/gas operations

Adjacent Land Use/Zoning:

	ZONING	LAND USE
NORTH	AG (Weld County)	Agriculture, and oil/gas operations
SOUTH	AG (Weld County)	Large lot residential
EAST	AG (Weld County)	Agriculture
WEST	AG (Weld County)	Large lot residential and vacant land

Vistosa Design Overlay - Plan Analysis
The proposed design overlay area is approximately 274.1 acres in size, and is currently vacant land use for agricultural purposes with an oil and gas facility on the northwest side of the property.

The Residential-A (R-A) zoning district allows for single family detached front and alley loaded, and single family attached front and alley loaded products. The Vistosa subdivision is proposing all four of these housing types.

The applicant is proposing a design overlay to modify the Firestone Development Code (FDC) dimensional standards for lots to accommodate specific housing products. On approximately 45% of the single family detached lots, the proposed lot sizes would be decreased from a minimum of 4,500 square feet as required by the FDC down to 4,410 square feet. The proposed lots will be 45 feet wide, meeting the regulations of the FDC, however only 98 feet long. The FDC does not set out regulations for a minimum length. Staff are not concerned with this change as this will just result in a smaller yard.

The lot size and width for single family detached alley lots would also be modified through this design overlay. The overall size of these lots will be decreased from the required 3,500 square feet, down to 3,040 square feet. The minimum lot width will decrease from 35 feet to 32 feet on internal lots, and from 45 feet to 42 feet on corner lots.

Although the proposed lots are smaller than outlined in the FDC, the products still meet the required setbacks, and the overall density of the neighborhood is proposed to be 3.84 dwelling units/acre. This density is within the limit of the R-A zoning district. For those reasons, staff are in support of the proposed design overlay.

APPROVAL CRITERIA AND STAFF ANALYSIS

Design Overlay Rezoning Approval Criteria and Staff Analysis:
The Design Overlay Rezoning application for Vistosa was reviewed for compliance with the Approval Criteria from Section 16.7.4.E of the FDC. Staff makes the following findings:

A. The proposed zoning promotes the health, safety or welfare of the inhabitants of the Town and the purposes of this FDC; and

Staff: *The modifications proposed promotes the health, safety, and welfare of the inhabitants of the Town and the purposed of the FDC by providing multiple housing types.*

B. The proposed zoning is generally consistent with the Town's Comprehensive Master Plan, or the proposed zoning is necessary to provide land for a community need that was not anticipated at the time of the adoption of the Town's plan.

Staff: *The proposed modifications are generally consistent with the Town's Master Plan.*

C. Adequate facilities and services (including street and transportation, water, gas, electric, police and fire protection, and sewage and waste disposal, as applicable) will be available to serve the subject property while maintaining adequate levels of service to existing development;

Staff: *Adequate facilities and services are provided to serve the subject property and maintain adequate levels of service to existing development.*

D. The proposed zoning is not likely to result in significant adverse impacts upon the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated;

Staff: *The proposed modifications are not likely to result in significant adverse impacts upon the natural environment.*

E. The proposed zoning is not likely to result in significant adverse impacts upon other property in the vicinity of the subject property;

Staff: *The proposed modifications are not likely to result in significant adverse impacts upon the property in the vicinity of this property.*

F. Future uses on the subject property will be compatible in scale with uses on other properties in the vicinity of the subject property; and

Staff: *The proposed uses on the Vistosa property provides buffering to higher density housing types with single family detached to be compatible with existing scale and uses of other properties in the vicinity of this property.*

G. The proposed zoning is generally consistent with the Towns' economic development goals and objectives in bringing positive growth and sustainable revenues to the Town.

Staff: *The proposed modifications are generally consistent with the Town's economic development goals and objectives in bringing positive growth via residential lots and revenue via a commercial parcel to the Town*

NEIGHBORHOOD MEETING

As required by the Firestone Development Code, a Neighborhood Meeting was held on April 18, 2022 at 4:30 pm at the Rocky Mountain Christian Church. The required notice for the Neighborhood Meeting was provided.

PUBLIC NOTICE

Notice of the Public Hearings has been provided as follows:

Published in the Longmont Times Call:	June 22, 2022
Property Posted:	June 21, 2022
Letters to Adjacent Property Owners:	June 21, 2022

RECOMMENDATIONS

Staff:
Town Staff recommend the Board of Trustees approve draft Ordinance 1019, an ordinance approving the Vistosa Design Overlay application with the following condition:

a. Technical corrections to the Vistosa design overlay map shall be made to the Town's satisfaction.

Planning and Zoning Commission:
After conducting a Public Hearing on the proposed preliminary plat on July 7, 2022, the Planning and Zoning Commission rendered a decision recommending approval of the Preliminary Plat as more fully set forth in PC-22-12.

VISTOSA DESIGN OVERLAY

SITUATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO
274.081 ACRES - 1,053 RESIDENTIAL LOTS / 54 TRACTS
RZ-O-22-024

LEGAL DESCRIPTION

PARCEL A:

A PARCEL OF LAND BEING THE SOUTHWEST QUARTER OF SECTION 5;
EXCEPT THE SOUTH 790.00 FEET OF THE EAST 312.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER WHENCE THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 67 WEST BEARS SOUTH 00°00'00" WEST 2659.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;

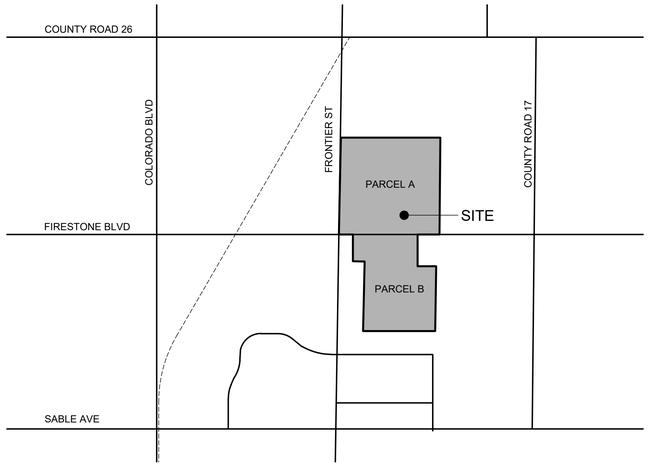
THENCE NORTH 00°00'14" WEST 2649.92 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER;
THENCE NORTH 89°23'55" EAST 2680.42 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER;
THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 1848.62 FEET;
THENCE ALONG A LINE 790.00 FEET NORTHERLY FROM AND PARALLEL WITH THE SOUTH LINE OF SAID SOUTHWEST QUARTER, SOUTH 89°09'38" WEST 312.02 FEET;
THENCE ALONG A LINE 312.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 790.05 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER;
THENCE ALONG SAID SOUTH LINE, SOUTH 89°09'38" WEST 2376.98 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

PARCEL B:

A PARCEL OF LAND BEING THE NORTHWEST QUARTER OF SECTION 8;
EXCEPT THE NORTH 871.20 FEET OF THE EAST 500.00 FEET, THE SOUTH 1904.04 FEET OF THE WEST 719.75 FEET AND THE NORTH 755.00 FEET OF THE WEST 380.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO.

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 8 WHENCE THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER BEARS SOUTH 00°00'00" EAST 2659.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;
THENCE ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 380.04 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING NORTH 89°09'38" EAST 1808.95 FEET;
THENCE ALONG A LINE 500.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID NORTHWEST QUARTER, SOUTH 00°23'23" EAST 871.23 FEET;
THENCE ALONG A LINE 871.20 FEET SOUTHERLY FROM AND PARALLEL WITH THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 500.02 FEET TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER;
THENCE SOUTH 00°23'23" EAST 1789.35 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER;
THENCE ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER, SOUTH 89°11'19" WEST 1987.26 FEET;
THENCE ALONG A LINE 719.75 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER, NORTH 00°00'00" EAST 1888.20 FEET;
THENCE NORTH 88°59'00" WEST 339.80 FEET;
THENCE ALONG A LINE 380.00 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF THE NORTHWEST QUARTER, NORTH 00°00'00" EAST 760.60 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

CONTAINING A TOTAL AREA OF 274.081 ACRES (11,938,983 SQUARE FEET), MORE OR LESS.



VICINITY MAP

N

0 1000 2000 4000
SCALE: 1"=2000'-0"

DESIGN OVERLAY

DESIGN OVERLAY SUMMARY CHART	
REQUIREMENTS	**DESIGN OVERLAY STANDARDS**
MINIMUM LOT STANDARDS	
SINGLE FAMILY DETACHED LOT SIZE (SQ. FT.)	4,410 [1]
SINGLE FAMILY DETACHED (ALLEY) LOT SIZE (SQ. FT.)	3,040
SINGLE FAMILY DETACHED (ALLEY) MINIMUM LOT WIDTH (FT.)	32
SINGLE FAMILY DETACHED (ALLEY) MINIMUM CORNER LOT WIDTH (FT.)	42

[1] LIMITED TO 45% OF THE SINGLE FAMILY DETACHED LOTS IN THE DESIGN OVERLAY AREA

SURVEYOR'S CERTIFICATE

I, _____, A DULY REGISTERED PROFESSION LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS ZONING MAP TRULY AND CORRECTLY REPRESENTS THE ABOVE DESCRIBED LEGAL DESCRIPTIONS.

I ATTEST THE ABOVE ON THIS ____ DAY OF _____, 20____.

_____
SURVEYOR'S NAME
COLRADO REGISTERED PROFESSIONAL LAND SURVEYOR # (SEAL)

PLANNING & ZONING COMMISSION CERTIFICATE

THIS ZONING MAP REVIEWED BY THE TOWN OF FIRESTONE PLANNING & ZONING COMMISSION ON THE DAY OF _____, 20____.

_____
CHAIRPERSON

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS ZONING MAP TO BE KNOWN AS UNION ZONING MAP, IS APPROVE AND ACCEPTED BY ORDINANCE _____, PASSED AND ADOPTED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, HELD ON THE _____ DAY OF _____, 20____.

_____
MAYOR

ATTEST: _____
TOWN CLERK

SEVEN DESIGN
LANDSCAPE ARCHITECTURE
PLANNING

5856 S. LOWELL BLVD, UNIT 32 #260
LITTLETON, CO 80123
303-883-3278
CMARCH@SEVEN2IDESIGN.COM

PROJECT NUMBER	21004
DATE	JUNE 30, 2022

NO.	REVISION	DATE

DESIGN OVERLAY

Town of Firestone
Michelle Dollmaier
9950 Park Ave.
Firestone, CO 80504

RE: Neighborhood meeting summary from April 18th, 2022

Dear Ms. Dollmaier;

The Vistosa project team was proud to host a neighborhood meeting for the surrounding property owners on Monday April 18th, 2022 at Rocky Mountain Christian Church, room 2017. The meeting was hosted in an open house style with 3 different stations. Each station had a different project focus with the associated project consultant hosting that particular station. The stations were hosted as follows: Mr. Chris March, our landscape architect, hosted the station for Parks, Open Space, Landscaping and site design/layout. Ms. Tess Hogan, our civil engineer, hosted a station for Utilities, Traffic, Drainage and Site construction. Mr. Blake Carlson, the project applicant, hosted the final station for general questions and site layout/design. Attached to this document is a copy of the notice that was mailed out the surround property owners.

The following surrounding property owners signed in at the meeting:

Sheldon Simpson
Diana Simpson
Norman Schranz
Melinda Shotts
Kenneth Voss
Lisa Bergesser
Michael Pummer
Noel Pummer
Ronald Gilberts nice Alexis

.

Sincerely,



Blake Carlson

March 22, 2022

Dear Property Owner,

To facilitate the development of the project formally known as Wildrose/Vogl, the Applicant is processing a re-zone and Plat in the town of Firestone to create the Vistosa Subdivision. The property is generally located at the northeast and southeast corner of Firestone Blvd. & Frontier street.

The application if approved, would allow for the development of 1,053 residences. The total project consists of 274 acres.

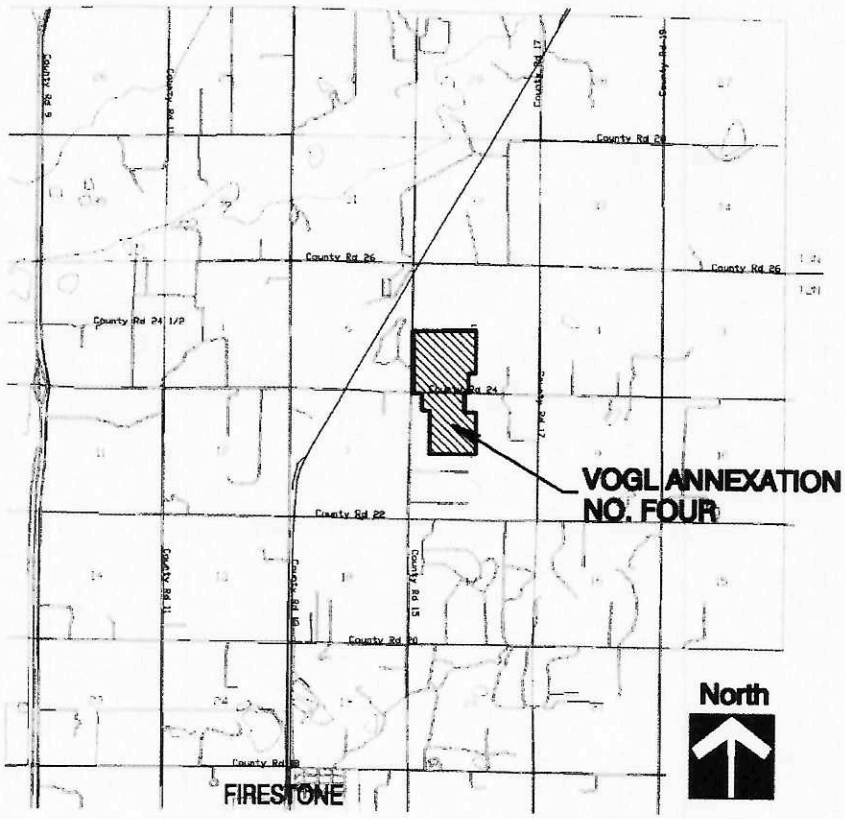
In conjunction with this application, a neighborhood meeting has been scheduled by the Applicant which you are invited to attend. Details of the meeting are as follows:

Date: April 18th, 2022

Time: 4:30 pm- 5:30 pm MDT

Where: 5860 Majestic St Frederick, CO 80504 Room 2017

Sincerely,
Carlson Land Development



VICINITY MAP

FIRESTONE PLANNING AND ZONING COMMISSION

RESOLUTION NO. PC 22-12

A RESOLUTION OF THE PLANNING AND ZONING COMMISSION OF THE TOWN OF FIRESTONE, COLORADO, RECOMMENDING APPROVAL OF THE VISTOSA DESIGN OVERLAY

WHEREAS, Prominence Partners I LLC ("Applicant"), as owner of certain real property located within the Town of Firestone, Colorado (the "Property"), has submitted a proposed rezoning for the Property (the "Application"); and

WHEREAS, after a duly-noticed public hearing, at which evidence and testimony were entered into the record, the Planning and Zoning Commission finds and determines that the Application is complete, and that the Applicant has met the applicable requirements and standards set forth in the Firestone Municipal Code and Firestone Development Code; and

WHEREAS, the Planning and Zoning Commission wishes to make a recommendation to the Board of Trustees regarding the Application.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING AND ZONING COMMISSION OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The Planning and Zoning Commission hereby recommends the Board of Trustees approve the Vistosa Design Overlay, attached hereto as **Exhibit A** and incorporated herein by this reference, subject to and contingent upon compliance with the following conditions:

1. Technical corrections to the Vistosa Design Overlay shall be made to the Town's satisfaction.

PASSED AND ADOPTED this 7Th day of July, 2022

Dennis Haney, Chairperson

FIRESTONE TOWN SEAL PLANNING AND ZONING COMMISSION

ATTEST:

Jessica Koenig, Secretary

EXHIBIT A
Vistosa Design Overlay

VISTOSA DESIGN OVERLAY

SITUATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO
274.081 ACRES - 1,053 RESIDENTIAL LOTS / 54 TRACTS
RZ-O-22-024

LEGAL DESCRIPTION

PARCEL A:

A PARCEL OF LAND BEING THE SOUTHWEST QUARTER OF SECTION 5;
EXCEPT THE SOUTH 790.00 FEET OF THE EAST 312.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER WHENCE THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 67 WEST BEARS SOUTH 00°00'00" WEST 2659.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;

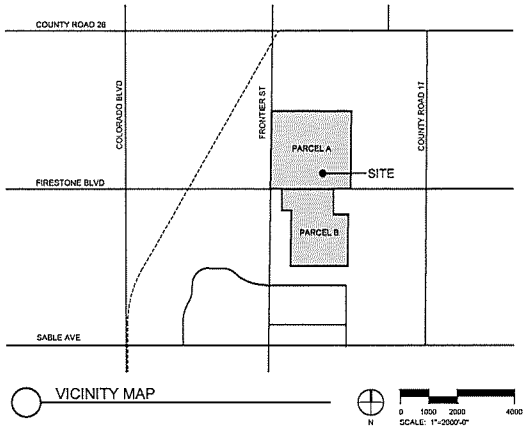
THENCE NORTH 00°00'14" WEST 2649.02 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER;
THENCE NORTH 89°23'55" EAST 2680.42 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER;
THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 1848.82 FEET;
THENCE ALONG A LINE 780.00 FEET NORTHERLY FROM AND PARALLEL WITH THE SOUTH LINE OF SAID SOUTHWEST QUARTER, SOUTH 89°08'38" WEST 312.02 FEET;
THENCE ALONG A LINE 312.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 780.05 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER;
THENCE ALONG SAID SOUTH LINE, SOUTH 89°08'38" WEST 2370.88 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

PARCEL B:

A PARCEL OF LAND BEING THE NORTHWEST QUARTER OF SECTION 8;
EXCEPT THE NORTH 671.20 FEET OF THE EAST 500.00 FEET, THE SOUTH 1904.04 FEET OF THE WEST 719.75 FEET AND THE NORTH 755.00 FEET OF THE WEST 380.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO.

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 8 WHENCE THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER BEARS SOUTH 00°00'00" EAST 2659.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;
THENCE ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 380.04 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING NORTH 89°09'38" EAST 1808.05 FEET;
THENCE ALONG A LINE 500.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID NORTHWEST QUARTER, SOUTH 00°23'23" EAST 871.23 FEET;
THENCE ALONG A LINE 871.20 FEET SOUTHERLY FROM AND PARALLEL WITH THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 500.02 FEET TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER;
THENCE SOUTH 00°23'23" EAST 1789.35 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER;
THENCE ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER, SOUTH 89°11'19" WEST 1987.26 FEET;
THENCE ALONG A LINE 719.75 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER, NORTH 00°00'00" EAST 1888.20 FEET;
THENCE NORTH 88°59'00" WEST 339.80 FEET;
THENCE ALONG A LINE 380.00 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF THE NORTHWEST QUARTER, NORTH 00°00'00" EAST 760.60 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

CONTAINING A TOTAL AREA OF 274.081 ACRES (11,938,983 SQUARE FEET), MORE OR LESS.



DESIGN OVERLAY

DESIGN OVERLAY SUMMARY CHART	
REQUIREMENTS	DESIGN OVERLAY STANDARDS
MINIMUM LOT STANDARDS	
SINGLE FAMILY DETACHED LOT SIZE (SQ. FT.)	4,410[1]
SINGLE FAMILY DETACHED (ALLEY) LOT SIZE (SQ. FT.)	3,040
SINGLE FAMILY DETACHED (ALLEY) MINIMUM LOT WIDTH (FT.)	32
SINGLE FAMILY DETACHED (ALLEY) MINIMUM CORNER LOT WIDTH (FT.)	42

[1] LIMITED TO 45% OF THE SINGLE FAMILY DETACHED LOTS IN THE DESIGN OVERLAY AREA

SURVEYOR'S CERTIFICATE

I, _____, A DULY REGISTERED PROFESSION LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS ZONING MAP TRULY AND CORRECTLY REPRESENTS THE ABOVE DESCRIBED LEGAL DESCRIPTIONS.

I ATTEST THE ABOVE ON THIS ___ DAY OF _____, 20___.

_____
SURVEYOR'S NAME
COLRADO REGISTERED PROFESSIONAL LAND SURVEYOR # (SEAL)

PLANNING & ZONING COMMISSION CERTIFICATE

THIS ZONING MAP REVIEWED BY THE TOWN OF FIRESTONE PLANNING & ZONING COMMISSION ON THE DAY OF _____, 20____.

_____
CHAIRPERSON

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS ZONING MAP TO BE KNOWN AS UNION ZONING MAP, IS APPROVE AND ACCEPTED BY ORDINANCE _____, PASSED AND ADOPTED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, HELD ON THE ____ DAY OF _____, 20____.

_____
MAYOR

ATTEST: _____
TOWN CLERK

SEVEN
LANDSCAPE ARCHITECTURE
PLANNING
8554 S. LOWELL BLVD. UNIT 27 #350
LITTLETON, CO 80123
303.483.3378
CHARLIE@SEVENDESIGN.COM

PROJECT NUMBER	21004
DATE	JUNE 30, 2022

NO.	REVISION	DATE

DESIGN OVERLAY

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 7.c

Land Development

Meeting Date: July 27, 2022

Initiated By: Michelle Dollmaier

Dept: Planning & Development

AGENDA TITLE

PUBLIC HEARING: Resolution 22-88: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PRELIMINARY SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN THE VISTOSA SUBDIVISION

SUMMARY

The Vistosa residential preliminary plat proposes a total of 1053 dwelling units consisting of 957 single-family detached residential lots, 96 single-family attached residential lots, and 53 tracts for open space, landscaping, and drainage purposes on approximately 274.1 acres.

HISTORY AND PREVIOUS BOARD ACTION

The Vogl property was annexed and zoned by the Town in 2001. The property is now known as Vistosa.

RECOMMENDATION

Town staff recommends the Board of Trustees approve draft Resolution 22-88, a resolution approving the Vistosa Preliminary Plat application with the following conditions:

1. All remaining technical corrections to the Vistosa preliminary plat and construction drawings requested by Town staff shall be made to the Town staff's satisfaction.
2. At the Final Plat stage, the Town and the Applicant shall execute a subdivision agreement in a form to be approved by the Town Attorney.

ALTERNATIVES

n/a

ATTACHMENTS

1. Resolution 22-88
2. Staff Report
3. Vistosa Preliminary Plat
4. Vistosa Landscape Plan
5. Neighborhood Meeting Summary
6. PC 22-13 Vistosa Preliminary Subdivision Plat Approval

FINANCIAL CONSIDERATIONS

n/a

RESOLUTION NO. 22-88

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A PRELIMINARY SUBDIVISION PLAT FOR CERTAIN REAL PROPERTY LOCATED WITHIN THE VISTOSA SUBDIVISION

WHEREAS, Prominence Partners I LLC ("Applicant"), as owner of certain real property located within the Vistosa subdivision (the "Property"), has submitted a proposed preliminary subdivision plat ("Preliminary Plat") for the Property; and

WHEREAS, the Firestone Planning and Zoning Commission, after conducting a public hearing on the proposed preliminary subdivision plat on July 7, 2022, rendered a decision recommending approval of the Preliminary Plat with two (2) conditions as more fully set forth in PC-22-13, dated July 7, 2022; and

WHEREAS, on July 27, 2022, the Board of Trustee conducted a public hearing on the proposed Preliminary Plat; and

WHEREAS, after reviewing the record of the Planning and Zoning Commission public hearing, and after considering the testimony, evidence and argument presented at the Board of Trustees public hearing, the Board of Trustees finds and determines that the proposed Preliminary Plat is in substantial conformance with the technical requirements of the Firestone Development Code, and that the proposed development plan meets the applicable requirements and standards set forth in the Firestone Municipal Code and Firestone Development Code.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The Board of Trustees acknowledges the Planning and Zoning Commission's findings of fact in this case, as detailed in Resolution PC-22-13.

Section 2. The above Recitals and Findings of the Board of Trustees are hereby incorporated into this resolution.

Section 3. The Board of Trustees hereby approves the Preliminary Plat of Vistosa, attached hereto as **Exhibit A** and incorporated herein by this reference, subject to compliance with the following conditions:

(a) All remaining technical corrections to the Vistosa Preliminary Plat and Construction Drawings requested by Town staff shall be made to the Town staff's satisfaction.

(b) At the Final Plat stage, the Town and the Applicant shall execute a subdivision agreement, in a form to be approved by the Town Attorney.

Section 4. Unless otherwise extended by the Board of Trustees, the approval of the

Vistosa Preliminary Plat shall be null and void if a final plat for all or a portion of the property is not approved by the Town of Firestone within three years of the date of this Resolution.

INTRODUCED, READ AND ADOPTED this __ day of _____, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Peterson, Mayor

ATTEST:

_____
Jessica Koenig, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

EXHIBIT A
Vistosa
Preliminary Plat

Staff Report

Vistosa

Preliminary Plat

Prepared by the
Town of Firestone for the
Board of Trustees

July 27, 2022

GENERAL INFORMATION

Purpose: This staff report is for the Vistosa preliminary plat proposing 1,053 dwelling units consisting of 957 single family detached residential lots, 96 single family attached residential lots and 53 tracts on approximately 274.1 acres.

Applicant: Prominence Partners I LLC
PO Box 870
Firestone, CO

Location: The Vistosa preliminary plat is located on the northeast and southeast corner of Firestone Boulevard and Frontier Street.



Existing Conditions:

Existing Zoning:	Residential-A (R-A), Residential-B (R-B) and Neighborhood Center (NC)
Existing Use:	Vacant land, agriculture and oil/gas operations

Adjacent Land Use/Zoning:

	ZONING	LAND USE
NORTH	AG (Weld County)	Agriculture, and oil/gas operations
SOUTH	AG (Weld County)	Large lot residential
EAST	AG (Weld County)	Agriculture
WEST	AG (Weld County)	Large lot residential and vacant land

Vistosa Preliminary Plat - Plan Analysis

The Vistosa residential preliminary plat proposes a total of 1053 dwelling units consisting of 957 single family detached residential lots, 96 single family attached residential lots and 53 tracts for open space, landscaping and drainage purposes on approximately 274.1 acres

The subject property is located on the northeast and southeast corner of Firestone Boulevard and Frontier Street. The land is vacant and is currently used for agricultural purposes with an oil and gas facility on the northwest side of the property.

The gross density of the proposed subdivision is 3.84 dwelling units/acre in accordance with the proposed R-A residential regulations as outlined in the Firestone Development Code (FDC). Lot sizes range from 25-foot wide and 2,375 square feet in area for townhouse developments and up to 50-foot wide and 5,500 square feet in area for single family detached developments. The proposed density will be compatible with adjacent developments by having open space and larger residential lots on the exterior near the existing large lot residential developments, and higher densities towards the center of the subdivision.

There are 3 vehicular access points to the north side of the property, and 2 vehicular access points to the south portion. The 2 off Firestone Boulevard lead into both and north and south side of the subdivision. An additional access point is provided off Frontier Street for the north side. Street stubs are provided to the north and to the east of the property into vacant land to create connectivity with future development.

Pedestrian access is provided via attached sidewalks along interior residential streets and regional trail connections are provided throughout the property. To preserve green space, a large open space drainage way is proposed along the west side of the north and south portions that will include a pedestrian trail.

On the north side of the subdivision, residents will be able to access 2 pocket parks and a 10-acre neighborhood park will serve the entire subdivision. The regional trail will also be provided behind houses along a drainage way.

The residents on the south side of the property will also have access to a pocket park located centrally, along with a trail along the west side by the drainage area. The community park for the development will be provided via fee in-lieu.

Public infrastructure and utilities will be extended into the property by the developer at the time of the development.

APPROVAL CRITERIA AND STAFF ANALYSIS

Preliminary Plat Approval Criteria and Staff Analysis:
The Preliminary Plat application for Vistosa was reviewed for compliance with the Approval Criteria from Section 16.7.6.C of the FDC. Staff makes the following findings:

A. The subdivision is generally consistent with the Town's Comprehensive Master Plan;

Staff: *The proposed preliminary plat is generally consistent with the residential medium (R-M) land use designation as identified in the Town's Master Plan.*

B. The subdivision is generally consistent with and implements the intent of the specific zoning district in which it is located;

Staff: *The proposed preliminary plat is consistent with the purpose and intent of the R-A zone district as outlined in the FDC.*

C. The general layout of lots, streets, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed to meet the Town's standards related to health and safety and in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this FDC;

Staff: *The general layout of the proposed preliminary plat is consistent with applicable development and design standards set forth in the FDC. In addition, the general layout is consistent with the Town of Firestone Design Standards and Construction Specifications for Public Improvements.*

D. The subdivision complies with all applicable use, development, and design standards set forth in Chapters 3, 5 and 6 of this FDC that have not otherwise been modified or waived pursuant to this Chapter or this FDC;

Staff: *The proposed preliminary plat complies with the development and design standards set forth in Chapters 3, 5 and 6 of the FDC.*

E. The subdivision complies with all applicable regulations, standards, requirements, or plans of the Federal or State governments and other relevant jurisdictions, including but not limited to wetlands, water quality, erosion control, and wastewater regulations;

Staff: *The proposed preliminary plat complies with applicable federal and state regulations.*

F. The subdivision will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated;

Staff: *The proposed preliminary plat will not have a significant impact on the identified environmental conditions.*

G. The subdivision shall be integrated and connected, where appropriate, with adjacent development through street connections, sidewalks, trails, and similar features;

Staff: *The proposed preliminary plat is integrated and connected to major pedestrian and vehicular passageways by providing regional trail connections throughout the development and stubbing roads into adjacent vacant land.*

H. The subdivision will not result in significant adverse impacts on adjacent properties, or such impacts will be substantially mitigated.

Staff: *The proposed preliminary plat will not have significant adverse impacts on adjacent properties given landscape buffers are provided behind existing country residential developments. Single family homes will also buffer existing developments from higher density developments.*

I. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the subject property, while maintaining sufficient levels of service to existing development; and

Staff: *The proposed preliminary plat will provide sufficient transportation, utilities, and recreational facilities while maintaining existing levels of service to the development.*

J. As applicable, the proposed phasing plan for development of the subdivision is rational in terms of available infrastructure capacity.

Staff: *The phasing of the proposed preliminary plat is rational in terms of infrastructure capacities.*

NEIGHBORHOOD MEETING

As required by the Firestone Development Code, a Neighborhood Meeting was held on April 18, 2022 at 4:30 pm at Rocky Mountain Christian Church. The required notice for the Neighborhood Meeting was provided.

PUBLIC NOTICE

Notice of the Public Hearings has been provided as follows:

Published in the Longmont Times Call:	June 22, 2022
Property Posted:	June 21, 2022
Letters to Adjacent Property Owners:	June 21, 2022

RECOMMENDATIONS

Staff:
Town staff recommends the Board of Trustees approve draft Resolution 22-88, a resolution approving the Vistosa Preliminary Plat application with the following conditions:

a. All remaining technical corrections to the Vistosa preliminary plat and construction drawings requested by Town staff shall be made to the Town staff's satisfaction.

b. At the Final Plat stage, the Town and the Applicant shall execute a subdivision agreement, in a form to be approved by the Town Attorney.

Planning and Zoning Commission:
After conducting a Public Hearing on the proposed preliminary plat on July 7, 2022, the Planning and Zoning Commission rendered a decision recommending approval of the Preliminary Plat as more fully set forth in PC-22-13.

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001

CERTIFICATION OF OWNERSHIP AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT FRONTIER VENTURES LLC, A COLORADO LIMITED LIABILITY COMPANY AND MILLRACE RESOURCES LLC, A COLORADO LIMITED LIABILITY COMPANY BEING THE OWNERS OF THE LAND SHOWN IN THIS PLAT AND DESCRIBED AS FOLLOWS:

PARCEL A:

A PARCEL OF LAND BEING THE SOUTHWEST QUARTER OF SECTION 5;
EXCEPT THE SOUTH 790.00 FEET OF THE EAST 312.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER WHENCE THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 67 WEST BEARS SOUTH 00°00'00" WEST 2659.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;

THENCE NORTH 00°00'14" WEST 2649.92 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER;
THENCE NORTH 89°23'55" EAST 2680.42 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER;
THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 1848.62 FEET;
THENCE ALONG A LINE 790.00 FEET NORTHERLY FROM AND PARALLEL WITH THE SOUTH LINE OF SAID SOUTHWEST QUARTER, SOUTH 89°09'38" WEST 312.02 FEET;
THENCE ALONG A LINE 312.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 790.05 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER;
THENCE ALONG SAID SOUTH LINE, SOUTH 89°09'38" WEST 2376.98 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

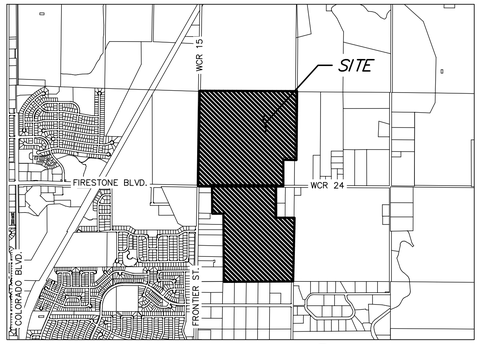
PARCEL B:

A PARCEL OF LAND BEING THE NORTHWEST QUARTER OF SECTION 8;
EXCEPT THE NORTH 871.20 FEET OF THE EAST 500.00 FEET, THE SOUTH 1904.04 FEET OF THE WEST 719.75 FEET AND THE NORTH 755.00 FEET OF THE WEST 500.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO.

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 8 WHENCE THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER BEARS SOUTH 00°00'00" EAST 2659.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;
THENCE ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 380.04 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING NORTH 89°09'38" EAST 1808.95 FEET;
THENCE ALONG A LINE 500.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID NORTHWEST QUARTER, SOUTH 00°23'23" EAST 871.23 FEET;
THENCE ALONG A LINE 871.20 FEET SOUTHERLY FROM AND PARALLEL WITH THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 500.02 FEET TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER;
THENCE SOUTH 00°23'23" EAST 1789.35 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER;
THENCE ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER, SOUTH 89°11'19" WEST 1987.26 FEET;
THENCE ALONG A LINE 719.75 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER, NORTH 00°00'00" EAST 1888.20 FEET;
THENCE NORTH 88°59'00" WEST 339.80 FEET;
THENCE ALONG A LINE 380.00 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF THE NORTHWEST QUARTER, NORTH 00°00'00" EAST 760.60 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

CONTAINING A TOTAL AREA OF 274.081 ACRES (11,938,983 SQUARE FEET), MORE OR LESS.

HAVE LAID OUT, SUBDIVIDED AND PLATTED SAID LAND AS PER DRAWING HEREON CONTAINED UNDER THE NAME AND STYLE OF **VISTOSA,** A SUBDIVISION OF A PART OF THE TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO, AND BY THESE PRESENTS DO HEREBY DEDICATE TO THE TOWN OF FIRESTONE THE STREETS, AVENUES (AND OTHER PUBLIC PLACES, TRACTS/OUTLOTS) AS SHOWN ON THE ACCOMPANYING PLAT FOR THE PUBLIC USE THEREOF FOREVER AND DOES FURTHER DEDICATE TO THE USE OF THE TOWN OF FIRESTONE AND ALL SERVING PUBLIC UTILITIES (AND OTHER APPROPRIATE ENTITIES) THOSE PORTIONS OF SAID REAL PROPERTY WHICH ARE SO DESIGNATED AS EASEMENTS AS SHOWN.



VICINITY MAP
SCALE: 1"=2000'

OWNER:
PROMINENCE PARTNERS I, LLC
PO BOX 870
FIRESTONE, CO. 80520

BY: _____

NAME: _____

TITLE: _____

EXECUTED THIS ____ DAY OF _____, A.D., 201_.

STATE OF COLORADO)
) SS.
COUNTY OF_____)

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME
THIS _____DAY OF_____ 201_.,

BY _____ AS _____
OF PROMINENCE PARTNERS I, LLC, A COLORADO LIMITED LIABILITY COMPANY
MY COMMISSION EXPIRES _____

WITNESS MY HAND AND SEAL. _____
NOTARY PUBLIC

BY: _____

NAME: _____

TITLE: _____

EXECUTED THIS ____ DAY OF _____, A.D., 201_.

SHEET INDEX

SHEET 1 — DEDICATION, APPROVALS, , VICINITY MAP, LEGAL DESCRIPTION
SHEET 2 — OVERALL BOUNDARY, LARGE PARCEL GRAPHICS AND DETAILS
SHEETS 3–16 — TRACTS, LOTS, BLOCKS AND RIGHTS-OF-WAY GRAPHICS AND DIMENSIONS

GENERAL NOTES

1. **NOTICE:** 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.
2. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, COLORADO REVISED STATUTE.
3. DISTANCES ON THIS PLAT ARE GROUND DISTANCES EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS
4. BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, ASSUMED TO BEAR SOUTH 89°44'48" EAST, 2680.42 FEET AND MONUMENTED AS SHOWN HEREON.
5. TITLE COMMITMENT: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY ORDER NUMBER ABZ25183948, WITH AN EFFECTIVE DATE OF 01/18/2021 AT 5:00 P.M. WAS RELIED UPON FOR RECORD INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES. THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY AZTEC CONSULTANTS INC. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF PUBLIC RECORD.
6. FLOODPLAIN: BASED ON GRAPHICAL REPRESENTATION THE SUBJECT PROPERTY SHOWN HEREON LIES IN OTHER AREAS – ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP NUMBER 08123C1895E, PANEL 1895 OF 2250, WITH A REVISED DATE OF JANUARY 20, 2016.

SURVEYING CERTIFICATE:

I, JAMES E. LYNCH, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY PERSONAL SUPERVISION AND CHECKING. I FURTHER CERTIFY THAT THE SURVEY AND THIS PLAT COMPLY WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS OF THE STATE OF COLORADO, STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS, PROFESSIONAL ARCHITECTS AND PROFESSIONAL LAND SURVEYORS, AND THE TOWN OF FIRESTONE.

FOR REVIEW

BY: JAMES E. LYNCH, P.L.S. NO. 37933
FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC.

NOTICE: 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.

NOTICE: PER THE STATE OF COLORADO BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS RULE 6.2.2 THE WORD "CERTIFY" AS USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED. THE SURVEY REPRESENTED HEREON HAS BEEN PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF.

OWNER:
PROMINENCE PARTNERS I, LLC
PO BOX 870
FIRESTONE, COLORADO 80520
303-833-5332
CONTACT: DANIEL SMITH
DAN@PROMINENCEDEVELOPMENT.COM

ENGINEER:
INNOVATIVE LAND CONSULTANTS, INC.
12071 TEJON STREET, SUITE 470
WESTMINSTER, COLORADO 80234
303-421-4224
CONTACT: ANNA SPARKS, P.E.
ANNA@INNOVATIVELANDINC.COM

SURVEYOR:
AZTEC CONSULTANTS, INC.
300 EAST MINERAL AVE., SUITE 1
LITTLETON, COLORADO 80122
303-713-1898
CONTACT: JIM LYNCH
JLYNCH@AZTECCONSULTANTS.COM

DEVELOPER:
CARLSON LAND DEVELOPMENT
14570 CLAY STREET
BROOMFIELD, COLORADO 80023
303-809-7930
CONTACT: BLAKE CARLSON
BLAKE@CARLSONLANDDEVELOPMENT.COM

LAND SUMMARY CHART		
TYPE	AREA (AC ±)	% OF TOTAL AREA
RESIDENTIAL LOTS	111.525	41%
TRACTS		
OPEN SPACE	46.990	17%
LANDSCAPE BUFFER	31.021	11%
ACCESS	2.842	1%
NEIGHBORHOOD PARK	10.049	3%
POCKET PARK	2.449	1%
AGRICULTURAL	0.155	1%
PUBLIC ROW	69.050	25%
TOTAL	274.081	100%

Tract Table

TRACT	AREA (SQ.FT)	AREA (AC ±)	USE	OWNED BY	MAINTAINED BY
TRACT A	781,236	17.935	LANDSCAPE BUFFER/ DRAINAGE/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT AA	1,920	0.044	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT AAA	56,846	1.305	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT B	11,000	0.253	LANDSCAPE BUFFER/ DRAINAGE/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT BB	939	0.022	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT C	30,067	0.690	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT CC	793	0.018	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT D	29,678	0.681	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT DD	75,307	1.729	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT E	12,150	0.279	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT EE	3,180	0.073	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT F	12,150	0.279	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT FF	62,266	1.429	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT G	12,188	0.280	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT GG	1,387,485	31.852	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT H	17,897	0.411	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT HH	9,240	0.212	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT I	17,897	0.411	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT II	36,279	0.833	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT J	11,498	0.264	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT JJ	38,550	0.885	POCKET PARK	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT K	265,862	6.103	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT KK	36,633	0.841	OPEN SPACE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT L	65,476	1.503	POCKET PARK	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT LL	93,278	2.141	OPEN SPACE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT M	34,853	0.800	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT MM	17,100	0.393	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT

Tract Table

TRACT	AREA (SQ.FT)	AREA (AC ±)	USE	OWNED BY	MAINTAINED BY
TRACT N	34,845	0.800	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT NN	17,100	0.393	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT O	7,809	0.179	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT OO	17,100	0.393	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT P	11,049	0.254	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT PP	437,752	10.049	NEIGHBORHOOD PARK/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT Q	19,600	0.450	POCKET PARK	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT QQ	8,700	0.200	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT R	12,104	0.278	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT RR	3,300	0.076	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT S	8,700	0.200	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT SS	8,700	0.200	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT T	12,500	0.287	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT TT	3,300	0.076	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT U	929	0.021	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT UU	206,824	4.748	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT V	1,900	0.044	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT VV	49,726	1.142	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT W	929	0.021	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT WW	6,772	0.155	AGRICULTURAL	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT X	939	0.022	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT XX	23,520	0.540	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT Y	1,920	0.044	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT YY	7,473	0.172	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT Z	939	0.022	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT ZZ	46,777	1.074	LANDSCAPE BUFFER/DRAINAGE	HOA/METRO DISTRICT	HOA/METRO DISTRICT

FIRESTONE INFORMATION BLOCK	
Name of Application	VISTOSA
Type of Submittal	PRELIMINARY PLAT
Filing Number	N/A
Phase Number	N/A
Preparation Date	12/21/2021
Revision Date	
Revision Date	
Revision Date	

COVER PAGE ~ SHEET 1 of 17

LAST REVISED: 05/06/2022

AZTEC CONSULTANTS, INC.
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Littleton, Colorado 80122
Phone: (303) 713-1898
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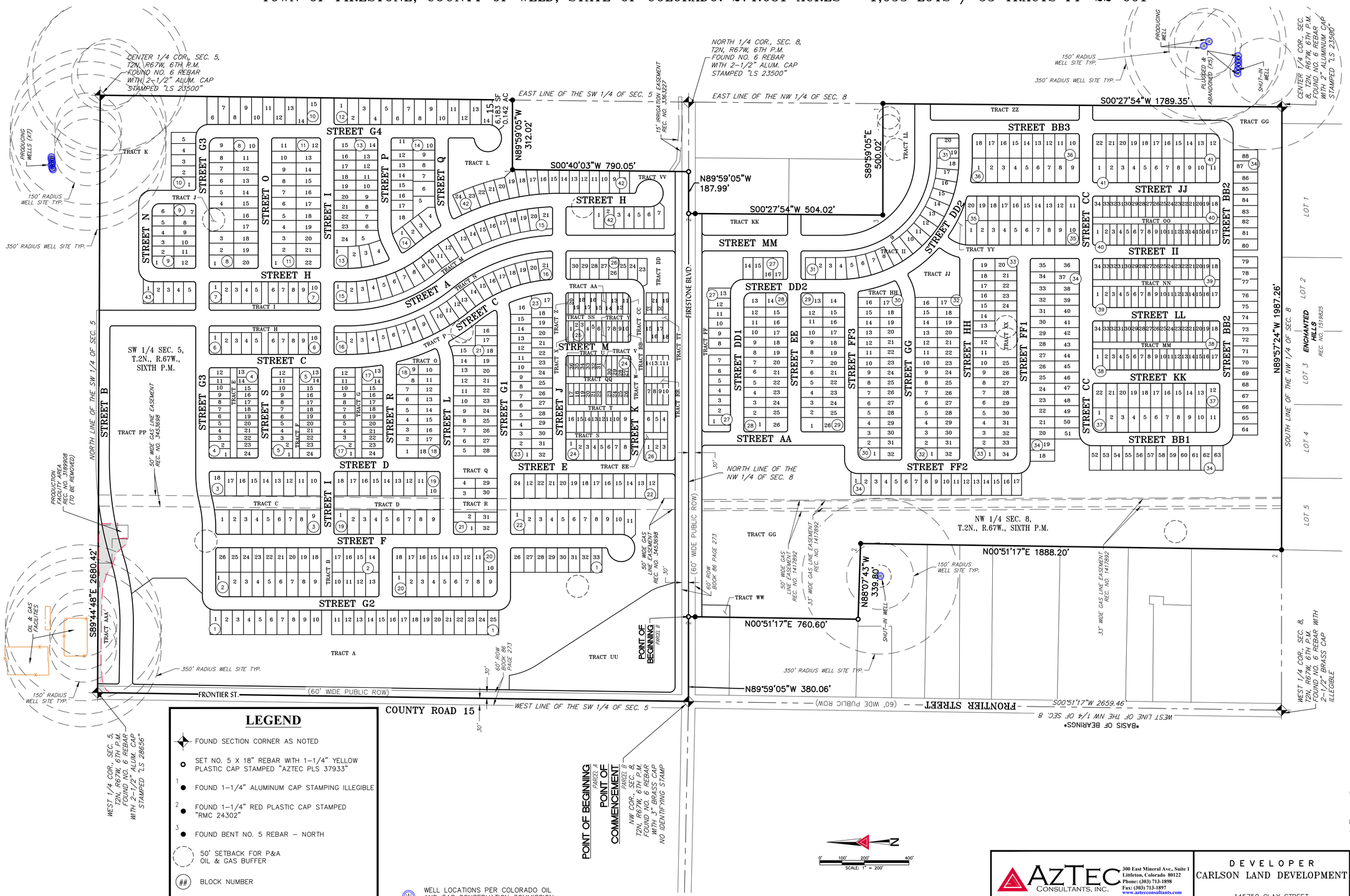
AzTec Proj. No.: 157922-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION: 12-21-2021
SCALE: NA
SHEET 1 OF 16

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- 50' SETBACK FOR P&A OIL & GAS BUFFER
- (##) BLOCK NUMBER
- (ROW) RIGHT-OF-WAY

(W) WELL LOCATIONS PER COLORADO OIL AND GAS CONSERVATION COMMISSION (COGCC)

FOR REVIEW

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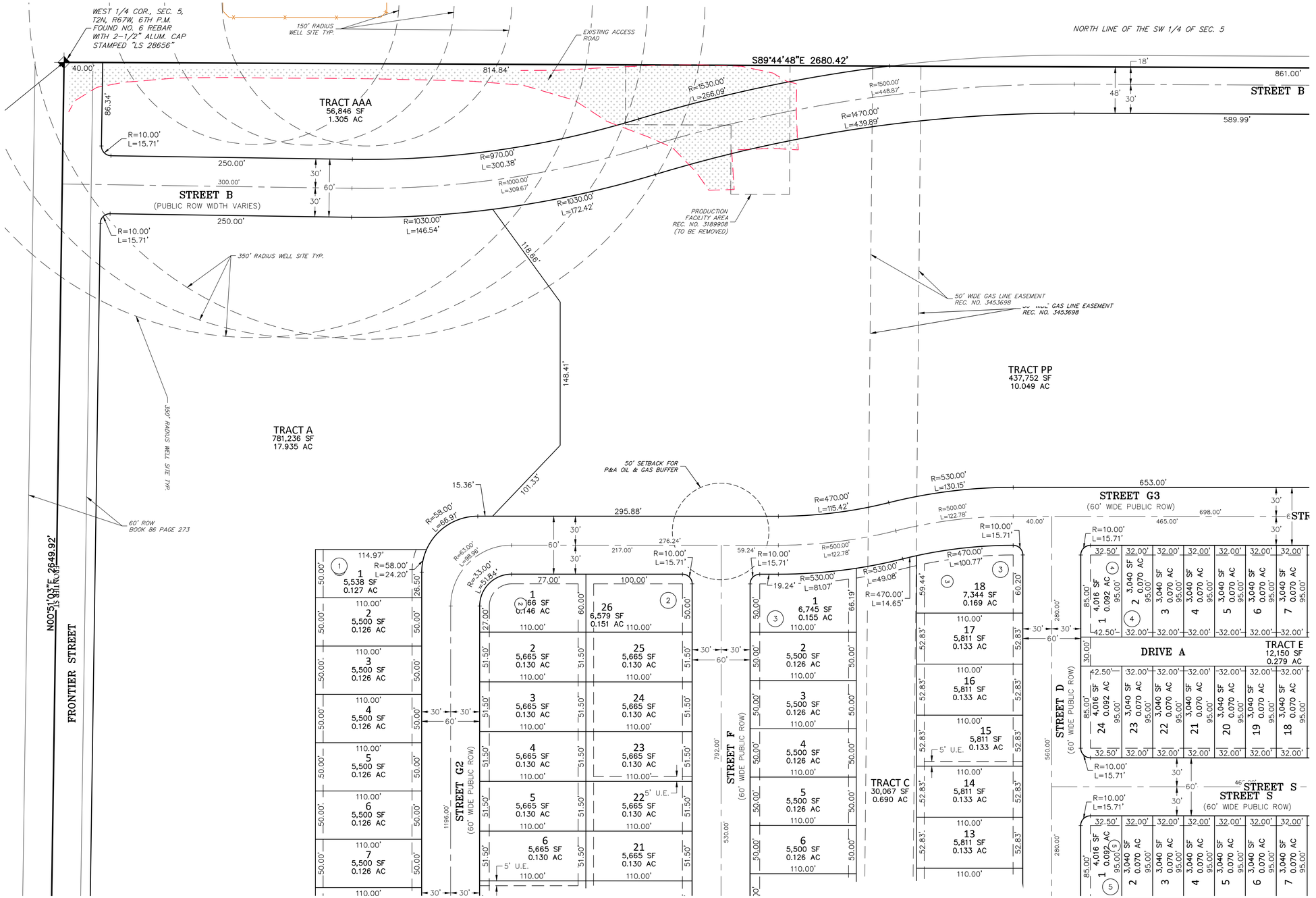
AzTec Proj. No.: 157922-01 Drawn By: RDR

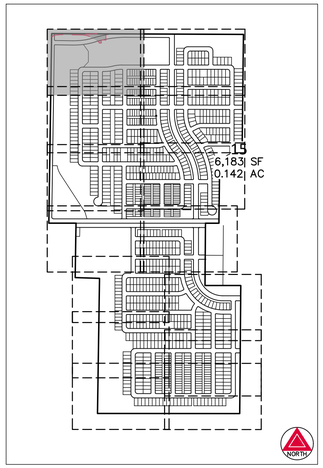
DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=200'
SHEET 2 OF 16	

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001

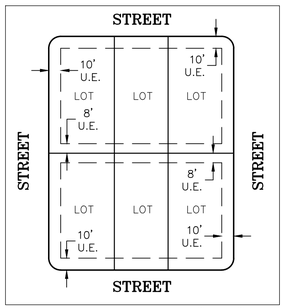




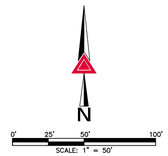
KEY MAP
SCALE: 1" = 1000'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- [1] FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- [2] FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- [3] FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER



EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'



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DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES - 1,053 LOTS / 53 TRACTS PP-22-001

SEE SHEET 3

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR - NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER

S89°44'48"E 2680.42'

964.58'

CENTER 1/4 COR., SEC. 5, T2N, R67W, 6TH P.M. FOUND NO. 6 REBAR WITH 2-1/2" ALUM. CAP STAMPED "LS 23500"

150' RADIUS WELL SITE TYP.

350' RADIUS WELL SITE TYP.

TRACT K
265,862 SF
6.103 AC

TRACT PP
437,752 SF
10.049 AC

TRACT E
12,150 SF
0.279 AC

DRIVE A

TRACT H
17,897 SF
0.411 AC

TRACT I
17,897 SF
0.411 AC

TRACT J
11,498 SF
0.264 AC

50' SETBACK FOR P&A OIL & GAS BUFFER

STREET A (70' WIDE PUBLIC ROW)

STREET C (60' WIDE PUBLIC ROW)

STREET G3 (60' WIDE PUBLIC ROW)

STREET G4 (60' WIDE PUBLIC ROW)

STREET H (60' WIDE PUBLIC ROW)

STREET N (60' WIDE PUBLIC ROW)

STREET O (60' WIDE PUBLIC ROW)

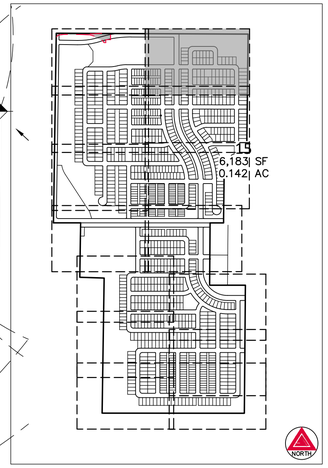
STREET S (60' WIDE PUBLIC ROW)

REET B — STREET B (PUBLIC ROW WIDTH VARIES)

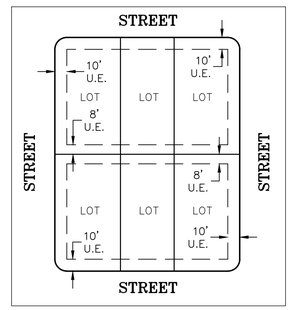
S00°40'03"W 1848.62'

SEE SHEET 6

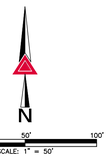
SEE SHEET 6



KEY MAP
SCALE: 1" = 1000'



EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'



FOR REVIEW

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300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
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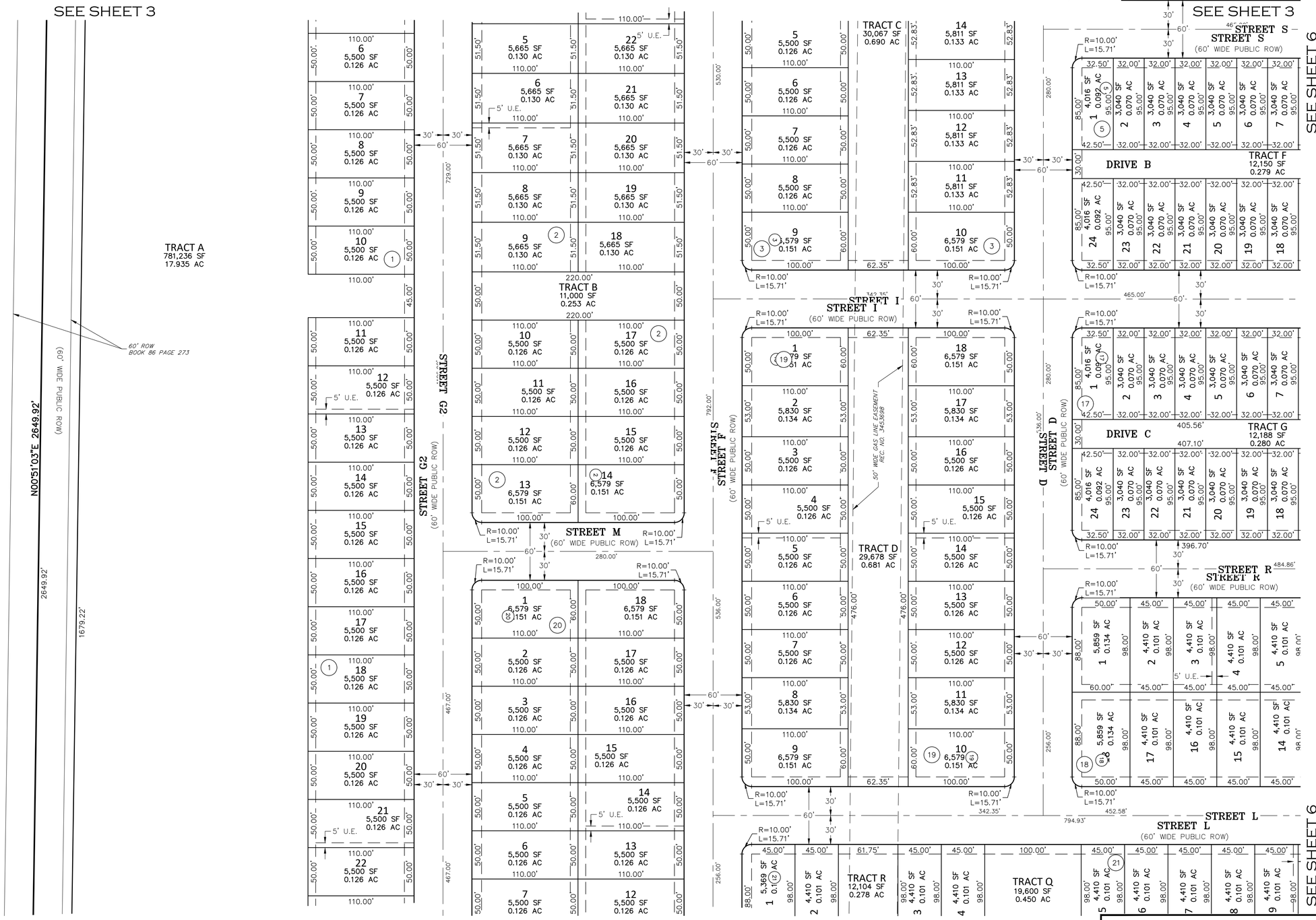
AzTec Proj. No.: 157922-01 Drawn By: RDR

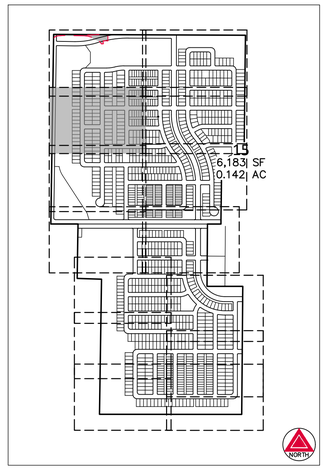
DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES - 1,053 LOTS / 53 TRACTS PP-22-001





KEY MAP
SCALE: 1" = 1000'

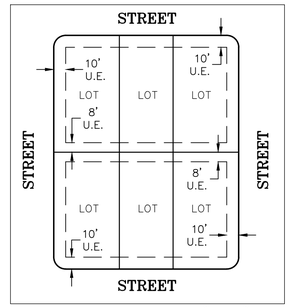
LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- (1) FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- (2) FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- (3) FOUND BENT NO. 5 REBAR - NORTH

U.E. UTILITY EASEMENT

(ROW) RIGHT-OF-WAY

(##) BLOCK NUMBER



EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

FOR REVIEW

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DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'

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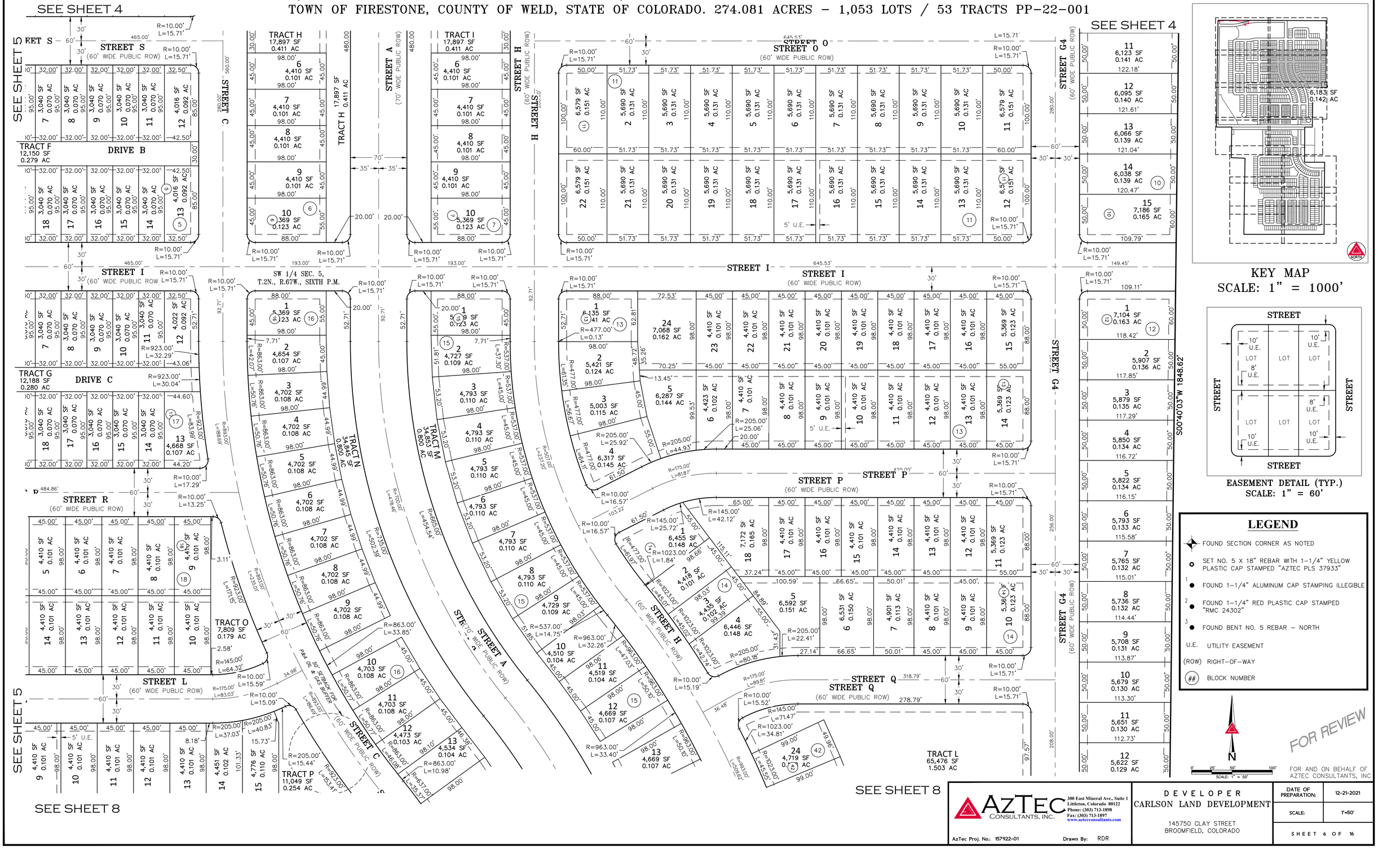
A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



KEY MAP
SCALE: 1" = 1000'

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- [1] FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
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- [3] FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER

N
0' 25' 50' 100'
SCALE: 1" = 50'

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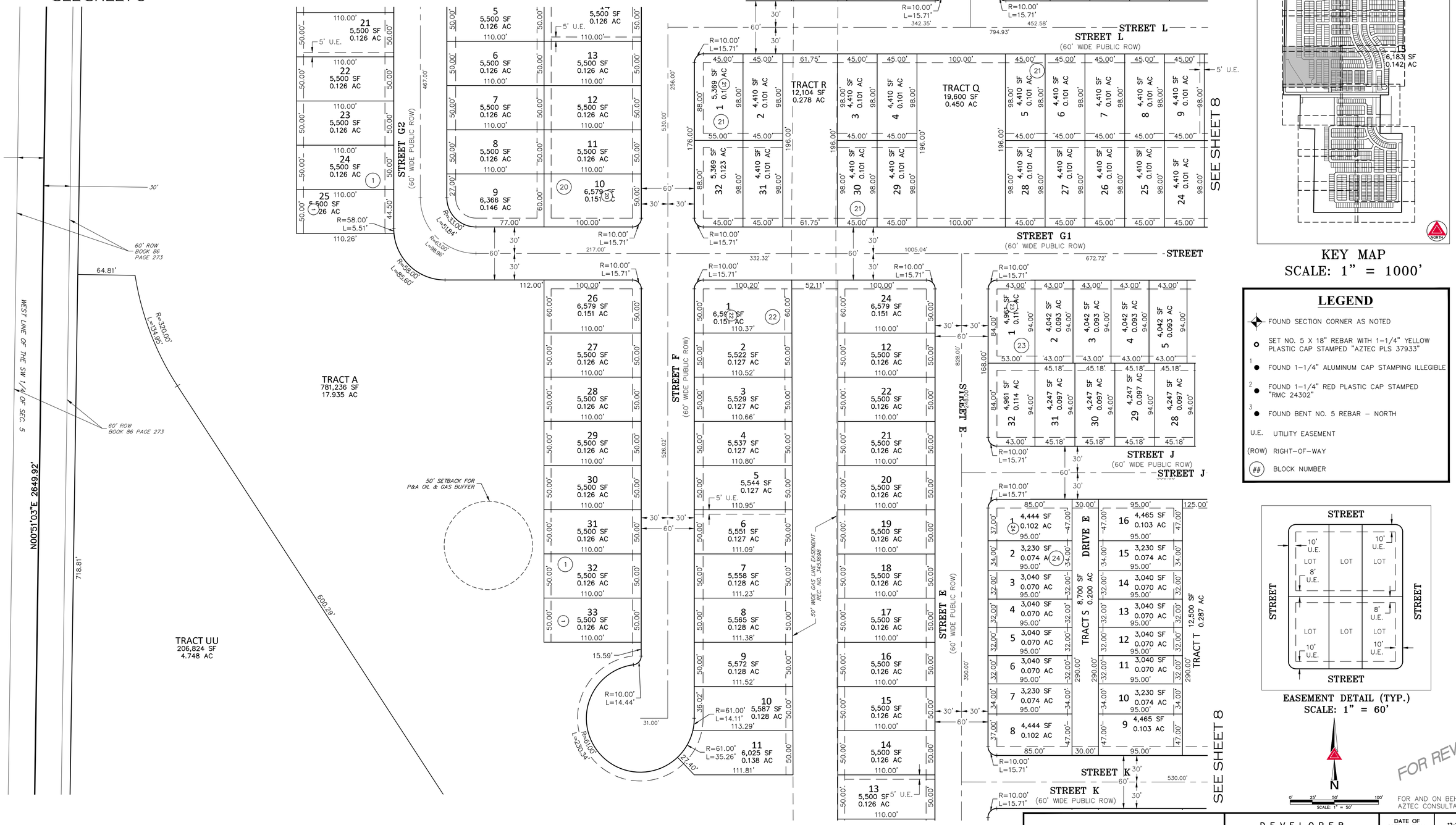
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'
SHEET 6 OF 16	

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



KEY MAP
SCALE: 1" = 1000'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

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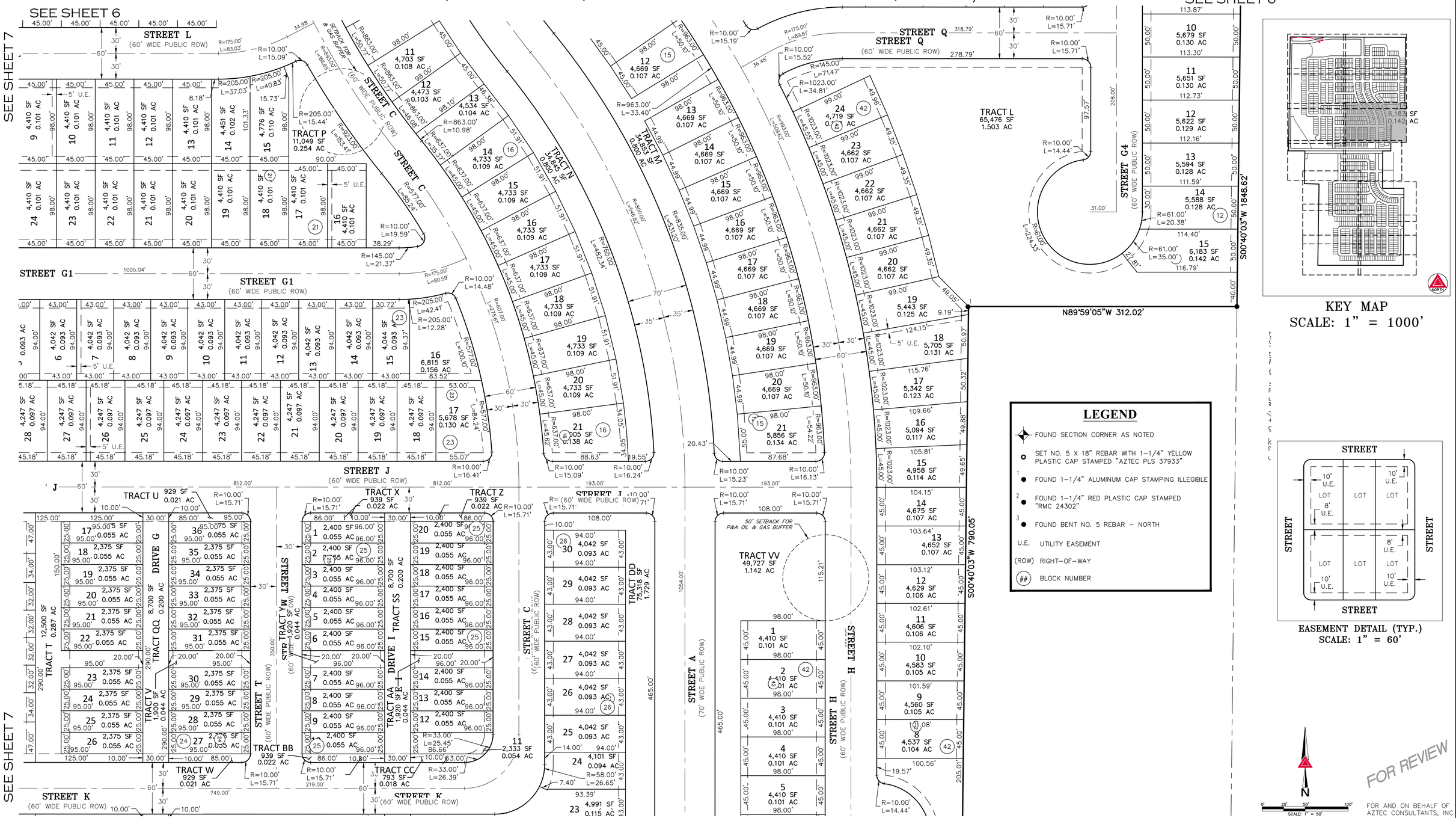
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'

SHEET 7 OF 16

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



KEY MAP
SCALE: 1" = 1000'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

FOR REVIEW

FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC

AZTEC CONSULTANTS, INC.
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Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

AzTec Proj. No: 157922-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001

SEE SHEET 7

N00°51'03"E 2649.92'

TRACT UU
206,824 SF
4.748 AC

30' U.E.

R=25.00'
L=39.63'

468.42'

R=80.00'
L=49.57'

73.50'

30'

30' U.E.

471.78'

111.81'

50' WIDE GAS LINE EASEMENT REC. NO. 3453698

TRACT A
781,236 SF
17.935 AC

50' WIDE GAS LINE EASEMENT REC. NO. 3453698

SEE SHEET 7

110.00'

13
5,500 SF
0.126 AC
5' U.E.

50.00'

110.00'

12
5,500 SF
0.126 AC
(22)

50.00'

110.00'

63.00'

R=15.00'
L=23.56'

90.00'

828.00'

R=10.00'
L=15.71'

STREET K
60'
30'
530.00'

STREET K
(60' WIDE PUBLIC ROW)

R=10.00'
L=15.71'

85.00'
30.00'
95.00'
95.00'

1
3,969 SF
0.091 AC
95.00'
(25)

2
3,040 SF
0.070 AC
95.00'

3
3,040 SF
0.070 AC
95.00'
(26)

TRACT EE
DRIVE D
3,180 SF
0.073 AC

6
3,990 SF
0.092 AC
95.00'

5
3,040 SF
0.070 AC
95.00'

4
3,040 SF
0.070 AC
95.00'

42.00'
32.00'
115.00'
106.00'
100.00'

19.00'
220.00'

R=15.00'
L=23.56'

30' U.E.

SEE SHEET 10

15
6,183 SF
0.142 AC

KEY MAP
SCALE: 1" = 1000'

N89°59'05"W 380.06'

POINT OF BEGINNING
PARCEL B

FIRESTONE BOULEVARD

2376.98'

60' ROW
BOOK 86 PAGE 273

(60' WIDE PUBLIC ROW)

60.01'

POINT OF BEGINNING
PARCEL A

POINT OF COMMENCEMENT
PARCEL B
NW COR., SEC. 8,
T2N, R67W, 6TH P.M.
FOUND NO. 6 REBAR
WITH 3" BRASS CAP
NO IDENTIFYING STAMP

SIMPSON
DIANA LYNN
REC. NO. 4223548

54.01'

701.34'

30' U.E.

60' ROW
BOOK 86 PAGE 273

125.19'

125.62'

54.00'

TRACT WW
6,772 SF
0.155 AC

R=15.00'
L=23.56'

90.00'

30'

NORTH LINE OF THE NW 1/4 OF SEC. 8

R=15.00'
L=23.56'

45.00'
45.00'

4,410 SF
0.101 AC
1
98.00'

4,410 SF
0.101 AC
2
98.00'

20.00'
27

45.00'
45.00'

218.00'
103.00'

R=10.00'
L=15.71'

R=10.00'
L=15.71'

54.46'
45.00'

6,295 SF
0.145 AC
1
88.00'
(28)

4,410 SF
0.101 AC
2
98.00'

64.46'
45.00'

26
6,295 SF
0.145 AC
88.00'

4,410 SF
0.101 AC
25
98.00'

54.46'
45.00'

R=10.00'
L=15.71'

60'
30'
30'

STREET AA
(60' WIDE PUBLIC ROW)

615.00'
730.00'

R=10.00'
L=15.71'

54.46'
45.00'

6,295 SF
0.145 AC
1
88.00'

4,410 SF
0.101 AC
2
98.00'

64.46'
45.00'

6,295 SF
0.145 AC
88.00'

4,410 SF
0.101 AC
25
98.00'

(32)
29

60'
30'
30'

SEE SHEET 10

SCHRANZ
NORMAN ERNEST
REC. NO. 4543774

N00°51'17"E 760.60'

575.40'

TRACT GG
1,387,485 SF
31.852 AC

50' WIDE GAS LINE EASEMENT REC. NO. 1417892

350' RADIUS WELL SITE TYP.

33' WIDE GAS LINE EASEMENT REC. NO. 1417892

50' WIDE GAS LINE EASEMENT REC. NO. 1417892

33' WIDE GAS LINE EASEMENT REC. NO. 1417892

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- (##) BLOCK NUMBER

STREET

STREET

STREET

10' U.E.
LOT
8' U.E.
LOT
LOT
10' U.E.
8' U.E.
LOT
LOT
LOT
10' U.E.
10' U.E.

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

N

0' 25' 50' 100'
SCALE: 1" = 50'

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SEE SHEET 8

SEE SHEET 9

STREET K (60' WIDE PUBLIC ROW)

STREET A (70' WIDE PUBLIC ROW)

STREET MM (70' WIDE PUBLIC ROW)

STREET DD1 (60' WIDE PUBLIC ROW)

STREET DD2 (70' WIDE PUBLIC ROW)

STREET EE (60' WIDE PUBLIC ROW)

FIRESTONE BOULEVARD

TRACT RR 3,300 SF 0.076 AC DRIVE F

TRACT TT 3,300 SF 0.076 AC DRIVE H

TRACT DD 75,318 SF 1.729 AC

TRACT FF 62,266 SF 1.429 AC

TRACT KK 36,633 SF 0.841 AC

TRACT LL 93,278 SF 2.141 AC

DIONYSIUS ERICA R REC. NO. 4304851

RIOS BLANCO RUBEN D REC. NO. 3690106

DIONYSIUS DANA REC. NO. 4304792

15' IRRIGATION EASEMENT REC. NO. 3363227

60' ROW BOOK 86 PAGE 273

S00°40'03"W 790.05'

S00°27'54"W 504.02'

N89°59'05"W 187.99'

2376.98'

SEE SHEET 11

SEE SHEET 12

KEY MAP
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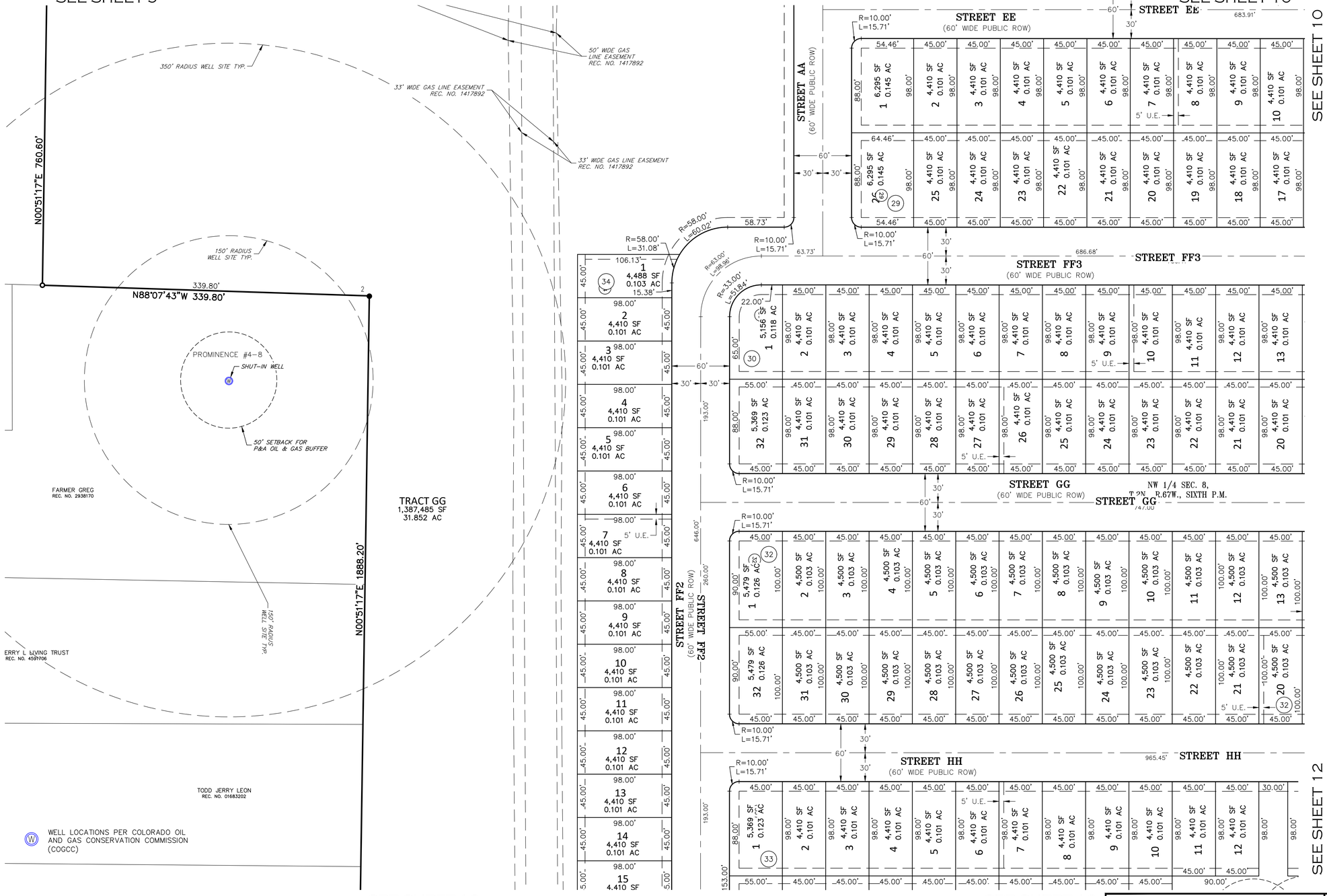

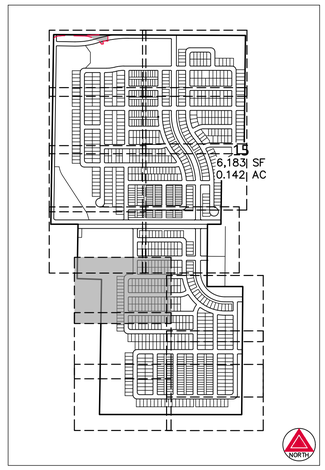

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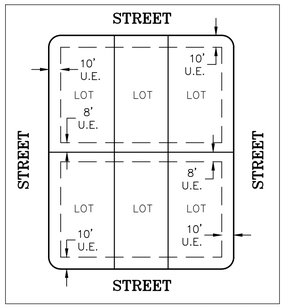

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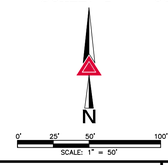

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SHEET 11 OF 16	

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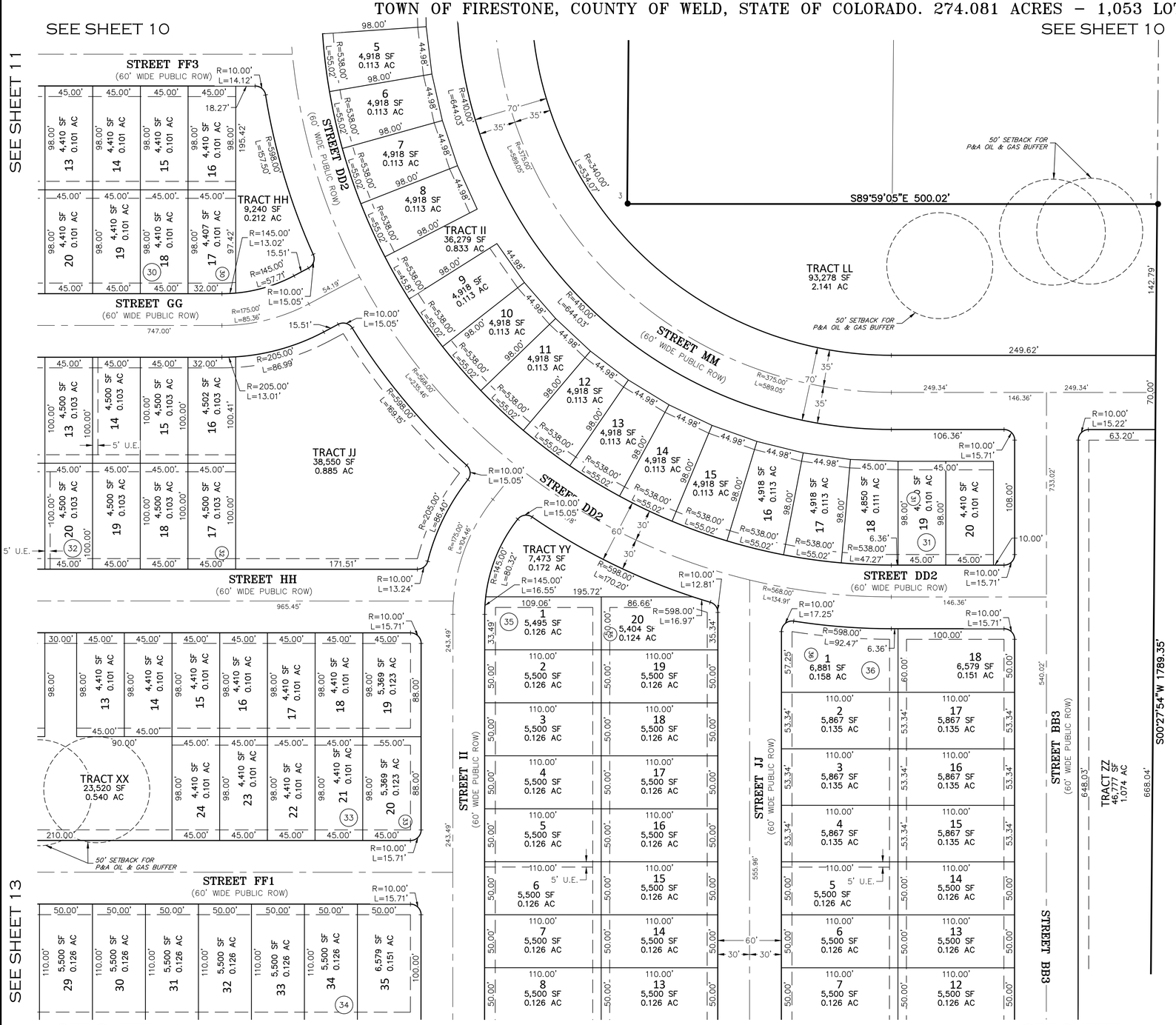

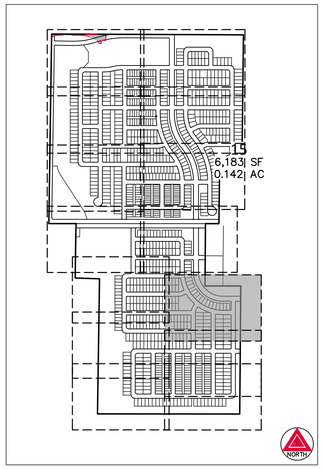

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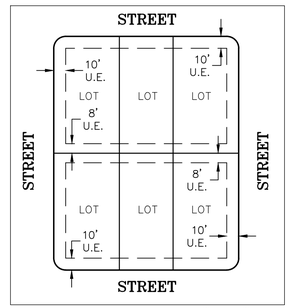

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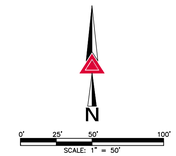

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SHEET 12 OF 16	

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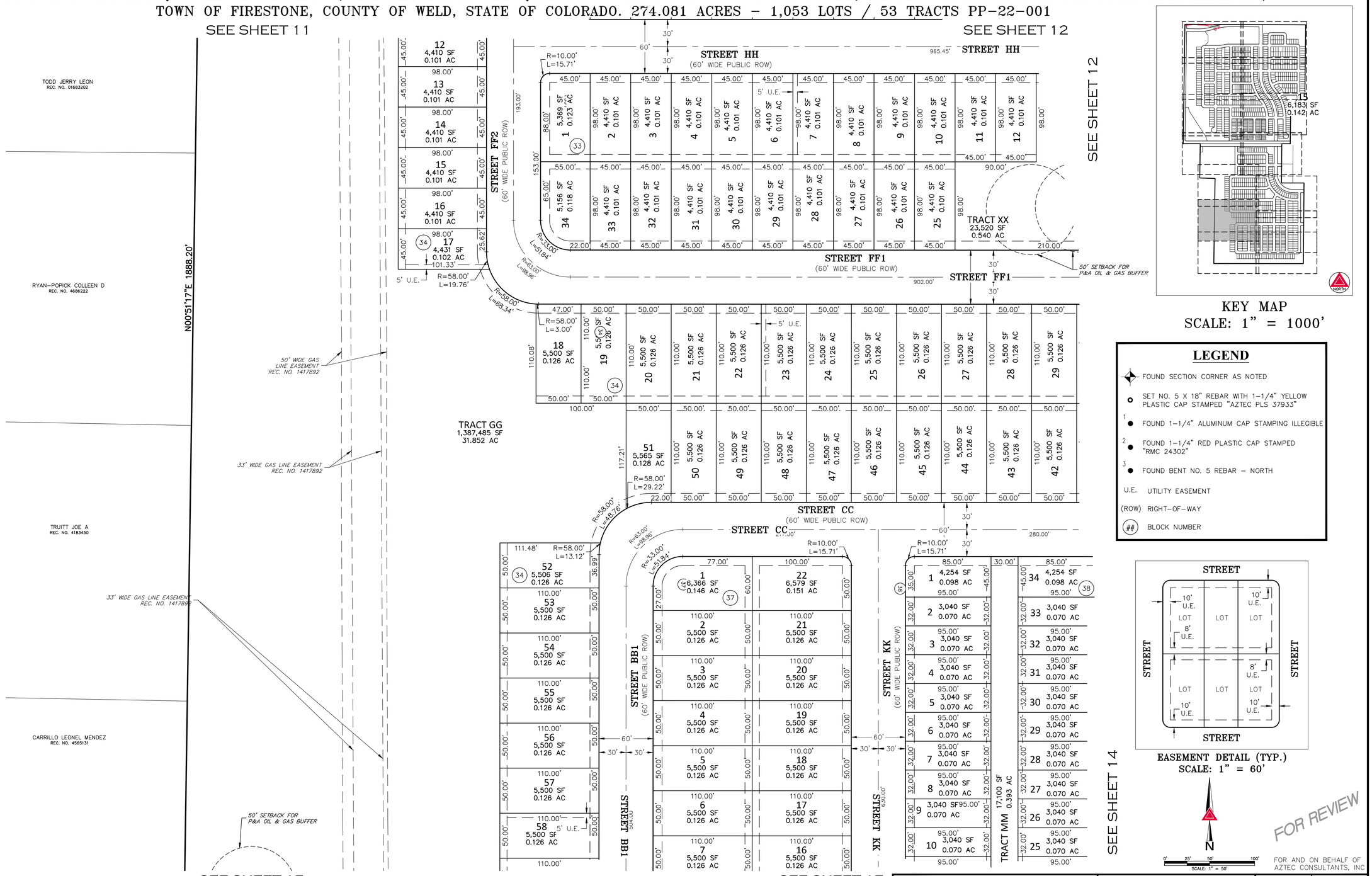

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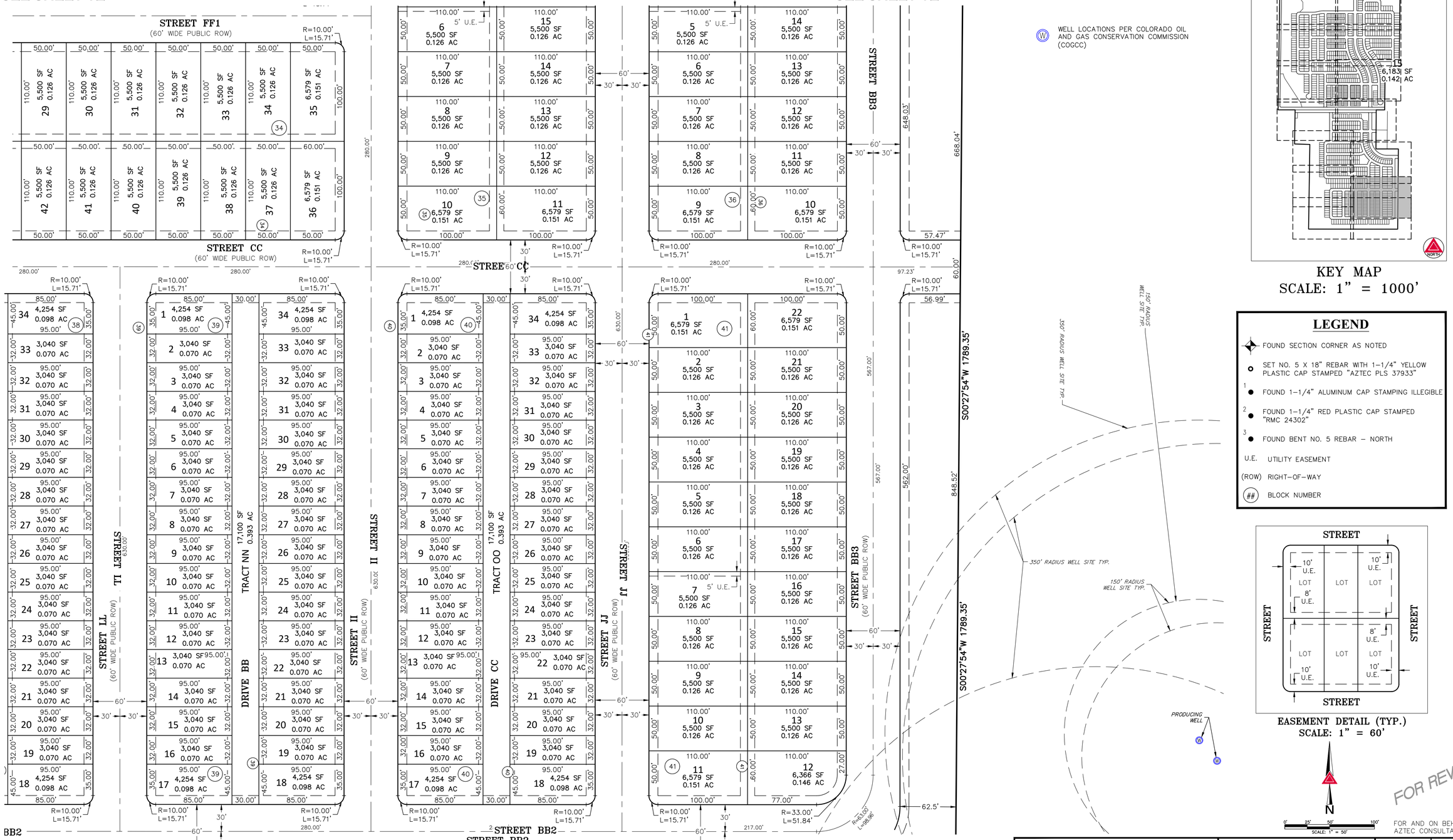
SEE SHEET 12

SEE SHEET 12

SEE SHEET 13



SEE SHEET 15

SEE SHEET 16

SEE SHEET 16

(W) WELL LOCATIONS PER COLORADO OIL AND GAS CONSERVATION COMMISSION (COGCC)

KEY MAP
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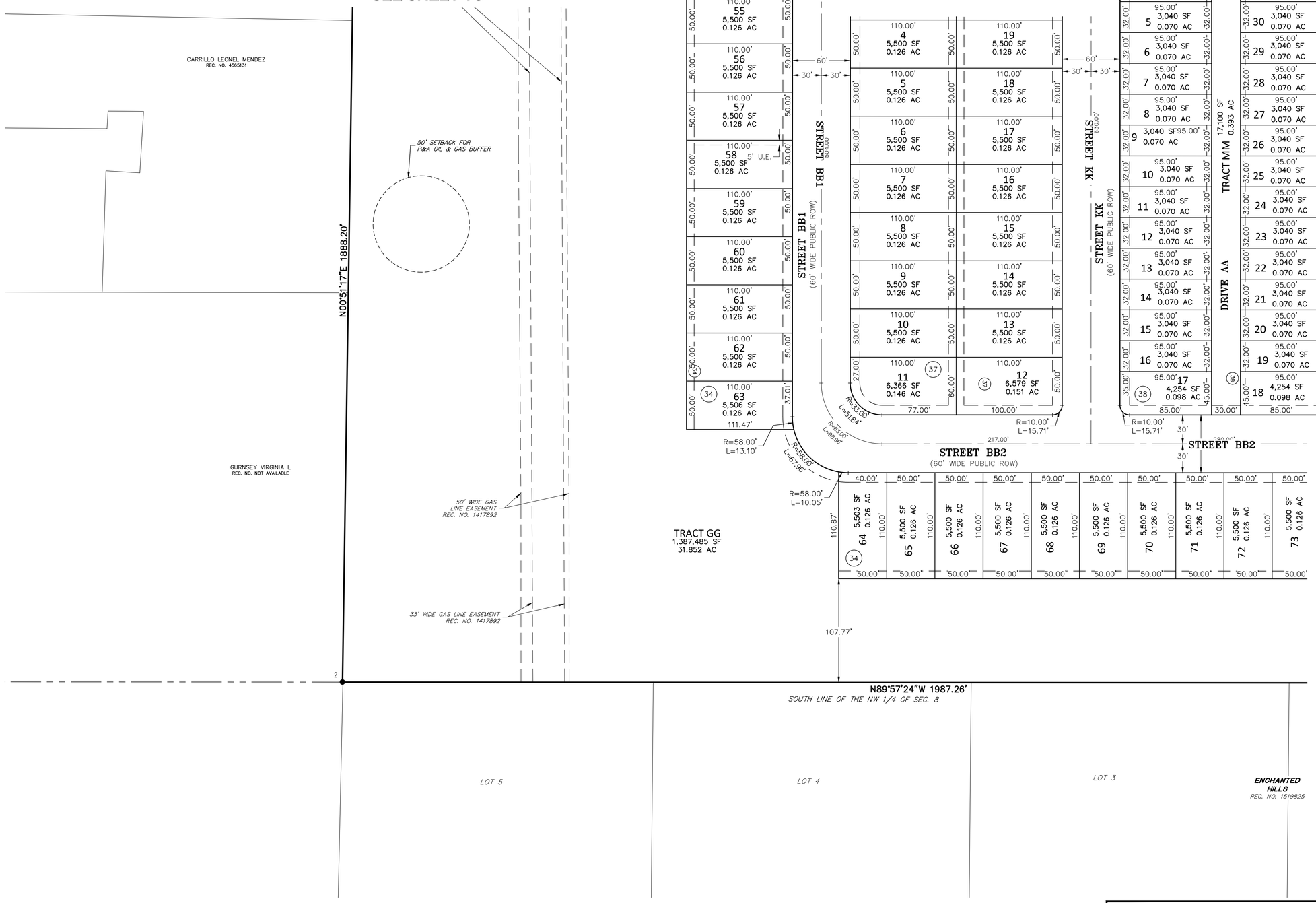
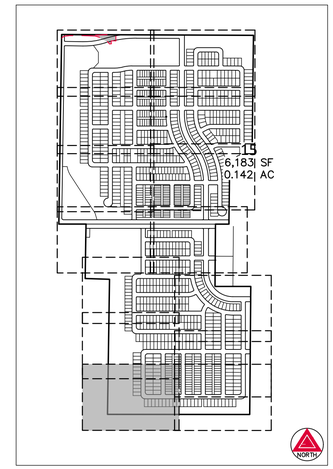
SEE SHEET 13



SEE SHEET 13

SEE SHEET 16



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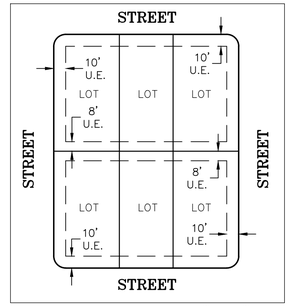

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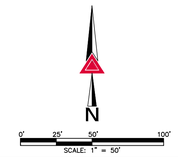

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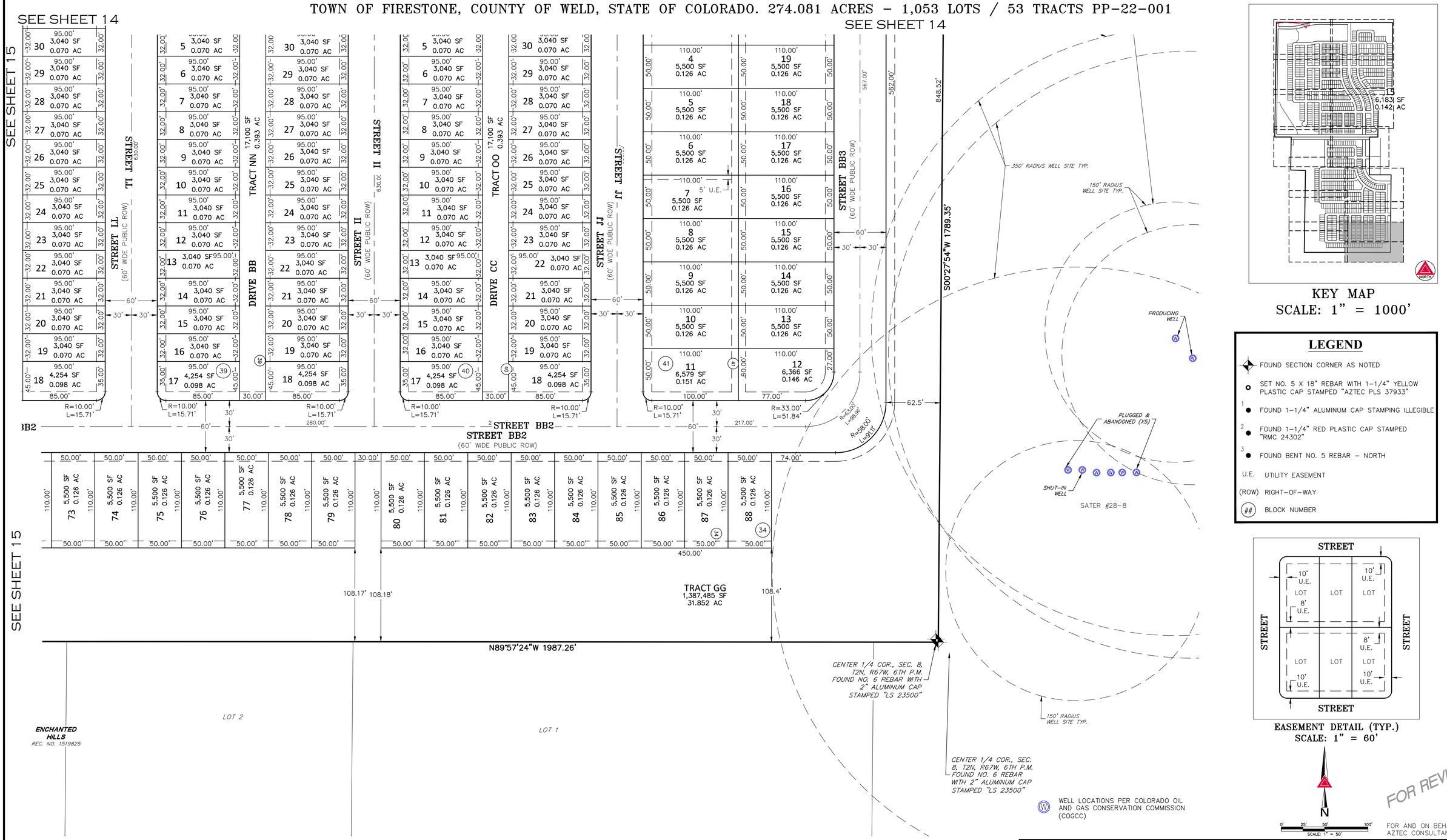


KEY MAP
SCALE: 1" = 1000'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

N

0' 25' 50' 100'
SCALE: 1" = 50'

FOR REVIEW

FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC

WELL LOCATIONS PER COLORADO OIL AND GAS CONSERVATION COMMISSION (COGCC)

AZTEC CONSULTANTS, INC.
300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

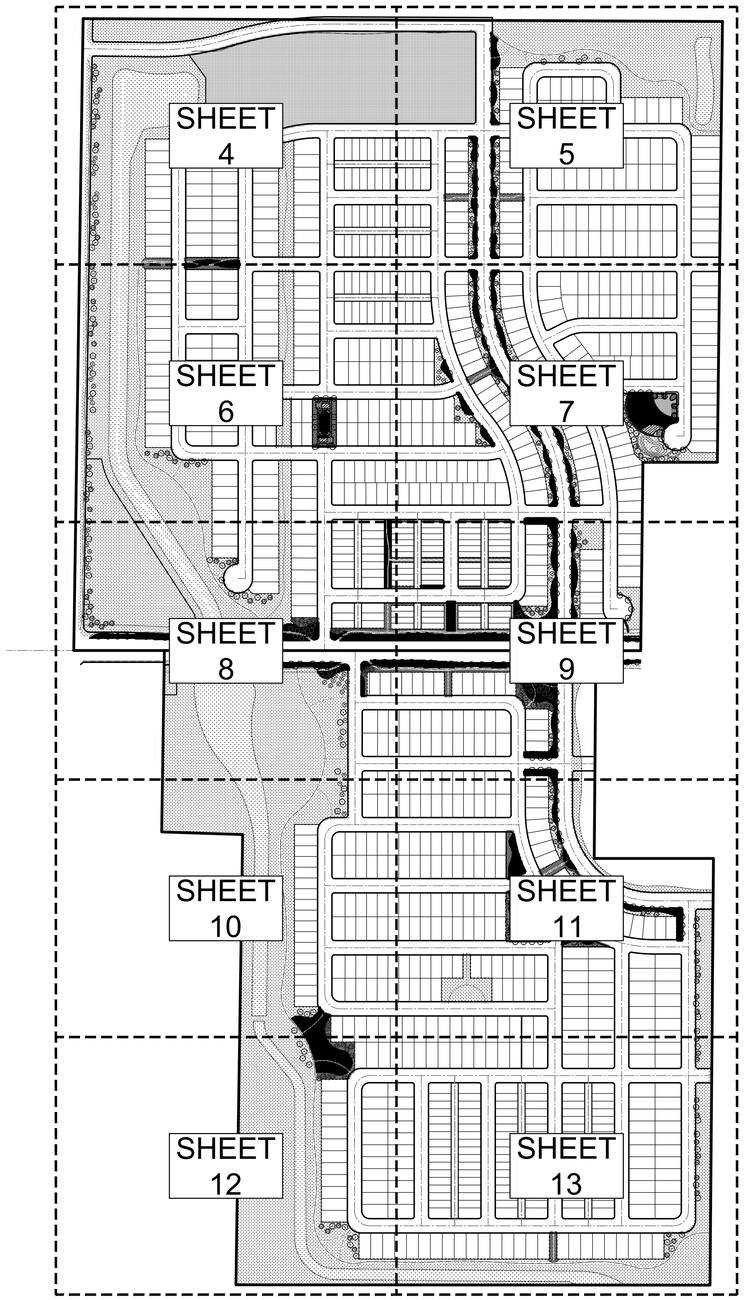
AzTec Proj. No.: 157922-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=50'
SHEET 16 OF 16	

VISTOSA PRELIMINARY PLAT

SITUATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO
274.081 ACRES - 1,053 RESIDENTIAL LOTS / 54 TRACTS
PP-22-001



SEVEN DESIGN
LANDSCAPE ARCHITECTURE
PLANNING
5856 S. LOWELL BLVD, UNIT 32 #260
LITTLETON, CO 80123
303-883-3278
CMARCH@SEVEN29DESIGN.COM

North
0 150 300
SCALE: 1"=300'-0"

PROJECT NUMBER	21004
DATE	DECEMBER 22, 2021

NO.	REVISION	DATE
1	TOWN COMMENTS	2022-05-06

OVERALL LANDSCAPE PLAN

VISTOSA PRELIMINARY PLAT

SITUATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
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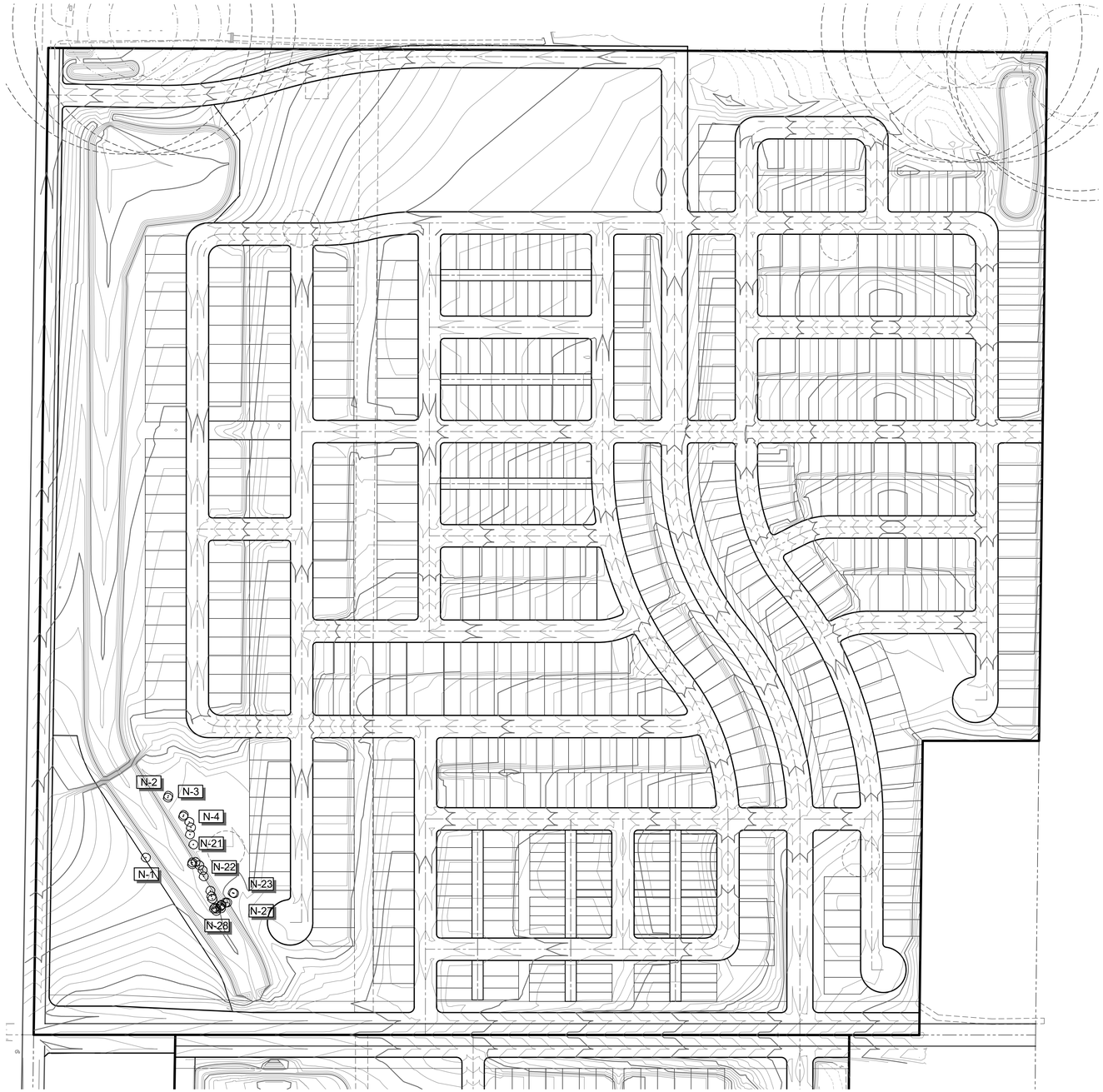

LEGEND

SYMBOL	DESCRIPTION
×	EXISTING DECIDUOUS TREE TO BE REMOVED
#	TREE NUMBER

TREE INVENTORY - NORTH PARCEL

KEY	COMMON NAME	CALIPER (IN)	CONDITION	PERCENT	STATUS	COMMENTS
N-1	RUSSIAN OLIVE	13	POOR	60%	REMOVE	NOXIOUS WEED
N-2	JUNIPER SP	NA	NA	0%	REMOVE	DEAD
N-3	RUSSIAN OLIVE	MULTI-STEM	FAIR	75%	REMOVE	NOXIOUS WEED
N-4	SIBERIAN ELM	MULTI-STEM	POOR	40%	REMOVE	
N-5	SIBERIAN ELM	17	POOR	20%	REMOVE	
N-6	SIBERIAN ELM	<6	POOR	20%	REMOVE	
N-7	SIBERIAN ELM	<6	POOR	20%	REMOVE	
N-8	SIBERIAN ELM	<6	POOR	20%	REMOVE	
N-9	SIBERIAN ELM	<6	POOR	20%	REMOVE	
N-10	SIBERIAN ELM	17	POOR	20%	REMOVE	
N-11	SIBERIAN ELM	11	POOR	55%	REMOVE	
N-12	SIBERIAN ELM	12	FAIR	70%	REMOVE	
N-13	RUSSIAN OLIVE	NA	NA	0%	REMOVE	DEAD
N-14	COTTONWOOD	7	POOR	50%	REMOVE	
N-15	COTTONWOOD	<4	POOR	60%	REMOVE	
N-16	RUSSIAN OLIVE	5	POOR	20%	REMOVE	NOXIOUS WEED
N-17	RUSSIAN OLIVE	9	POOR	30%	REMOVE	NOXIOUS WEED
N-18	COTTONWOOD	17	POOR	60%	REMOVE	
N-19	COTTONWOOD	12	POOR	50%	REMOVE	
N-20	COTTONWOOD	20	POOR	60%	REMOVE	
N-21	SIBERIAN ELM	8	POOR	60%	REMOVE	
N-22	SIBERIAN ELM	<5	POOR	20%	REMOVE	DOG-HAIR STAND
N-23	COTTONWOOD	12	POOR	20%	REMOVE	
N-24	SIBERIAN ELM	8	POOR	40%	REMOVE	
N-25	SIBERIAN ELM	MULTI-STEM	POOR	35%	REMOVE	
N-26	SIBERIAN ELM	8	POOR	40%	REMOVE	
N-27	COTTONWOOD	MULTI-STEM	POOR	60%	REMOVE	
N-28	SIBERIAN ELM	4	POOR	5%	REMOVE	

NOTES: ALL TREES APPEAR TO BE NATURAL GROWN, NOT PLANTED

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North
0 80 160
SCALE: 1"=160'-0"

PROJECT NUMBER	21004
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1	TOWN COMMENTS	2022-05-06

EXISTING VEGETATION-NORTH

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LEGEND

SYMBOL	DESCRIPTION
×	EXISTING DECIDUOUS TREE TO BE REMOVED
#	TREE NUMBER

TREE INVENTORY - SOUTH PARCEL

KEY	COMMON NAME	SIZE (IN)	CONDITION	PERCENT	STATUS	COMMENTS
S-1	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-2	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-3	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-4	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-5	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-6	WILLOW	MULTI-STEM	POOR	35%	REMOVE	
S-6B	WILLOW	MULTI-STEM	POOR	35%	REMOVE	
S-6C	WILLOW	MULTI-STEM	POOR	35%	REMOVE	
S-7	RUSSIAN OLIVE	NA	NA	0%	REMOVE	DEAD
S-8	RUSSIAN OLIVE	NA	NA	0%	REMOVE	DEAD
S-9	RUSSIAN OLIVE	NA	NA	0%	REMOVE	DEAD
S-10	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-11	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-12	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED
S-13	SIBERIAN ELM	2	POOR	50%	REMOVE	NOXIOUS WEED
S-14	SIBERIAN ELM	4	POOR	50%	REMOVE	NOXIOUS WEED
S-15	RUSSIAN OLIVE	13	FAIR	70%	REMOVE	NOXIOUS WEED
S-16	RUSSIAN OLIVE	MULTI-STEM	POOR	40%	REMOVE	NOXIOUS WEED

NOTES: ALL TREES APPEAR TO BE NATURAL GROWN, NOT PLANTED

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North
0 80 160
SCALE: 1"=160'-0"

PROJECT NUMBER	21004
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EXISTING VEGETATION-SOUTH

VISTOSA PRELIMINARY PLAT

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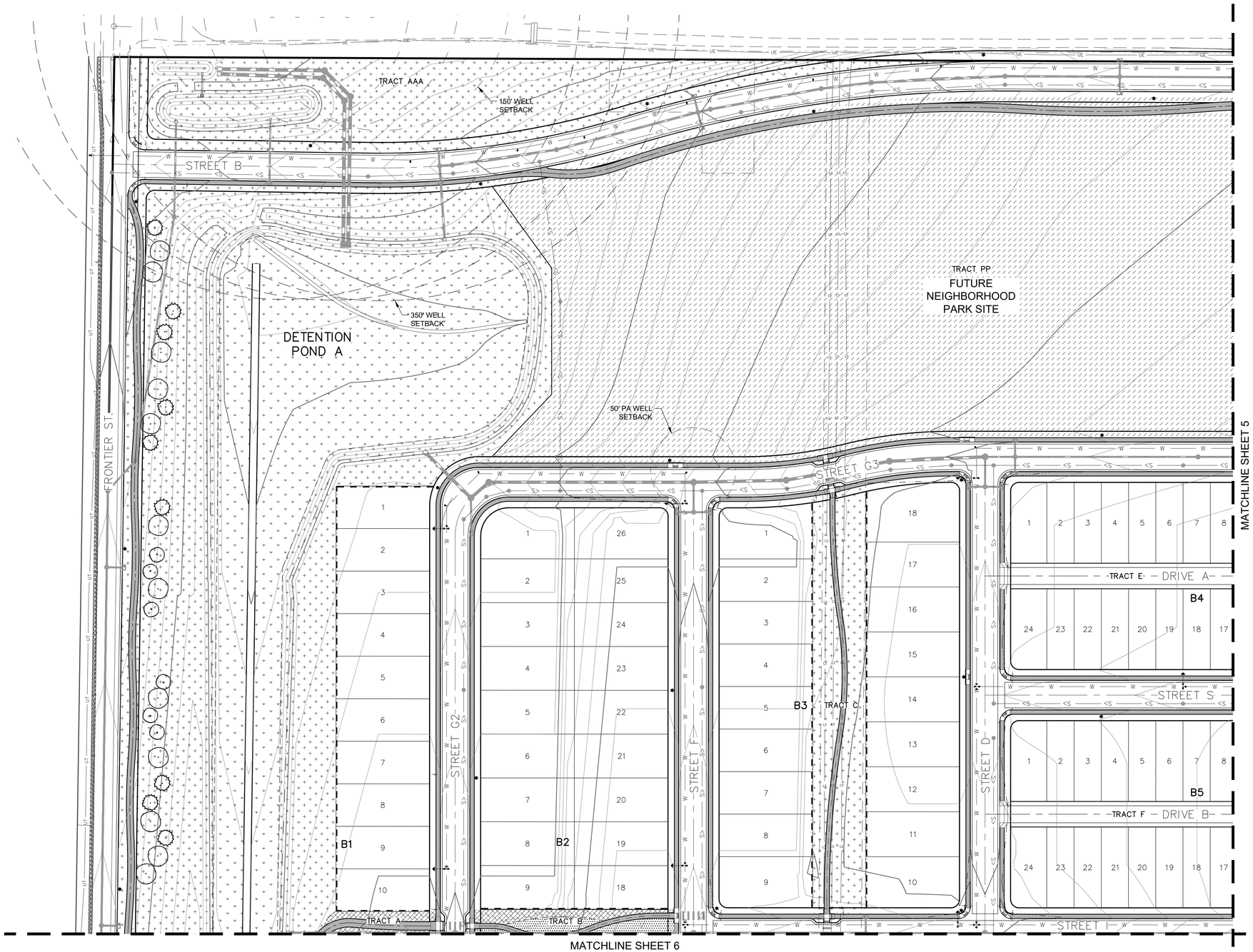
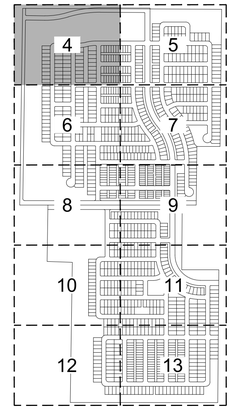


LEGEND

SYMBOL	DESCRIPTION
	DECIDUOUS SHADE TREE
	EVERGREEN TREE
	ORNAMENTAL TREE
	TEXAS HYBRID SOD
	UPLAND NATIVE SEED
	WETLAND NATIVE SEED
	SHRUB BEDS
	CONCRETE PAVING
	10 FOOT CONCRETE TRAIL
	6 FOOT CONCRETE TRAIL
	5 FOOT CONCRETE WALK
	OPEN RAIL FENCE

KEY MAP



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303-883-3278
CMARCH@SEVEN29DESIGN.COM

North
0 30 60
SCALE: 1"=60'-0"

PROJECT NUMBER	21004
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LANDSCAPE PLAN

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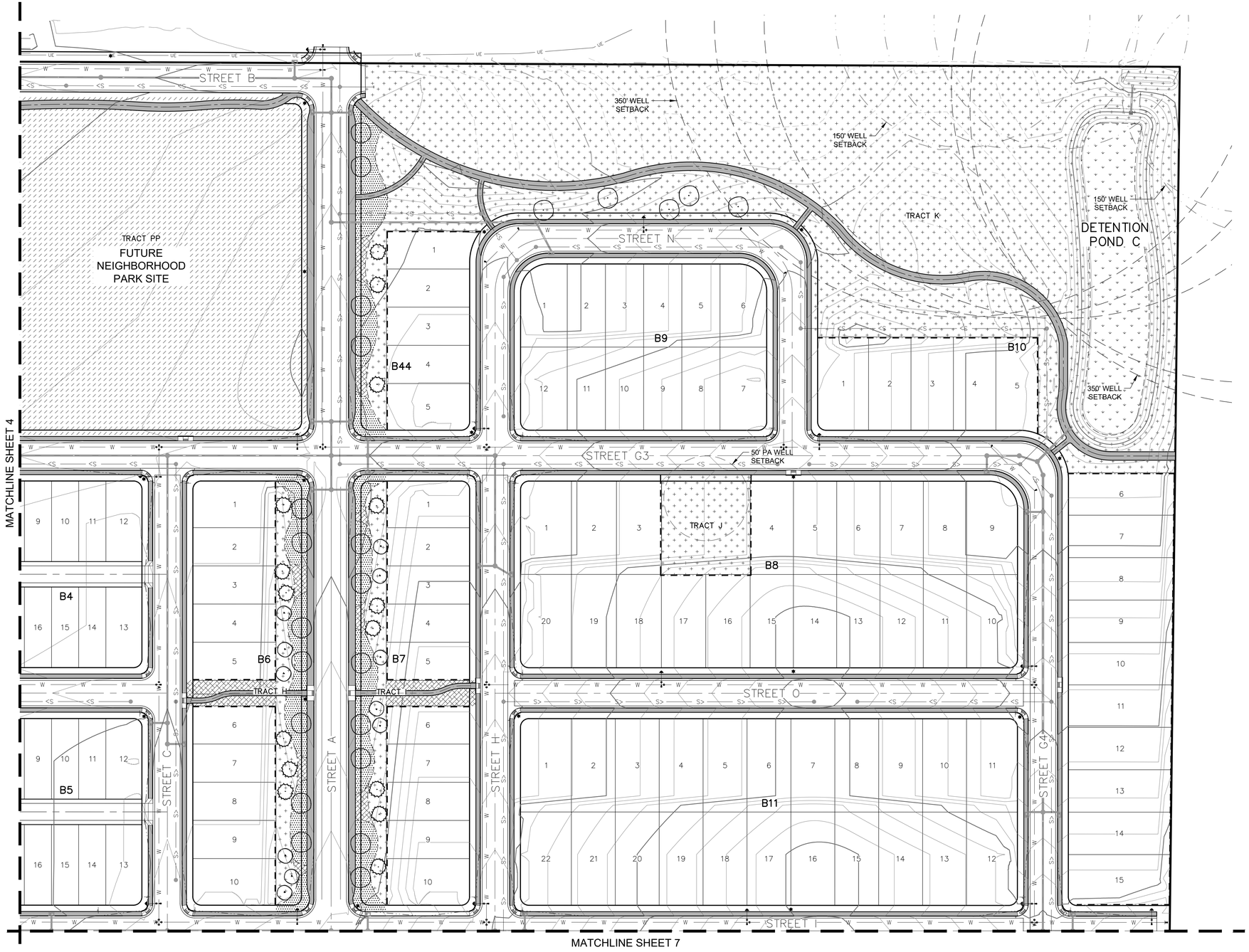

LEGEND

SYMBOL	DESCRIPTION
	DECIDUOUS SHADE TREE
	EVERGREEN TREE
	ORNAMENTAL TREE
	TEXAS HYBRID SOD
	UPLAND NATIVE SEED
	WETLAND NATIVE SEED
	SHRUB BEDS
	CONCRETE PAVING
	10 FOOT CONCRETE TRAIL
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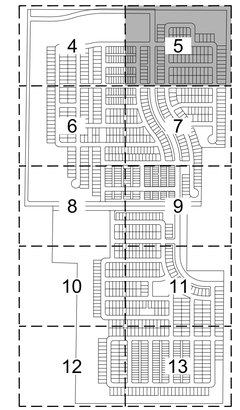
	OPEN RAIL FENCE

KEY MAP



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North
0 30 60
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LANDSCAPE PLAN

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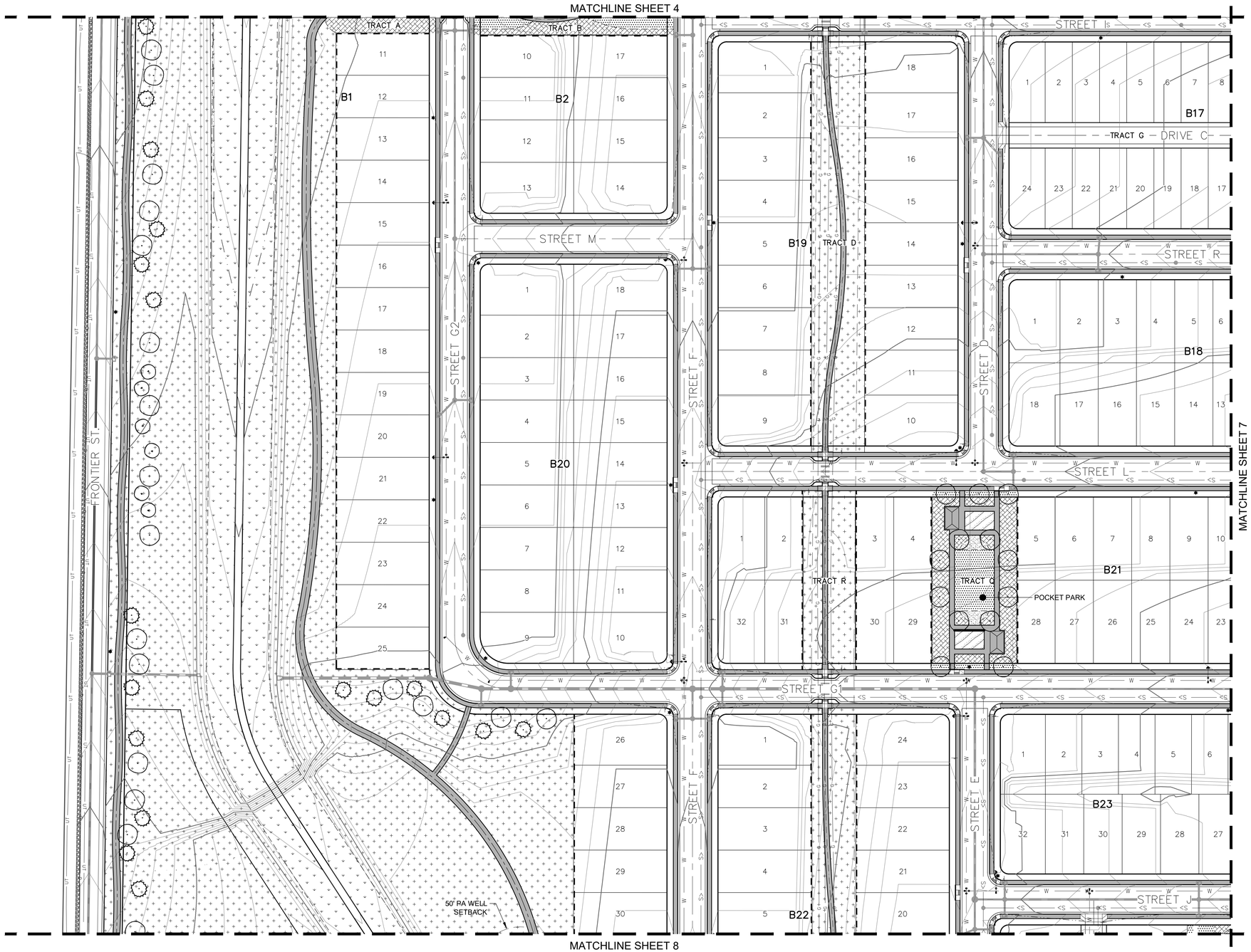

LEGEND

SYMBOL	DESCRIPTION
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	EVERGREEN TREE
	ORNAMENTAL TREE
	TEXAS HYBRID SOD
	UPLAND NATIVE SEED
	WETLAND NATIVE SEED
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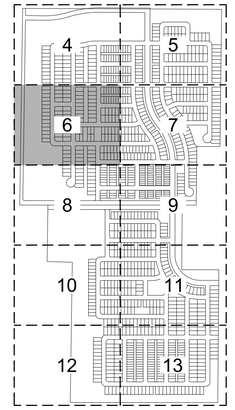
KEY MAP



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LANDSCAPE ARCHITECTURE
PLANNING
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LITTLETON, CO 80123
303-883-3278
CMARCH@SEVEN29DESIGN.COM

North
0 30 60
SCALE: 1"=60'-0"

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LANDSCAPE PLAN

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LEGEND

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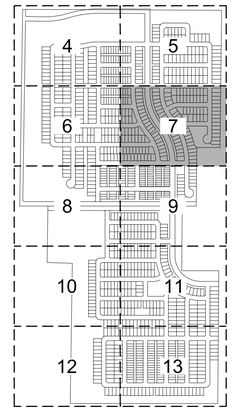

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PLANNING
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LITTLETON, CO 80123
303-883-3278
CMARCH@SEVEN2ODESIGN.COM

North
0 30 60
SCALE: 1"=60'-0"

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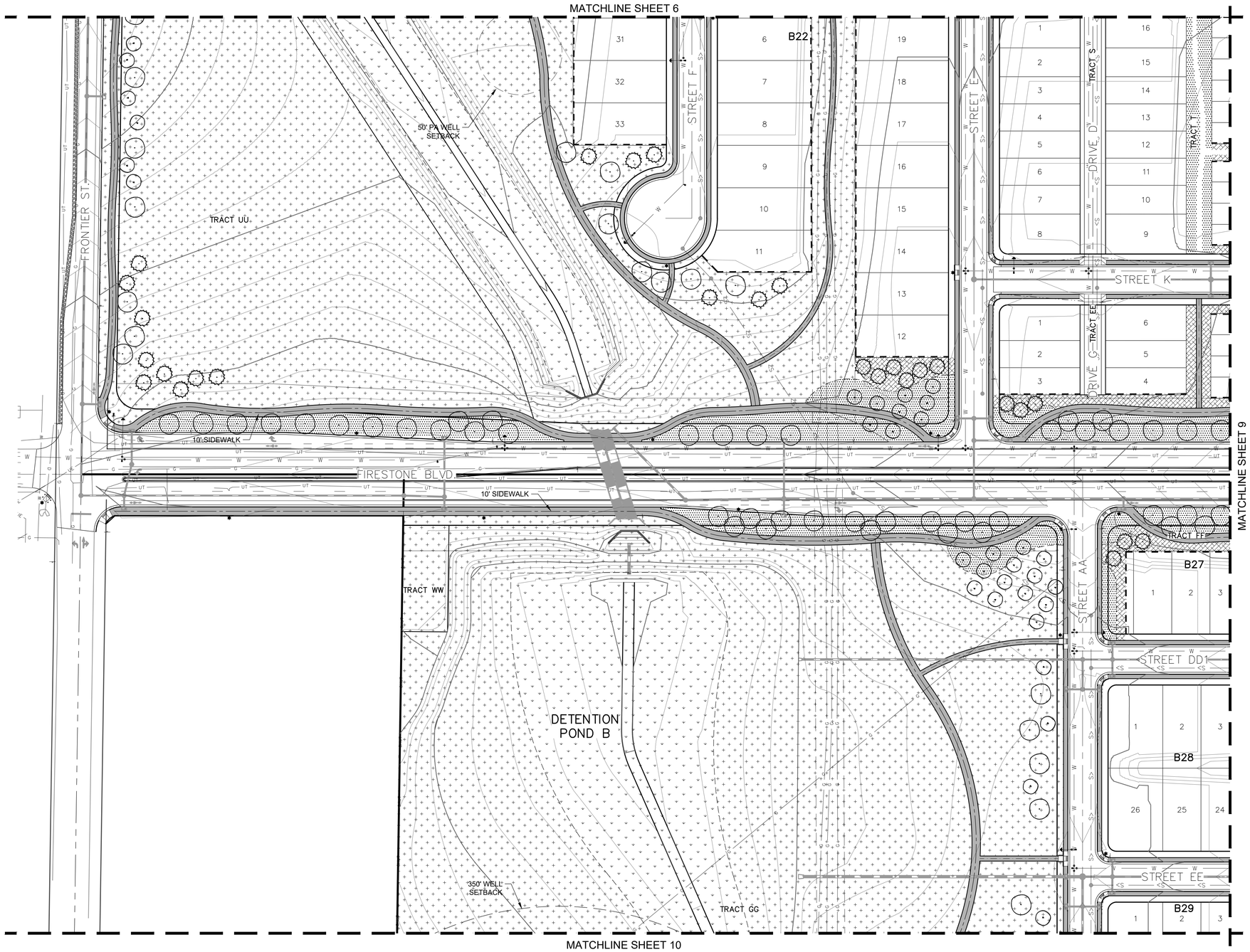

LEGEND

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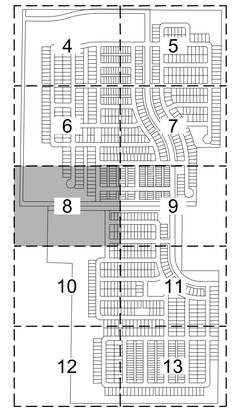

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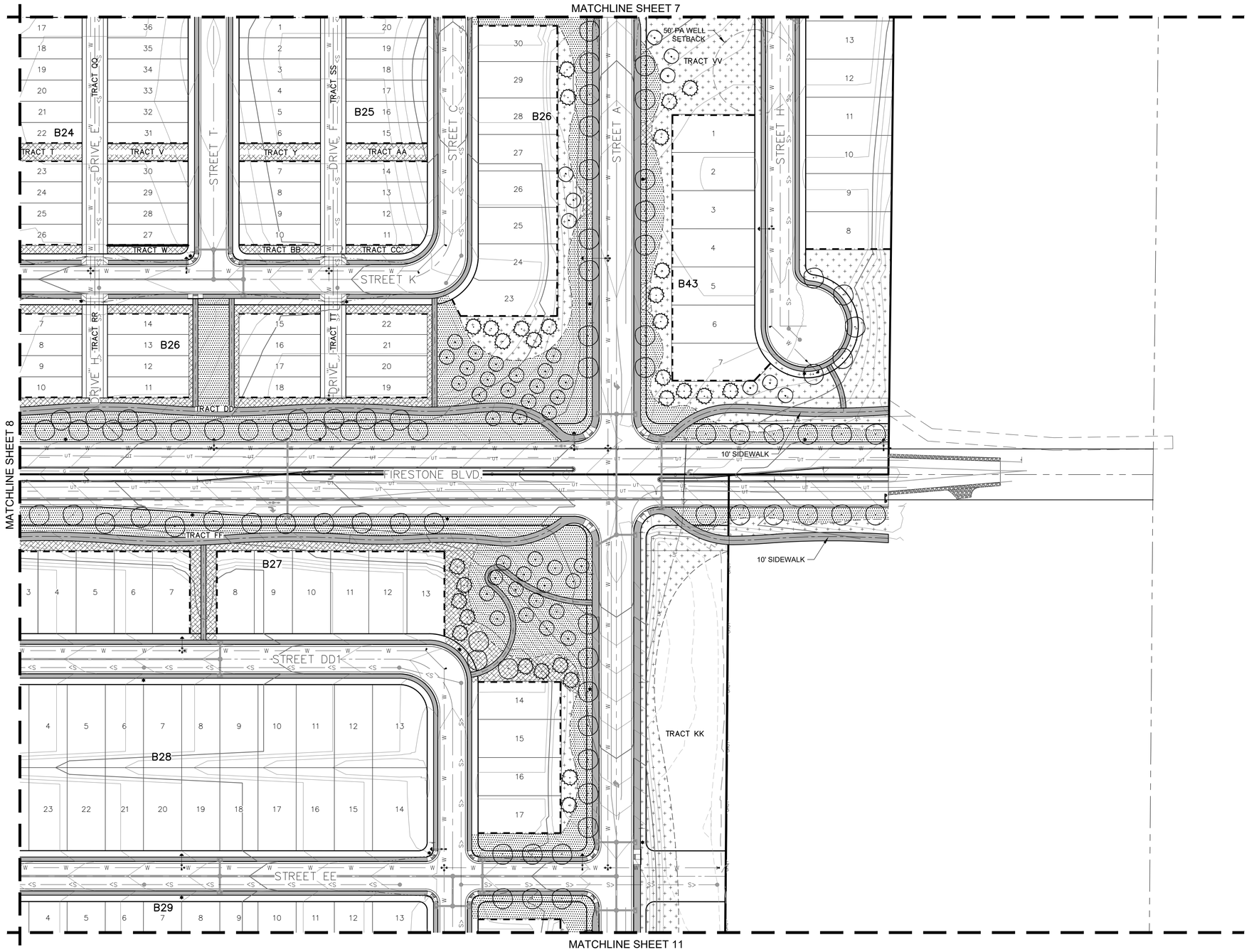

LEGEND

SYMBOL	DESCRIPTION
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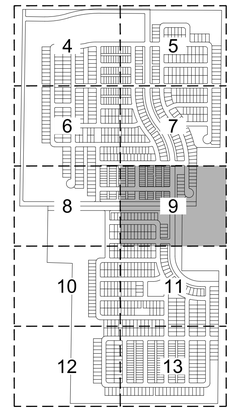
KEY MAP



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North
0 30 60
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LANDSCAPE PLAN

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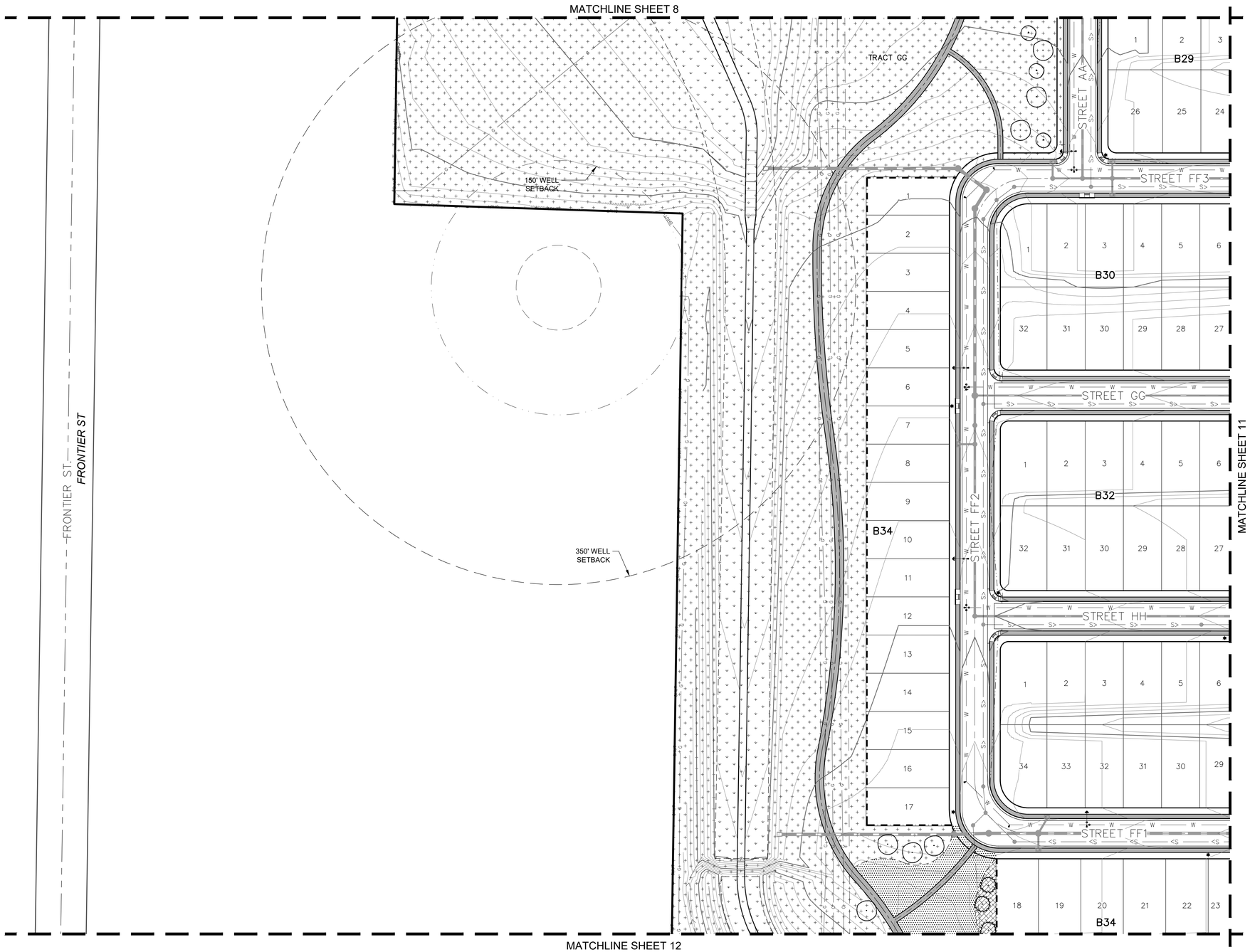

LEGEND

SYMBOL	DESCRIPTION
	DECIDUOUS SHADE TREE
	EVERGREEN TREE
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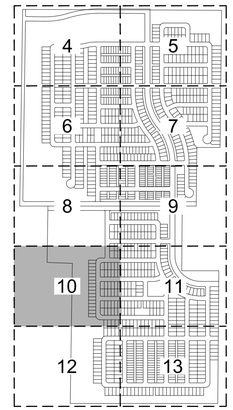

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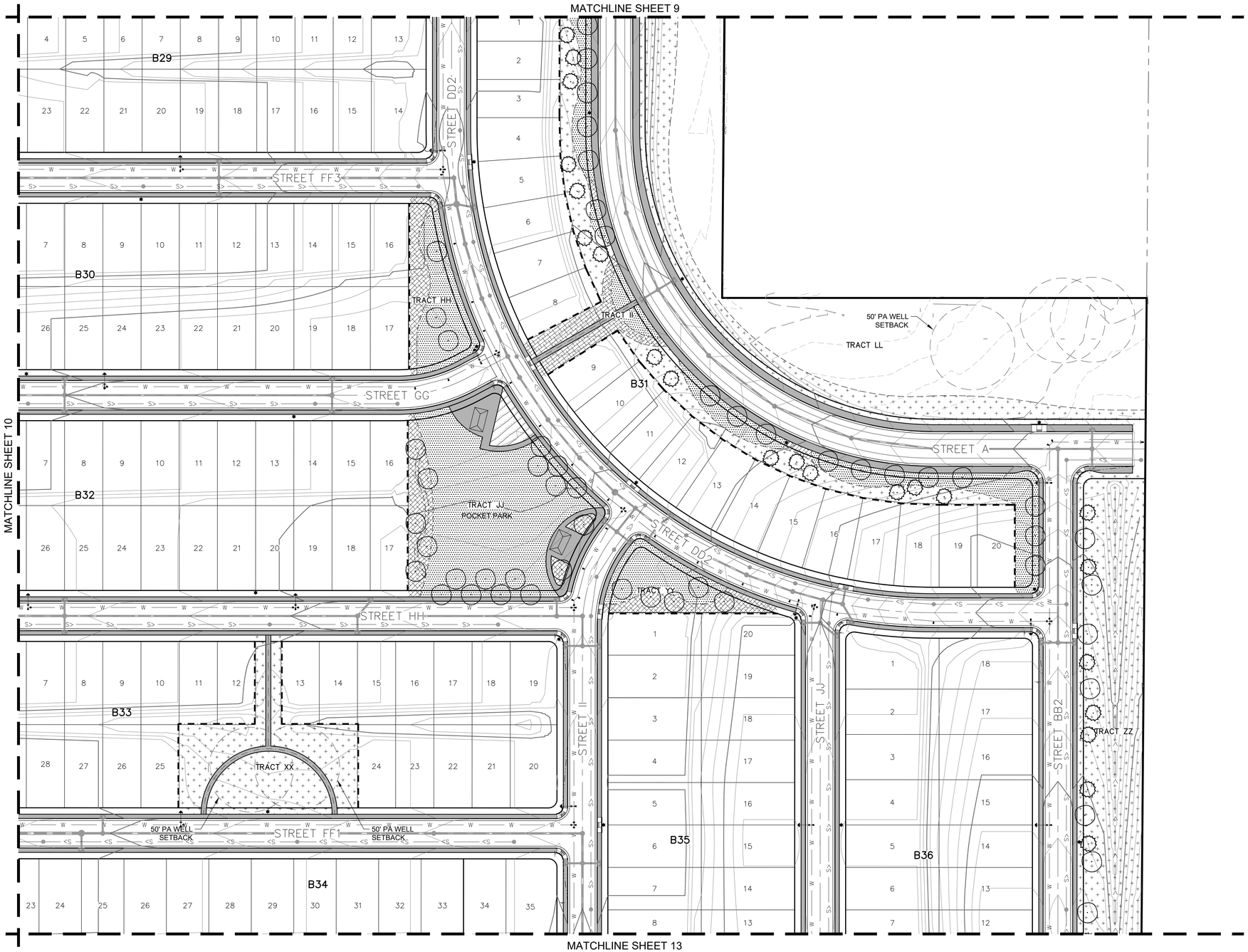

LEGEND

SYMBOL	DESCRIPTION
	DECIDUOUS SHADE TREE
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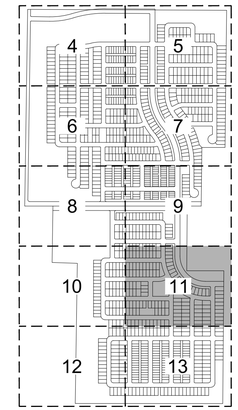


SEVEN DESIGN
LANDSCAPE ARCHITECTURE
PLANNING
5856 S. LOWELL BLVD, UNIT 32 #260
LITTLETON, CO 80123
303-883-3278
CMARCH@SEVEN2DESIGN.COM

North
0 30 60
SCALE: 1"=60'-0"

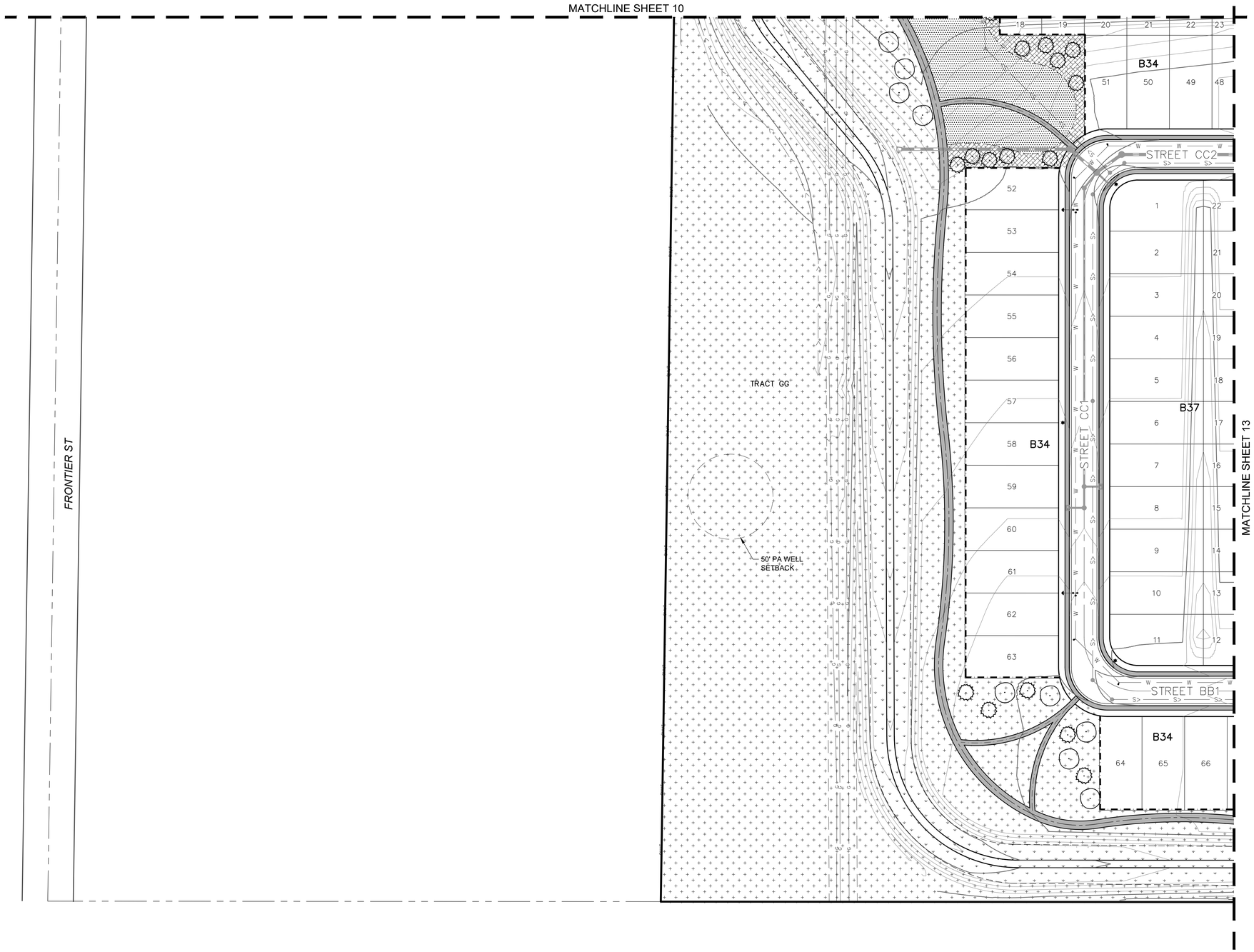
PROJECT NUMBER	21004
DATE	DECEMBER 22, 2021

NO.	REVISION	DATE
1	TOWN COMMENTS	2022-05-06

LANDSCAPE PLAN

VISTOSA PRELIMINARY PLAT

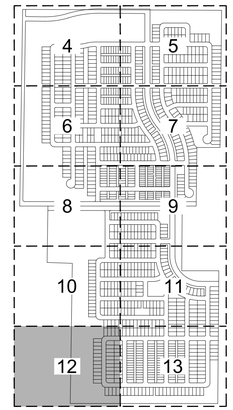
SITUATED IN THE SOUTHWEST QUARTER OF SECTION 5 AND THE NORTHWEST QUARTER OF SECTION 8,
TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO
274.081 ACRES - 1,053 RESIDENTIAL LOTS / 54 TRACTS
PP-22-001



LEGEND

SYMBOL	DESCRIPTION
	DECIDUOUS SHADE TREE
	EVERGREEN TREE
	ORNAMENTAL TREE
	TEXAS HYBRID SOD
	UPLAND NATIVE SEED
	WETLAND NATIVE SEED
	SHRUB BEDS
	CONCRETE PAVING
	10 FOOT CONCRETE TRAIL
	6 FOOT CONCRETE TRAIL
	5 FOOT CONCRETE WALK
	OPEN RAIL FENCE

KEY MAP



SEVEN29 DESIGN
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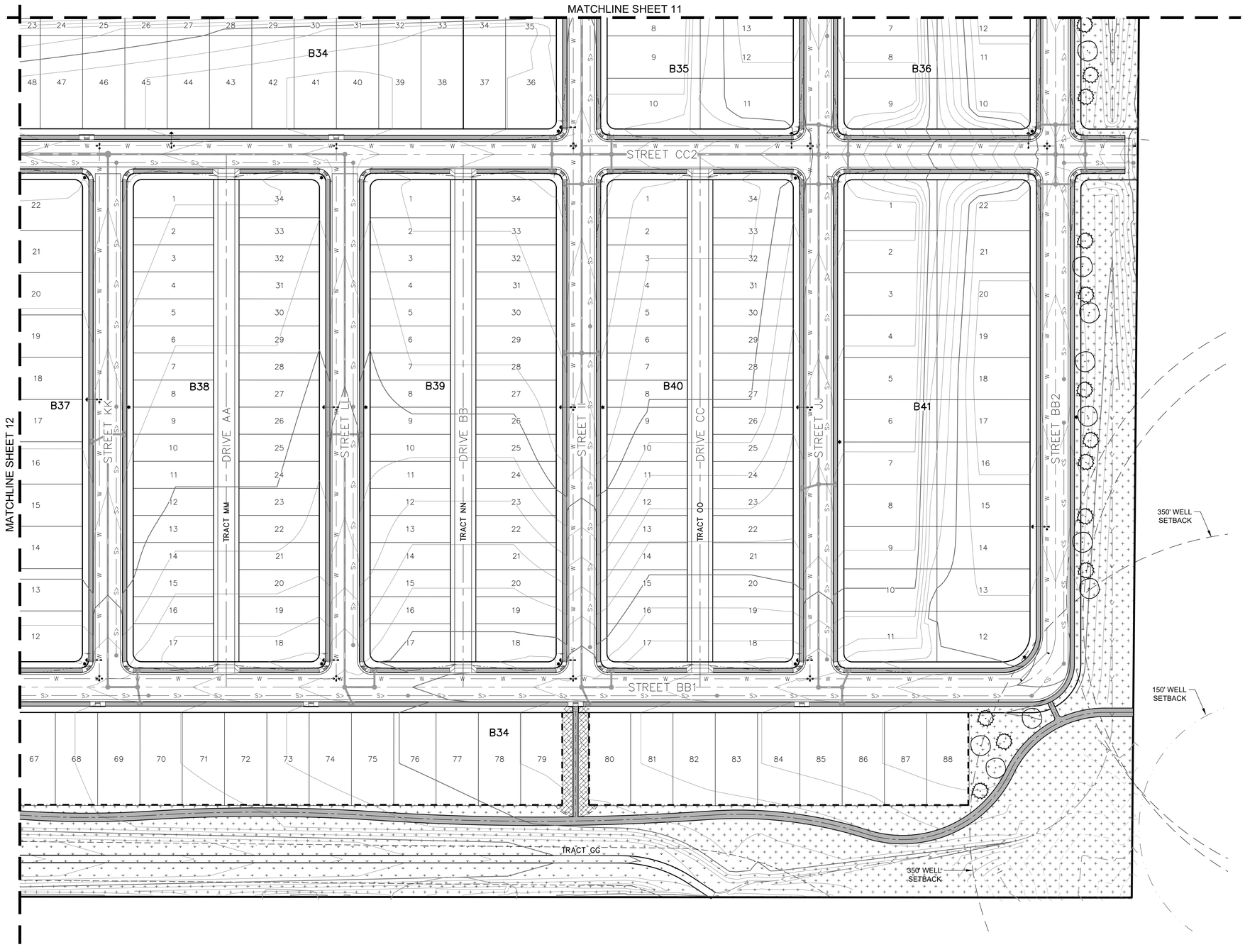

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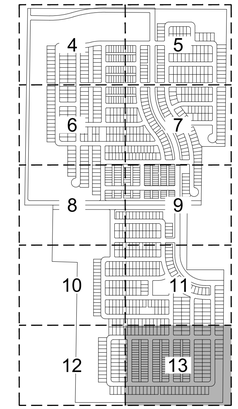
KEY MAP



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274.081 ACRES - 1,053 RESIDENTIAL LOTS / 54 TRACTS
PP-22-001

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO TOWN OF FIRESTONE STANDARDS AND SPECIFICATIONS AND WITH THE ACCEPTED PLANS. REFER TO THESE STANDARDS FOR ADDITIONAL INFORMATION AS NEEDED. A COPY OF THESE SPECIFICATIONS SHALL BE AVAILABLE ON THE WORK SITE AT ALL TIMES.
2. THE DEVELOPER SHALL ENSURE THAT THE LANDSCAPE PLAN IS COORDINATED WITH PLANS DONE BY OTHERS SO THE PROPOSED GRADING, DRAINAGE WORK, OR OTHER CONSTRUCTION DOES NOT CONFLICT NOR PRECLUDE INSTALLATION AND MAINTENANCE OF LANDSCAPE ELEMENTS ON THIS PLAN.
3. STORM WATER BEST MANAGEMENT PRACTICES SHALL CONFORM TO STATE OF COLORADO REQUIREMENTS. ALL STORM WATER REPORTS AND REQUIRED PAPERWORK SHALL ADHERE TO ALL STATE OF COLORADO REQUIREMENTS.
4. THE CONTRACTOR SHALL CERTIFY THAT THE GRADE IS WITHIN PLUS OR MINUS ONE-TENTH (1/10TH) OF THE FINAL GRADING PLAN PRIOR TO COMMENCEMENT OF ANY LANDSCAPE OR IRRIGATION WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, FEES, AND LICENSES ASSOCIATED WITH THE WORK AS SHOWN ON THE PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
7. ANY REVISION TO THE LANDSCAPE PLAN SHALL BE REVIEWED AND APPROVED BY THE PARKS SUPERINTENDENT OR HIS DESIGNEE PRIOR TO IMPLEMENTATION.
8. THE CONTRACTOR SHALL HAVE AN ACCEPTED SET OF PLANS AND MUST HAVE HELD A PRE-CONSTRUCTION MEETING WITH THE TOWN OF FIRESTONE PARKS DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY AND ALL WORK.
9. THE CONTRACTOR SHALL WARRANTY THE PLANT MATERIAL, WORKMANSHIP, AND IRRIGATION SYSTEM FOR A PERIOD OF TWO YEARS.
10. DO NOT DISTURB PAVING, LIGHTING, LANDSCAPE OR IRRIGATION THAT EXISTS ADJACENT TO THE SITE UNLESS OTHERWISE NOTED ON PLANS.
11. THE CONTRACTOR SHALL IDENTIFY, VERIFY AND PROTECT CONTROL POINT. CONTRACTOR SHALL VERIFY LOCATION OF CONTROL POINT WEEKLY AND THE ORIGINAL CONDITION OF CONTROL POINT PIN SHALL BE MAINTAINED THROUGH OUT ENTIRE PROJECT. LOCATION AND G.P.S. COORDINATES OF THE CONTROL POINT SHALL BE IDENTIFIED ON ALL PLANS AND AS-BUILTS.
12. GRAPHIC SYMBOLS SHALL PRESIDE OVER WRITTEN PLANT QUANTITIES.
13. ALL TREES SPECIES SHALL BE FROM THE TOWN OF FIRESTONE APPROVED TREE LIST.
14. NATIVE PLANTS SHALL BE USED IN NATIVE SEED AREAS. REFER TO STANDARDS AND SPECIFICATIONS FOR COMPLETE SPECIES LIST.

SUBMITTALS

CONTRACTOR SHALL FURNISH MATERIAL SAMPLES ON REQUEST BY THE TOWN (MULCH, AMENDMENTS, EDGING, ETC.).

MULCH
1. WOOD CHIP MULCH SHALL BE OF A HIGH QUALITY FIBROUS NATURE, SUCH AS SHREDDED WOOD CHIPS OR SHAVINGS, WHICH ARE BETWEEN ONE (1) INCHES AND FOUR (4) INCHES IN LENGTH. MULCH SHALL BE CLEAN AND FREE OF SOIL OR MAN-MADE DEBRIS.
2. ROCK MULCH SHALL BE CLEAN, THREE-QUARTER (3/4) TO THREE (3) INCH ROUNDED, WASHED RIVER ROCK. ROCK COBBLE SHALL BE 2- 4 INCH OR 3- 6 INCH WASHED COBBLE. ROCK MULCH AND COBBLE SHALL BE CLEAN AND FREE OF SOIL OR MAN-MADE DEBRIS AND SHALL BE OF GOOD QUALITY. ALL ROCK MULCH OR COBBLE SAMPLES SHALL HAVE THE SIZE, PRODUCT NAME AND SUPPLIER LISTED WITH THE SAMPLE PROVIDED.

EDGING
1. EDGING SHALL BE THREE-SIXTEENTHS BY SIX (3/16 X 6) INCH GREEN PAINTED STEEL.

STAKING MATERIALS
1. STAKES: SIX (6) FOOT STEEL TEE POSTS FOR DECIDUOUS TREES. TWO (2) FOOT STEEL TEE POSTS FOR EVERGREEN TREES
2. WIRES: A DOUBLE STRAND OF NUMBER TWELVE (12) GAUGE GALVANIZED WIRE.
3. NYLON STRAPS: ONE AND ONE-HALF INCH (1 1/2") WIDE NYLON STRAP WITH EYELETS AT EACH END.

LANDSCAPE FABRIC
1. ALL LANDSCAPE FABRIC SHALL BE TYPAR 3401 OR MIRAFI MIRASCAPE GEO-TEXTILE POLYPROPYLENE FABRIC OR AN APPROVED EQUIVALENT.
2. ALL SEAMS IN THE FABRIC SHALL OVERLAP A MINIMUM OF TWELVE (12) INCHES. LANDSCAPE FABRIC PINS WILL BE USED A MINIMUM OF EVERY THREE (3) FEET ALONG THE EDGE OF THE FABRIC AS WELL AS A MINIMUM OF THREE (3) FEET ON CENTER THROUGHOUT THE FABRIC.

SOD
1. SOD SHALL CONSIST OF A BLEND OF AT LEAST THREE (3) VARIETIES OF BLUEGRASS. THIS BLEND IS TO BE APPROVED BY THE PARKS SUPERINTENDENT OR HIS DESIGNEE.
2. SOD SHALL BE STRONGLY ROOTED AND FREE OF NOXIOUS WEEDS, UNDESIRABLE PLANTS, ROOTS, STONES, AND OTHER FOREIGN MATERIALS THAT WILL BE DETRIMENTAL OR WILL HINDER THE PROPER DEVELOPMENT OF THE SOD. SEE SECTIONS 1023 .00 AND 1043 .00 WITHIN THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS FOR FURTHER INFORMATION.

PLANTING NOTES

1. ALL PLANT MATERIALS SHALL BE LISTED ON THE TOWN OF FIRESTONE APPROVED TREE LIST. DISTRIBUTION OF TREE SPECIES SHALL FOLLOW THE 10/20/30 RULE: NO MORE THAN TEN (10) PERCENT OF A SINGLE SPECIES, TWENTY (20) PERCENT OF A SINGLE GENUS, OR THIRTY (30) PERCENT OF A SINGLE FAMILY ARE TO BE USED. ALL PLANT MATERIALS SHALL BE APPROVED BY TOWN OF FIRESTONE.
2. EACH INDIVIDUAL HOMEOWNER IS REQUIRED TO MEET CODE REQUIRING EACH TRACT TO PLANT "ONE DECIDUOUS STREET (AS APPROVED BELOW) FOR EVERY FORTY (40) LINEAR FEET OF STREET FRONTAGE OR PORTION THEREOF, WITH A MINIMUM OF TWO (2) TREES PER LOT FOR LOTS THAT HAVE A MINIMUM WIDTH OF SIXTY FEET (60'). STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN PORTION OF THE RIGHT OF WAY WITH ADEQUATE SPACING TO ALLOW FOR THE MATURE SPREAD OF THE TREES. WHEN A TREE LAWN IS NOT PROVIDED, TREES SHALL BE PLANTED WITHIN TEN FEET (10') OF THE BACK OF CURB."
3. STREET TREES SHALL BE PLACED THIRTY (30) FEET FROM ALL INTERSECTIONS.

POCKET PARK NOTES

PER TOWN OF FIRESTONE 'POCKET PARK DESIGN STANDARDS' THE FOLLOWING ELEMENTS SHALL BE INCLUDED WITHIN THE PROPOSED PARKS AS SHOWN ON THE LANDSCAPE PLANS:

POCKET PARK A:
LIST A - BENCHES (2); BICYCLE RACKS (4 BIKES); PET WASTE STATION; SIGNAGE; IRRIGATION; OPEN TURF AREA; SIDEWALKS; TRASH RECEPTACLES; PLANT MATERIAL**
(10) DECIDUOUS TREES
(6) ORNAMENTAL TREES
(4) EVERGREEN TREES
(40) SHRUBS
(48) PERENNIALS
(6) ORNAMENTAL GRASSES
LIST B - GROUP PICNIC SHELTER (REPLACING SHELTER REQUIRED IN LIST A); NATURAL AREA (>10,000 SF)
LIST C - BOULDER PLAY AREA; OPEN TURF SCULPTED AS PLAY BERM; OUTDOOR CLASSROOM
LIST D - BENCHES (2 ADDITIONAL FROM LIST A REQUIREMENTS); **LANDSCAPING (DOUBLED REQUIREMENTS SHOWN IN LIST A)

POCKET PARK B:
LIST A - BENCHES (2); BICYCLE RACKS (4 BIKES); PET WASTE STATION; SIGNAGE; IRRIGATION; OPEN TURF AREA; SIDEWALKS; TRASH RECEPTACLES; PLANT MATERIAL
(5) DECIDUOUS TREES
(3) ORNAMENTAL TREES
(2) EVERGREEN TREES
(20) SHRUBS
(24) PERENNIALS
(3) ORNAMENTAL GRASSES
LIST B - DISPLAY GARDEN; GROUP PICNIC SHELTER (REPLACING SHELTER REQUIRED IN LIST A)
LIST C - NATURE PLAY AREA (EQUIVALENT COMPONENT FOR APPROVAL, NATURE INSPIRED FREESTANDING PLAY EQUIPMENT CLIMBING AND TUNNEL); OPEN TURF SCULPTED AS PLAY BERM
LIST D - BENCHES (2 ADDITIONAL FROM LIST A REQUIREMENTS); BBQ GRILLS (2)

MASTER SEED MIXES

MIXED GRASS PRAIRIE NATIVE SEED MIXTURE

COMMON NAME	SCIENTIFIC NAME	VARIETY	PLS LBS/ACRE	PLS OZ/ACRE
BUFFALO GRASS	BUCHLOE DACTYLIODES	NATIVE	3	
SIDEOATS GRAMA	BOUTELUA CURTIPENDULA	BUTTE	5	
PRAIRIE SANDREED	CALAMOVILFA LONGIFOLIA	GOSHEN	1	
BLUE GRAMA	CHONDROSUM GRACILE	LOVINGTON	3	
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	ARRIBA	5	
LITTLE BLUESTEM	SCHIZACHRYIUM SCOPARIUM	PASTURA	4	
ALKALI SACATON	SPOROBOLUS AIROIDES	COMMON	1	
SAND DROPSEED	SPOROBOLUS CRYPTANDRUS	COMMON	1	
SWITCHGRASS	PANICUM VIRGATUM	BLACKWELL	5	
FRINGED SAGE*	ARTEMISIA FRIGIDA	COMMON		1
PURPLE PRAIRIE CLOVER*	DALEA PURPUREA	COMMON		6
BLANKETFLOWER*	GAILLARDIA ARISTATA	COMMON		6
GAYFEATHER*	LIATRIS PUNCTATA	COMMON		4
BLUE FLAX*	LINUM PERENNE	COMMON		3
TANSY ASTER*	MACHAERANTHERA TANACETAFOLIA	COMMON		3
PRAIRIE CONEFLOWER*	RATIBIDA COLUMNIFERA	COMMON		3
YARROW*	ACHILLEA MILLEFOLIUM	WESTERN		2
			28	1.75
SEEDING RATE POUNDS PLS/ACRE			**29.75**	

MOIST SWALE SEED MIXTURE

COMMON NAME	SCIENTIFIC NAME	VARIETY	PLS LBS/ACRE	PLS OZ/ACRE
WOOLLY SEDGE	CAREX LANUGINOSA	NATIVE	0.5	
NEBRASKA SEDGE	CAREX NEBRASCENSIS	NATIVE	0.1	
BLUE GRAMA	CHONDROSUM GRACILE	LOVINGTON	1.5	
BUFFALOGRASS	BUCHLOE DACTYLOIDES	NATIVE	0.5	
INLAND SALTGRASS	DISTICHLIS STRICTA	NATIVE	0.5	
BALTIC RUSH	JUNCUS BALTICUS	NATIVE	0.1	
PRAIRIE CORDGRASS	SPARTINA PECTINATA	NATIVE	1.0	
ALKALI SACATON	SPOROBOLUS AIROIDES	NATIVE	3.0	
SWITCHGRASS	PANICUM VIRGATUM	BLACKWELL	3.0	
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	ARRIBA	5.0	
ASTER	ASTER LAEVIS		0.05	
YARROW	ACHILLEA MILLEFOLIUM	WESTERN	0.05	
PRAIRIE CONEFLOWER	RATIBIDA COLUMNIFERA		0.05	
SEEDING RATE POUNDS PLS/ACRE			**15.35**	

MASTER PLANT SCHEDULE

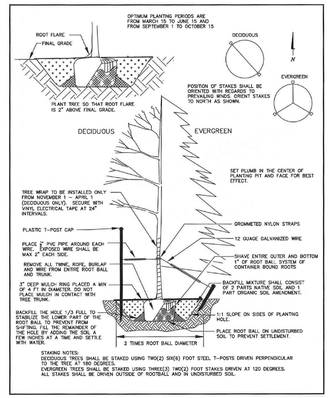
BOTANICAL NAME	COMMON NAME
DECIDUOUS TREES	
ACER PLATANOIDES `DEBORAH`	DEBORAH MAPLE
ACER X FREEMANII `JEFFERSRED` TM	AUTUMN BLAZE MAPLE
CELTIS OCCIDENTALIS	WESTERN HACKBERRY
FRAXINUS AMERICANA `AUTUMN PURPLE`	AUTUMN PURPLE ASH
FRAXINUS PENNSYLVANICA `PATMORE`	`PATMORE` ASH
GLEDITSIA TRIACANTHOS INERMIS `SKYLINE`	SKYLINE THORNLESS HONEY LOCUST
GYMNOCLADUS DIOICUS	KENTUCKY COFFEETREE
QUERCUS ROBUR	
ENGLISH OAK	
QUERCUS `CRIMSCHMIDT`	CRIMSON SPIRE OAK
TILIA CORDATA `GREENSPIRE`	GREENSPIRE LINDEN
EVERGREEN TREES	
PICEA PUNGENS `BAKERI`	BLUE SPRUCE
PINUS EDULIS	PINON PINE
PINUS NIGRA	AUSTRIAN PINE
ORNAMENTAL TREES	
ACER TATARICUM `HOT WINGS`	HOT WINGS TATARIAN MAPLE
CRATAEGUS PHAENOPYRUM	WASHINGTON HAWTHORN
MALLUS HYBRID `INDIAN MAGIC`	INDIAN MAGIC CRAB
MALUS PRAIRIEFIRE	PRAIRIEFIRE CRABAPPLE
MALUS X `ROYALTY`	ROYALTY CRAB APPLE
SHRUBS	
BUDDLEJA DAVIDII `POTTER`S PURPLE`	POTTER`S PURPLE BUTTERFLY BUSH
CHRYSOTHAMNUS NAUSEOSUS	RABBITBRUSH
CYTISUS SCOPARIUS `MOONLIGHT`	MOONLIGHT BROOM
EPHEDRA EQUISETINA	BLUESTEM JOINT FIR
EUONYMUS FORTUNEI `EMERALD GAIETY`	EMERALD GAIETY EUONYMUS
FORESTIERA NEOMEXICANA	NEW MEXICAN PRIVET
JUNIPERUS HORIZONTALIS `YOUNGSTOWN`	ANDORRA JUNIPER
MAHONIA AQUIFOLIUM `COMPACTA`	COMPACT OREGON GRAPE HOLLY
PHILADELPHUS LEWISII `CHEYENNE`	LEWIS MOCK ORANGE
PHYSOCARPUS OPULIFOLIUS `MONLO`	DIABLO PURPLE NINEBARK
RHUS TYPHINA	STAGHORN SUMAC
ROSA VAR. RADRAZZ	KNOCK OUT ROSE
SALVIA X SYLVESTRIS `MAY NIGHT`	SAGE
SYRINGA VULGARIS `CHARLES JOLY`	CHARLES JOLY LILAC
VIBURNUM DENTATUM `ARROWWOOD`	ARROWWOOD VIBURNUM
VIBURNUM X RHYTIDOPHYLLOIDES `ALLEGHANY`	ALLEGHANY VIBURNUM
WEIGELA FLORIDA `ELVERA` TM	WEIGELA
YUYUCCA FILAMENTOSA `GOLDEN SWORD`	GOLDEN SWORD YUCCA
ORNAMENTAL GRASS	
ANDROPOGON GERARDII	BIG BLUESTEM
CALAMAGROSTIS ARUNDINACEA `KARL FORESTER	FEATHER REED- KARL FORESTER
DESCAMPSIA CAESPITOSA	TUFTED HAIR GRASS
ERIANTHUS RAVENNACE	PAMPAS GRASS
FESTUCA GLAUCA 'ELIJAH BLUE	BLUE FESCUE
HELICTOTRICHON SEMPERVIRENS	BLUE AVENA / OAT GRASS
IMPERARATA CYLINDRICA 'RUBRA'	BLOOD GRASS
MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASSES
MISICANTHUS SINENSIS 'ZEBRINUS'	ZEBRA GRASS
PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCH GRASS
PENNISTUM ALORECUROIDES 'HAMELN'	HARDY /FOUNTAIN GRASS

LANDSCAPE REQUIREMENTS

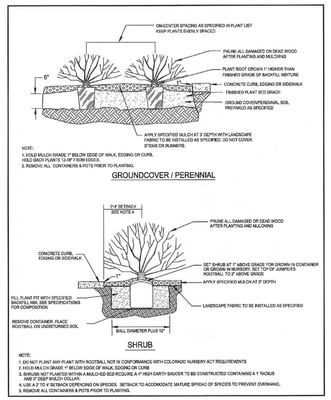
DESCRIPTION	REQUIREMENT	LENGTH	REQUIRED TREES	PROVIDED TREES
FIRESTONE PKWY - NORTH	1 TREE/40 LINEAR FEET	2,312 LF	58	71
FIRESTONE PKWY - SOUTH	1 TREE/40 LINEAR FEET	1,809 LF	46	52
FRONTIER STREET	1 TREE/40 LINEAR FEET	2,564 LF	65	75

LANDSCAPE QUANTITIES

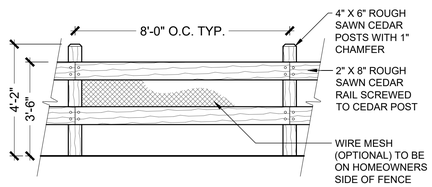
DESCRIPTION	QUANTITY
SOD	362,994 SF
LANDSCAPE BEDS	125,010 SF
TREES IN NATIVE AREAS	323



1 TREE PLANTING DETAIL
NTS P20A



2 SHRUB & GROUNDCOVER PLANTING
NTS P20B



3 OPEN RAIL FENCE
3/8" = 1'-0" EF-01

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1	TOWN COMMENTS	2022-05-06

NOTES AND DETAILS

Town of Firestone
Michelle Dollmaier
9950 Park Ave.
Firestone, CO 80504

RE: Neighborhood meeting summary from April 18th, 2022

Dear Ms. Dollmaier;

The Vistosa project team was proud to host a neighborhood meeting for the surrounding property owners on Monday April 18th, 2022 at Rocky Mountain Christian Church, room 2017. The meeting was hosted in an open house style with 3 different stations. Each station had a different project focus with the associated project consultant hosting that particular station. The stations were hosted as follows: Mr. Chris March, our landscape architect, hosted the station for Parks, Open Space, Landscaping and site design/layout. Ms. Tess Hogan, our civil engineer, hosted a station for Utilities, Traffic, Drainage and Site construction. Mr. Blake Carlson, the project applicant, hosted the final station for general questions and site layout/design. Attached to this document is a copy of the notice that was mailed out the surround property owners.

The following surrounding property owners signed in at the meeting:

Sheldon Simpson
Diana Simpson
Norman Schranz
Melinda Shotts
Kenneth Voss
Lisa Bergesser
Michael Pummer
Noel Pummer
Ronald Gilberts nice Alexis

.

Sincerely,



Blake Carlson

March 22, 2022

Dear Property Owner,

To facilitate the development of the project formally known as Wildrose/Vogl, the Applicant is processing a re-zone and Plat in the town of Firestone to create the Vistosa Subdivision. The property is generally located at the northeast and southeast corner of Firestone Blvd. & Frontier street.

The application if approved, would allow for the development of 1,053 residences. The total project consists of 274 acres.

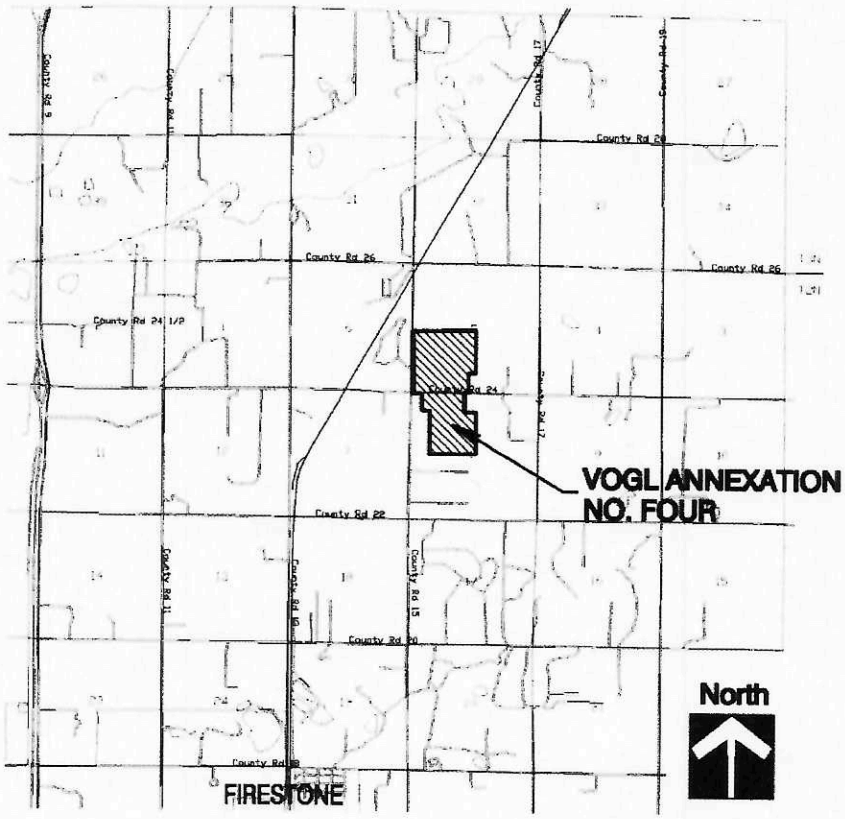
In conjunction with this application, a neighborhood meeting has been scheduled by the Applicant which you are invited to attend. Details of the meeting are as follows:

Date: April 18th, 2022

Time: 4:30 pm- 5:30 pm MDT

Where: 5860 Majestic St Frederick, CO 80504 Room 2017

Sincerely,
Carlson Land Development



VICINITY MAP

FIRESTONE PLANNING AND ZONING COMMISSION

RESOLUTION NO. PC 22-13

A RESOLUTION OF THE PLANNING AND ZONING COMMISSION OF THE TOWN OF FIRESTONE, COLORADO, RECOMMENDING APPROVAL OF THE VISTOSA PRELIMINARY SUBDIVISION PLAT

WHEREAS, Prominence Partners I LLC ("Applicant"), as owner of certain real property located within the Town of Firestone, Colorado (the "Property"), has submitted a proposed preliminary subdivision plat for the Property (the "Application"); and

WHEREAS, after a duly-noticed public hearing, at which evidence and testimony were entered into the record, the Planning and Zoning Commission finds and determines that the Application is complete, and that the Applicant has met the applicable requirements and standards set forth in the Firestone Municipal Code and Firestone Development Code; and

WHEREAS, the Planning and Zoning Commission wishes to make a recommendation to the Board of Trustees regarding the Application.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING AND ZONING COMMISSION OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The Town of Firestone Planning and Zoning Commission hereby recommends the Board of Trustees approve the Vistosa Preliminary Plat, attached hereto as **Exhibit A** and incorporated herein by this reference, subject to and contingent upon compliance with the following conditions:

1. All remaining technical corrections to the Vistosa preliminary plat and construction drawings requested by Town staff shall be made to the Town staff's satisfaction.

2. At the Final Plat stage, the Town and the Applicant shall execute a subdivision agreement, in a form to be approved by the Town Attorney.

PASSED AND ADOPTED this 7th day of July, 2022.

FIRESTONE PLANNING AND ZONING COMMISSION TOWN SEAL

Dennis Haney, Chairperson

ATTEST:

Jessica Koenig, Secretary

EXHIBIT A
Preliminary Plat

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES - 1,053 LOTS / 53 TRACTS PP-22-001

CERTIFICATION OF OWNERSHIP AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT FRONTIER VENTURES LLC, A COLORADO LIMITED LIABILITY COMPANY AND MILLRACE RESOURCES LLC, A COLORADO LIMITED LIABILITY COMPANY BEING THE OWNERS OF THE LAND SHOWN IN THIS PLAT AND DESCRIBED AS FOLLOWS:

PARCEL A:

A PARCEL OF LAND BEING THE SOUTHWEST QUARTER OF SECTION 5;
EXCEPT THE SOUTH 790.00 FEET OF THE EAST 312.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER WHENCE THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 67 WEST BEARS SOUTH 00°00'00" WEST 2859.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;

THENCE NORTH 00°00'14" WEST 2649.92 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER;
THENCE NORTH 89°23'55" EAST 2680.42 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER;
THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 1848.82 FEET;
THENCE ALONG A LINE 790.00 FEET NORTHERLY FROM AND PARALLEL WITH THE SOUTH LINE OF SAID SOUTHWEST QUARTER, SOUTH 89°09'38" WEST 312.02 FEET;
THENCE ALONG A LINE 312.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID SOUTHWEST QUARTER, SOUTH 00°11'14" EAST 790.05 FEET TO A POINT ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER;
THENCE ALONG SAID SOUTH LINE, SOUTH 89°09'38" WEST 2378.88 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

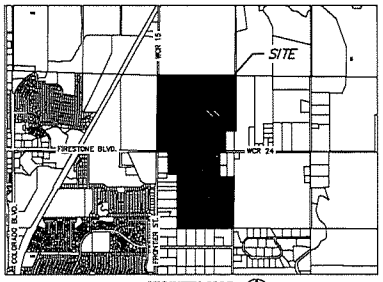
PARCEL B:

A PARCEL OF LAND BEING THE NORTHWEST QUARTER OF SECTION 8;
EXCEPT THE NORTH 871.20 FEET OF THE EAST 500.00 FEET, THE SOUTH 1904.04 FEET OF THE WEST 719.75 FEET AND THE NORTH 755.00 FEET OF THE WEST 360.00 FEET, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO.

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 8 WHENCE THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER BEARS SOUTH 00°00'00" EAST 2859.46 FEET, SAID LINE FORMING THE BASIS OF BEARINGS FOR THIS DESCRIPTION;
THENCE ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 360.04 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING NORTH 89°09'38" EAST 1808.93 FEET;
THENCE ALONG A LINE 500.00 FEET WESTERLY FROM AND PARALLEL WITH THE EAST LINE OF SAID NORTHWEST QUARTER, SOUTH 00°23'23" EAST 871.23 FEET;
THENCE ALONG A LINE 871.20 FEET SOUTHERLY FROM AND PARALLEL WITH THE NORTH LINE OF SAID NORTHWEST QUARTER, NORTH 89°09'38" EAST 500.02 FEET TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER;
THENCE SOUTH 00°23'23" EAST 1789.33 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER;
THENCE ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER, SOUTH 89°11'19" WEST 1987.28 FEET;
THENCE ALONG A LINE 719.75 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER, NORTH 00°00'00" EAST 1866.20 FEET;
THENCE NORTH 89°38'00" WEST 339.80 FEET;
THENCE ALONG A LINE 360.00 FEET EASTERLY FROM AND PARALLEL WITH THE WEST LINE OF THE NORTHWEST QUARTER, NORTH 00°00'00" EAST 760.80 FEET TO THE TRUE POINT OF BEGINNING,
COUNTY OF WELD, STATE OF COLORADO.

CONTAINING A TOTAL AREA OF 274.081 ACRES (11,938,983 SQUARE FEET), MORE OR LESS.

HAVE LAID OUT, SUBDIVIDED AND PLATTED SAID LAND AS PER DRAWING HEREON CONTAINED UNDER THE NAME AND STYLE OF **VISTOSA**, A SUBDIVISION OF A PART OF THE TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO, AND BY THESE PRESENTS DO HEREBY DEDICATE TO THE TOWN OF FIRESTONE THE STREETS, AVENUES (AND OTHER PUBLIC PLACES, TRACTS/OUTLOTS) AS SHOWN ON THE ACCOMPANYING PLAT FOR THE PUBLIC USE THEREOF FOREVER AND DOES FURTHER DEDICATE TO THE USE OF THE TOWN OF FIRESTONE AND ALL SERVING PUBLIC UTILITIES (AND OTHER APPROPRIATE ENTITIES) THOSE PORTIONS OF SAID REAL PROPERTY WHICH ARE SO DESIGNATED AS EASEMENTS AS SHOWN.



VICINITY MAP
SCALE: 1"=2000'

OWNER:
PROMINENCE PARTNERS I, LLC
PO BOX 870
FIRESTONE, CO. 80520

BY: _____

NAME: _____

TITLE: _____

EXECUTED THIS ___ DAY OF _____, A.D., 201_.

STATE OF COLORADO)
) SS.
COUNTY OF_____)

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME
THIS _____DAY OF_____ 201_.,

BY _____ AS _____
OF PROMINENCE PARTNERS I, LLC, A COLORADO LIMITED LIABILITY COMPANY
MY COMMISSION EXPIRES _____

WITNESS MY HAND AND SEAL._____
NOTARY PUBLIC

BY: _____

NAME: _____

TITLE: _____

EXECUTED THIS ___ DAY OF _____, A.D., 201_.

SHEET INDEX

SHEET 1 — DEDICATION, APPROVALS, , VICINITY MAP, LEGAL DESCRIPTION
SHEET 2 — OVERALL BOUNDARY, LARGE PARCEL GRAPHICS AND DETAILS
SHEETS 3-16 — TRACTS, LOTS, BLOCKS AND RIGHTS-OF-WAY GRAPHICS AND DIMENSIONS

GENERAL NOTES

1. NOTICE: 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.
2. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, COLORADO REVISED STATUTE.
3. DISTANCES ON THIS PLAT ARE GROUND DISTANCES EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS
4. BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, ASSUMED TO BEAR SOUTH 89°44'48" EAST, 2680.42 FEET AND MONUMENTED AS SHOWN HEREON.
5. TITLE COMMITMENT: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY ORDER NUMBER ABZ25183948, WITH AN EFFECTIVE DATE OF 01/18/2021 AT 5:00 P.M. WAS RELIED UPON FOR RECORD INFORMATION REGARDING RIGHTS-OF-WAY, EASEMENTS AND ENCUMBRANCES. THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY AZTEC CONSULTANTS INC. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF PUBLIC RECORD.
6. FLOODPLAIN: BASED ON GRAPHICAL REPRESENTATION THE SUBJECT PROPERTY SHOWN HEREON LIES IN OTHER AREAS - ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP NUMBER 08123C1895E, PANEL 1895 OF 2250, WITH A REVISED DATE OF JANUARY 20, 2016.

SURVEYING CERTIFICATE:

I, JAMES E. LYNCH, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY PERSONAL SUPERVISION AND CHECKING. I FURTHER CERTIFY THAT THE SURVEY AND THIS PLAT COMPLY WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS OF THE STATE OF COLORADO, STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS, PROFESSIONAL ARCHITECTS AND PROFESSIONAL LAND SURVEYORS, AND THE TOWN OF FIRESTONE.

FOR REVIEW

BY: JAMES E. LYNCH, P.L.S. NO. 37933
FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC.

NOTICE: 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.

NOTICE: PER THE STATE OF COLORADO BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS, AND PROFESSIONAL LAND SURVEYORS RULE 8.2.2 THE WORD "CERTIFY" AS USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED. THE SURVEY REPRESENTED HEREON HAS BEEN PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF.

Tract Table

TRACT	AREA (SQ.FT)	AREA (AC ±)	USE	OWNED BY	MAINTAINED BY
TRACT A	781,236	17.935	LANDSCAPE BUFFER/ DRAINAGE/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT AA	1,920	0.044	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT AAA	58,848	1.305	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT B	11,000	0.253	LANDSCAPE BUFFER/ DRAINAGE/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT BB	939	0.022	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT C	30,057	0.690	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT CC	793	0.018	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT D	29,678	0.681	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT DD	75,307	1.729	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT E	12,150	0.279	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT EE	3,180	0.073	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT F	12,150	0.279	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT FF	62,266	1.429	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT G	12,188	0.280	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT GG	1,387,485	31.852	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT H	17,897	0.411	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT HH	9,240	0.212	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT I	17,897	0.411	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT II	36,279	0.833	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT J	11,498	0.264	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT JJ	38,550	0.885	POCKET PARK	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT K	265,882	6.103	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT KK	36,633	0.841	OPEN SPACE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT L	65,476	1.503	POCKET PARK	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT LL	93,278	2.141	OPEN SPACE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT M	34,853	0.800	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT MM	17,100	0.393	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT

Tract Table

TRACT	AREA (SQ.FT)	AREA (AC ±)	USE	OWNED BY	MAINTAINED BY
TRACT N	34,845	0.800	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT NN	17,100	0.393	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT O	7,809	0.179	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT OO	17,100	0.393	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT P	11,049	0.254	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT PP	437,752	10.049	NEIGHBORHOOD PARK/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT Q	19,800	0.450	POCKET PARK	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT QQ	8,700	0.200	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT R	12,104	0.278	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT RR	3,300	0.076	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT S	8,700	0.200	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT SS	8,700	0.200	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT T	12,500	0.287	LANDSCAPE BUFFER/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT TT	3,300	0.076	ACCESS/UTILITIES	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT U	929	0.021	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT UU	208,824	4.748	OPEN SPACE/DRAINAGE/UTILITIES	TOWN OF FIRESTONE	HOA/METRO DISTRICT
TRACT V	1,900	0.044	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT VV	49,726	1.142	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT W	929	0.021	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT WW	6,772	0.155	AGRICULTURAL	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT X	939	0.022	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT XX	23,520	0.540	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT Y	1,920	0.044	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT YY	7,473	0.172	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT Z	939	0.022	LANDSCAPE BUFFER	HOA/METRO DISTRICT	HOA/METRO DISTRICT
TRACT ZZ	46,777	1.074	LANDSCAPE BUFFER/DRAINAGE	HOA/METRO DISTRICT	HOA/METRO DISTRICT

LAND SUMMARY CHART

TYPE	AREA (AC ±)	% OF TOTAL AREA
RESIDENTIAL LOTS	111.525	41%
TRACTS		
OPEN SPACE	48.990	17%
LANDSCAPE BUFFER	31.021	11%
ACCESS	2.842	1%
NEIGHBORHOOD PARK	10.049	3%
POCKET PARK	2.449	1%
AGRICULTURAL	0.155	1%
PUBLIC ROW	69.050	25%
TOTAL	274.081	100%

OWNER:
PROMINENCE PARTNERS I, LLC
PO BOX 870
FIRESTONE, COLORADO 80520
303-833-5332
CONTACT: DANIEL SMITH
DAN@PROMINENCEDEVELOPMENT.COM

ENGINEER:
INNOVATIVE LAND CONSULTANTS, INC.
12071 TEJON STREET, SUITE 470
WESTMINSTER, COLORADO 80234
303-421-4224
CONTACT: ANNA SPARKS, P.E.
ANNA@INNOVATIVELANDINC.COM

SURVEYOR:
AZTEC CONSULTANTS, INC.
300 EAST MINERAL AVE., SUITE 1
LITTLETON, COLORADO 80122
303-713-1898
CONTACT: JIM LYNCH
JLYNCH@AZTECCONSULTANTS.COM

DEVELOPER:
CARLSON LAND DEVELOPMENT
14370 CLAY STREET
BROOMFIELD, COLORADO 80023
303-809-7930
CONTACT: BLAKE CARLSON
BLAKE@CARLSONLANDDEVELOPMENT.COM

FIRESTONE INFORMATION BLOCK

Name of Application	VISTOSA
Type of Submittal	PRELIMINARY PLAT
Filing Number	N/A
Phase Number	N/A
Preparation Date	12/21/2021
Revision Date	
Revision Date	
Revision Date	

COVER PAGE - SHEET 1 of 17

LAST REVISED: 05/05/2022

AZTEC CONSULTANTS, INC. — 300 East Mineral Ave., Suite 1, Littleton, Colorado 80122, Phone: (303) 713-1898, Fax: (303) 713-1897, www.aztecconsultants.com

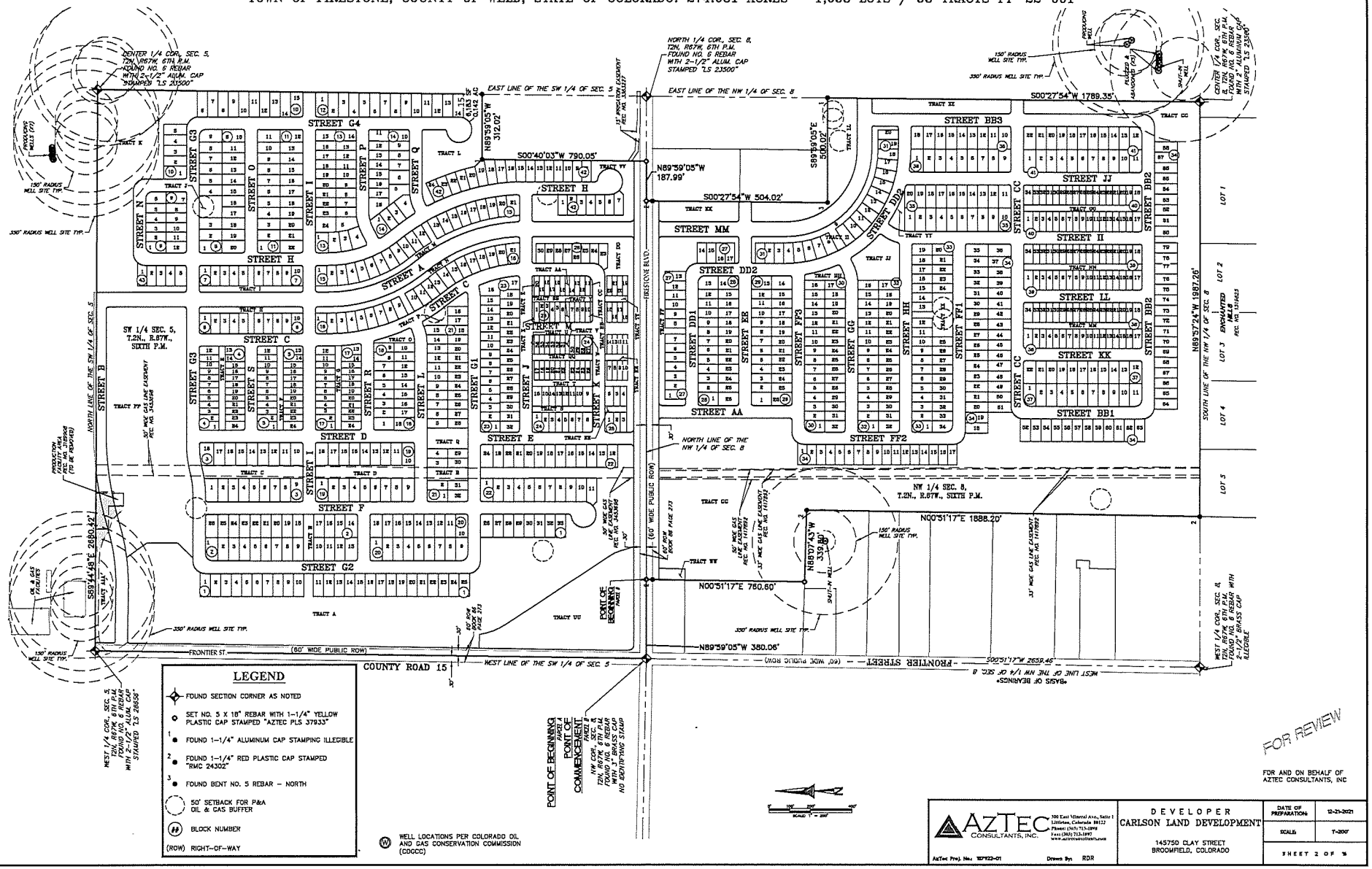
AzTec Proj. No.: 180923-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION: 12-21-2021
SCALE: NA
SHEET 1 OF 16

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- 50' SETBACK FOR P&A OIL & GAS BUFFER
- (##) BLOCK NUMBER
- (ROW) RIGHT-OF-WAY

(W) WELL LOCATIONS PER COLORADO OIL AND GAS CONSERVATION COMMISSION (COGCC)

FOR REVIEW

FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC

AZTEC CONSULTANTS, INC.
300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

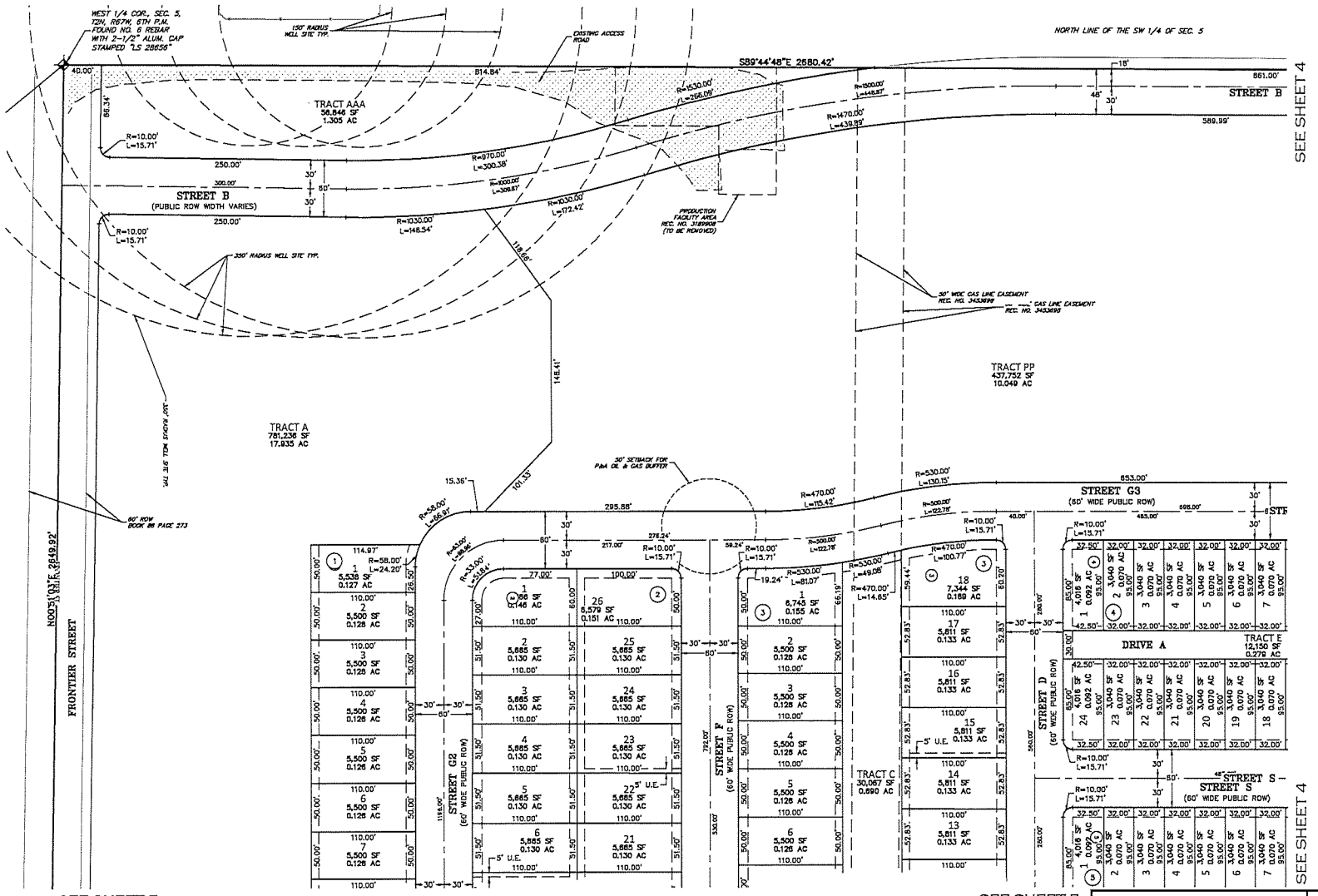
AzTec Proj. No.: BDY22-01 | Drawn By: RDR

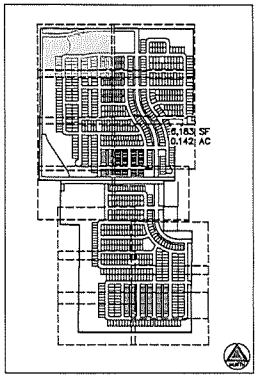
DEVELOPER
CARLSON LAND DEVELOPMENT
14575O CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION	12-21-2021
SCALE	1"=200'
SHEET 2 OF 5	

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001

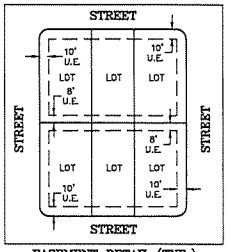




KEY MAP
SCALE: 1" = 1000'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (#) BLOCK NUMBER



EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

FOR REVIEW

FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC

AZTEC CONSULTANTS, INC.
300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

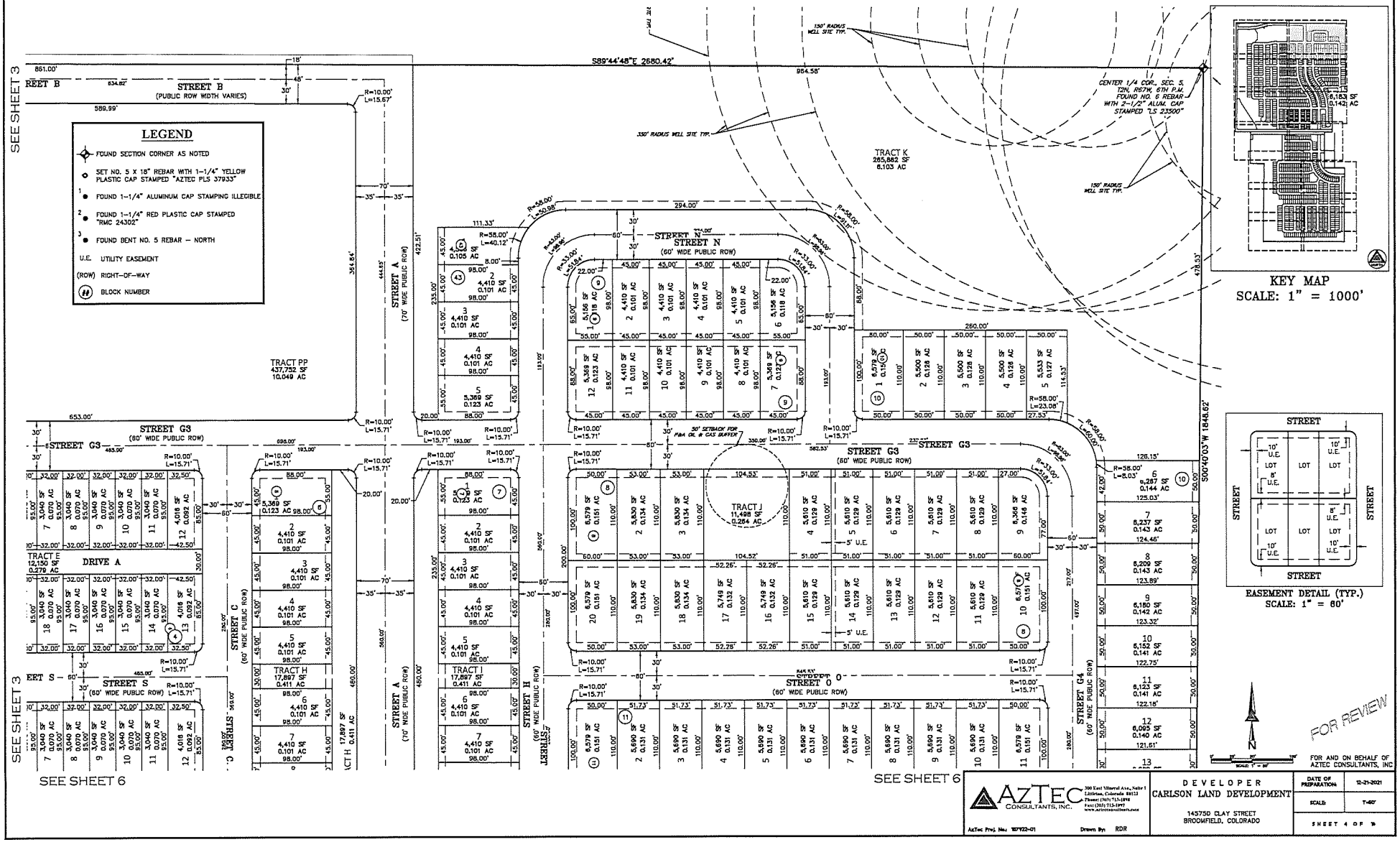
AzTec Proj. No. 167922-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
14575O CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=60'
SHEET 2 OF 12	

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



AZTEC CONSULTANTS, INC. — 300 East Mineral Ave., Suite 1, Littleton, Colorado 80122, Phone: (303) 713-1898, Fax: (303) 713-1897, www.aztecconsultants.com

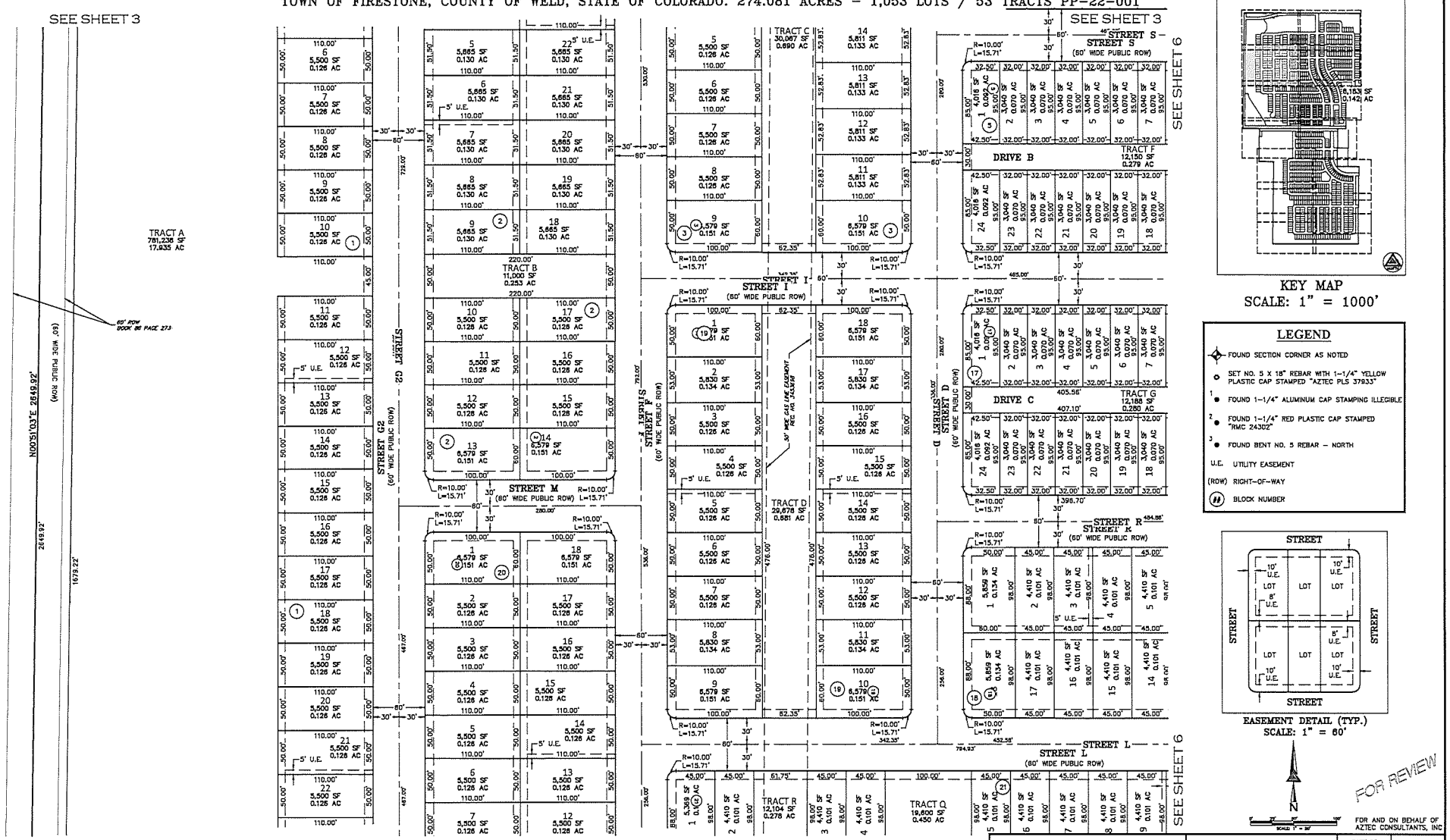
AzTec Proj. No.: WDY22-01 — Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
14375D CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION: 12-21-2021
SCALE: 1"=60'
SHEET 4 OF 9

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES – 1,053 LOTS / 53 TRACTS PP-22-001



KEY MAP
SCALE: 1" = 1000'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR – NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (#) BLOCK NUMBER

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

FOR REVIEW

FOR AND ON BEHALF OF AZTEC CONSULTANTS, INC

AZTEC CONSULTANTS, INC.
300 East Mineral Ave., Suite 1
Littleton, Colorado 80122
Phone: (303) 713-1898
Fax: (303) 713-1897
www.aztecconsultants.com

AzTec Proj. No: 3CPY22-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
14575O CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION: 12-21-2021
SCALE: 1"=60'
SHEET 5 OF 16

VISTOSA PRELIMINARY PLAT

A PART OF THE SOUTHWEST QUARTER OF SECTION 5, AND THE NORTHWEST QUARTER OF SECTION 8 TOWNSHIP 2 NORTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF FIRESTONE, COUNTY OF WELD, STATE OF COLORADO. 274.081 ACRES - 1,053 LOTS / 53 TRACTS PP-22-001



KEY MAP
SCALE: 1" = 1000'

EASEMENT DETAIL (TYP.)
SCALE: 1" = 60'

LEGEND

- FOUND SECTION CORNER AS NOTED
- SET NO. 5 X 18" REBAR WITH 1-1/4" YELLOW PLASTIC CAP STAMPED "AZTEC PLS 37933"
- 1 FOUND 1-1/4" ALUMINUM CAP STAMPING ILLEGIBLE
- 2 FOUND 1-1/4" RED PLASTIC CAP STAMPED "RMC 24302"
- 3 FOUND BENT NO. 5 REBAR - NORTH
- U.E. UTILITY EASEMENT
- (ROW) RIGHT-OF-WAY
- (##) BLOCK NUMBER

N

SCALE: 1" = 60'

FOR REVIEW

FOR AND ON BEHALF OF
AZTEC CONSULTANTS, INC

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AzTec Proj. No: 107922-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION: 12-21-2021
SCALE: 1"=60'
SHEET 6 OF 16

VISTOSA PRELIMINARY PLAT

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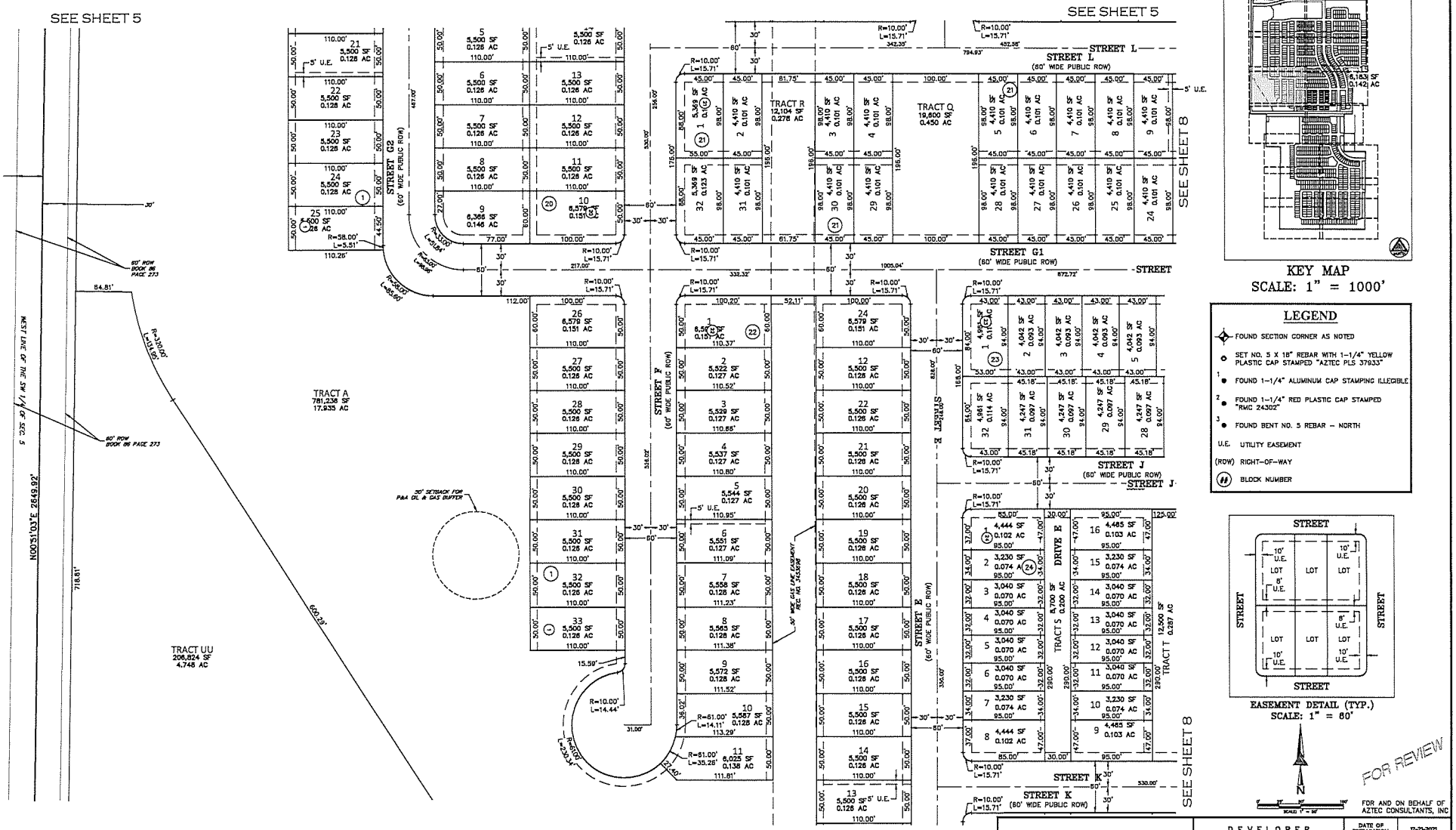

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14575O CLAY STREET
BROOMFIELD, COLORADO

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SHEET 7 OF 18	

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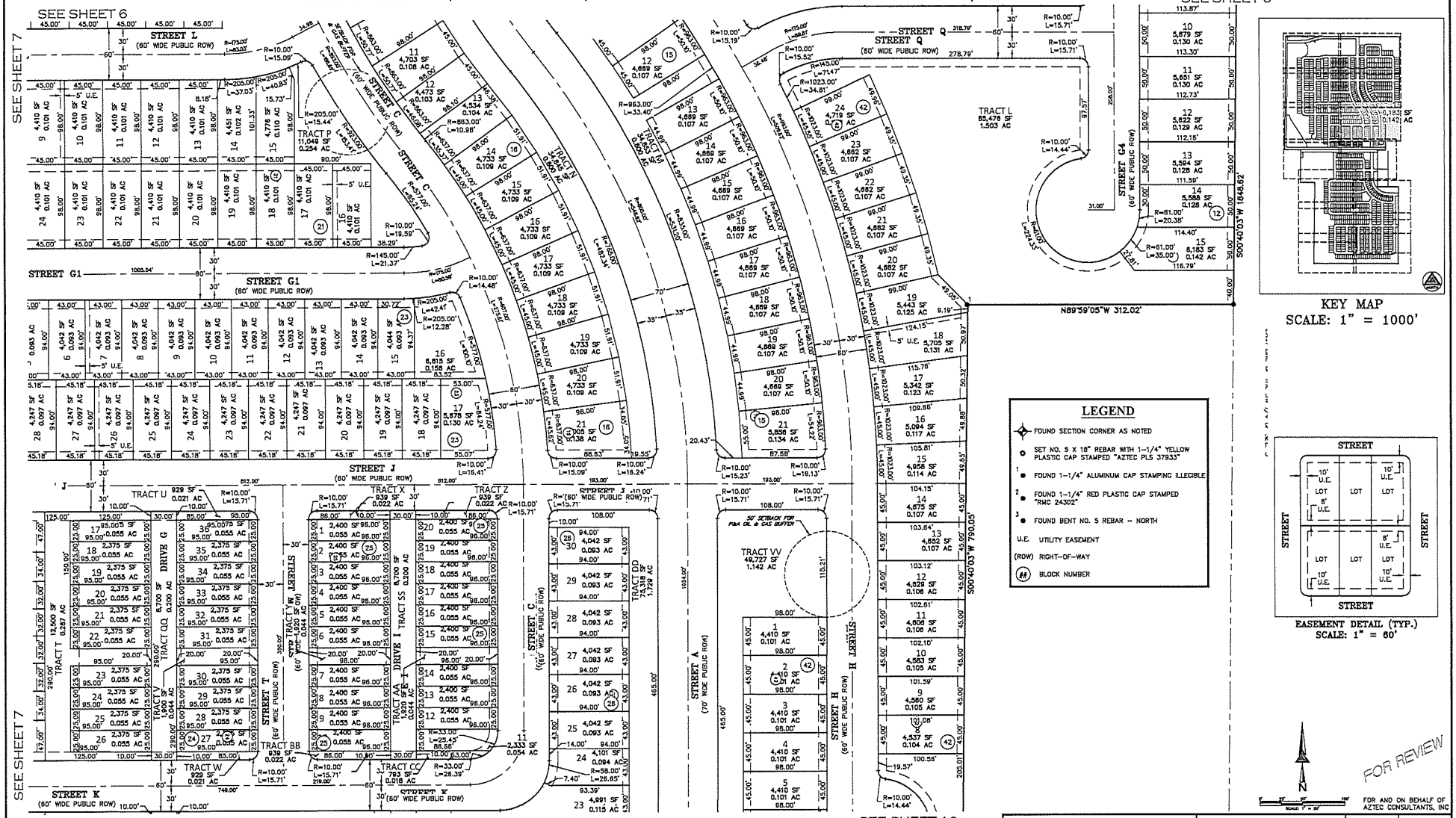

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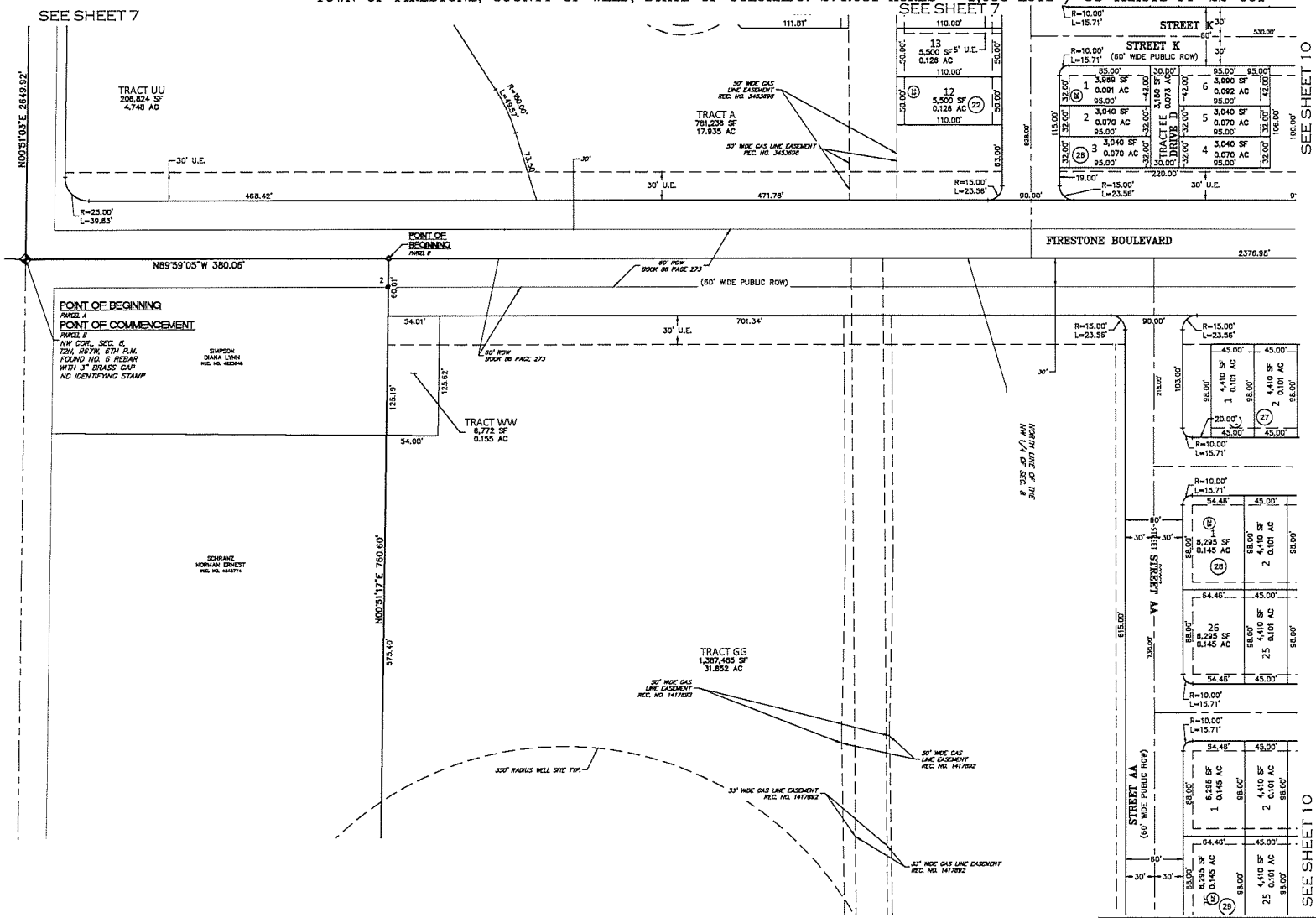

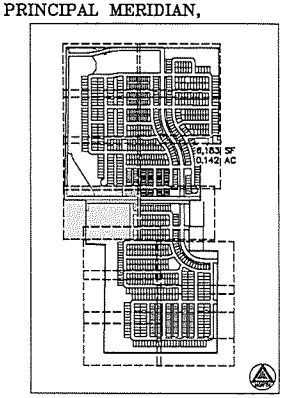

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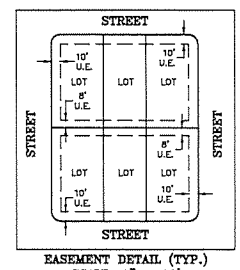

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DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

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SHEET 9 OF 16	

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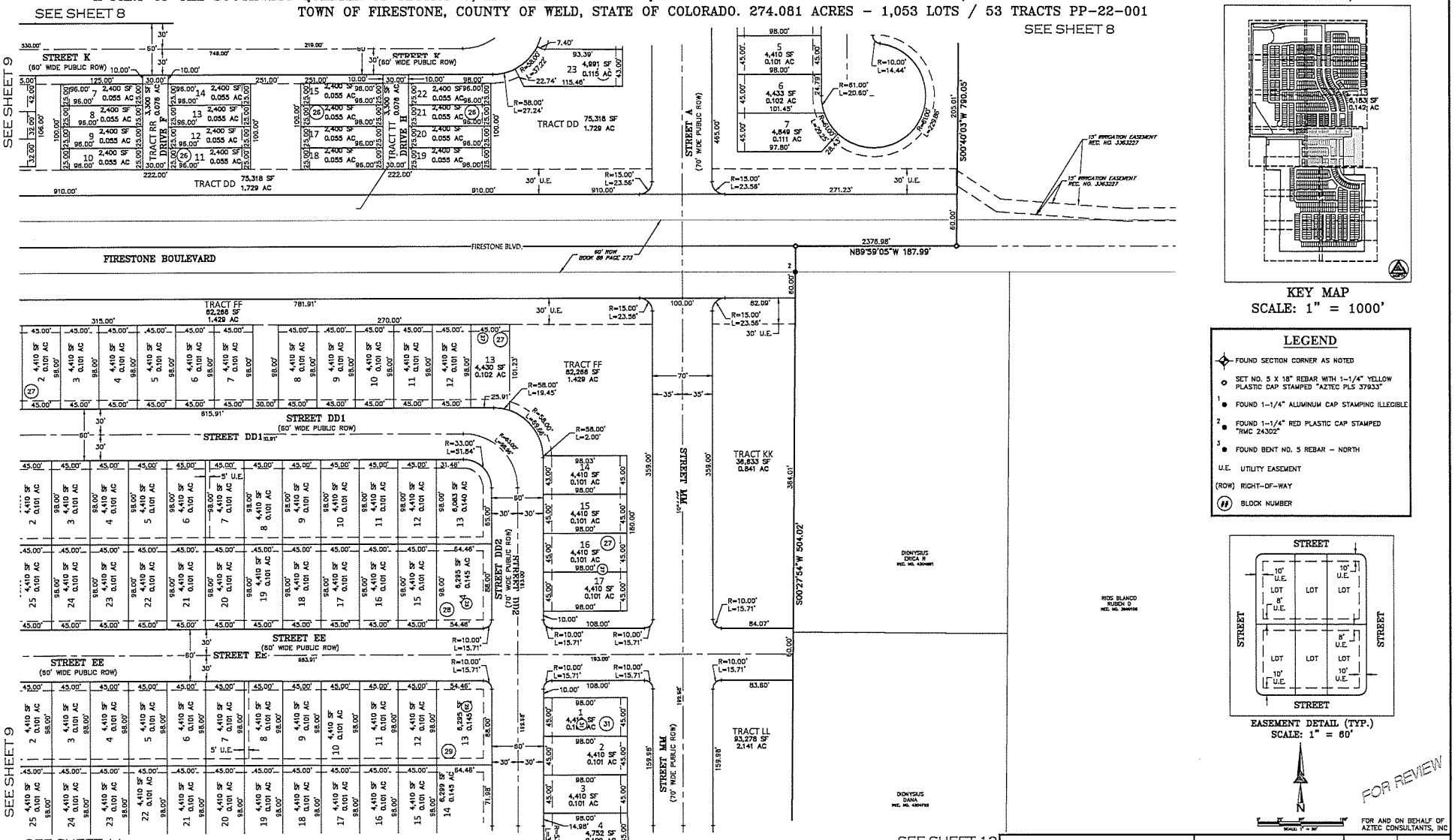

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DEVELOPER
CARLSON LAND DEVELOPMENT
14575O CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION:	12-21-2021
SCALE:	1"=60'
SHEET 10 OF 16	

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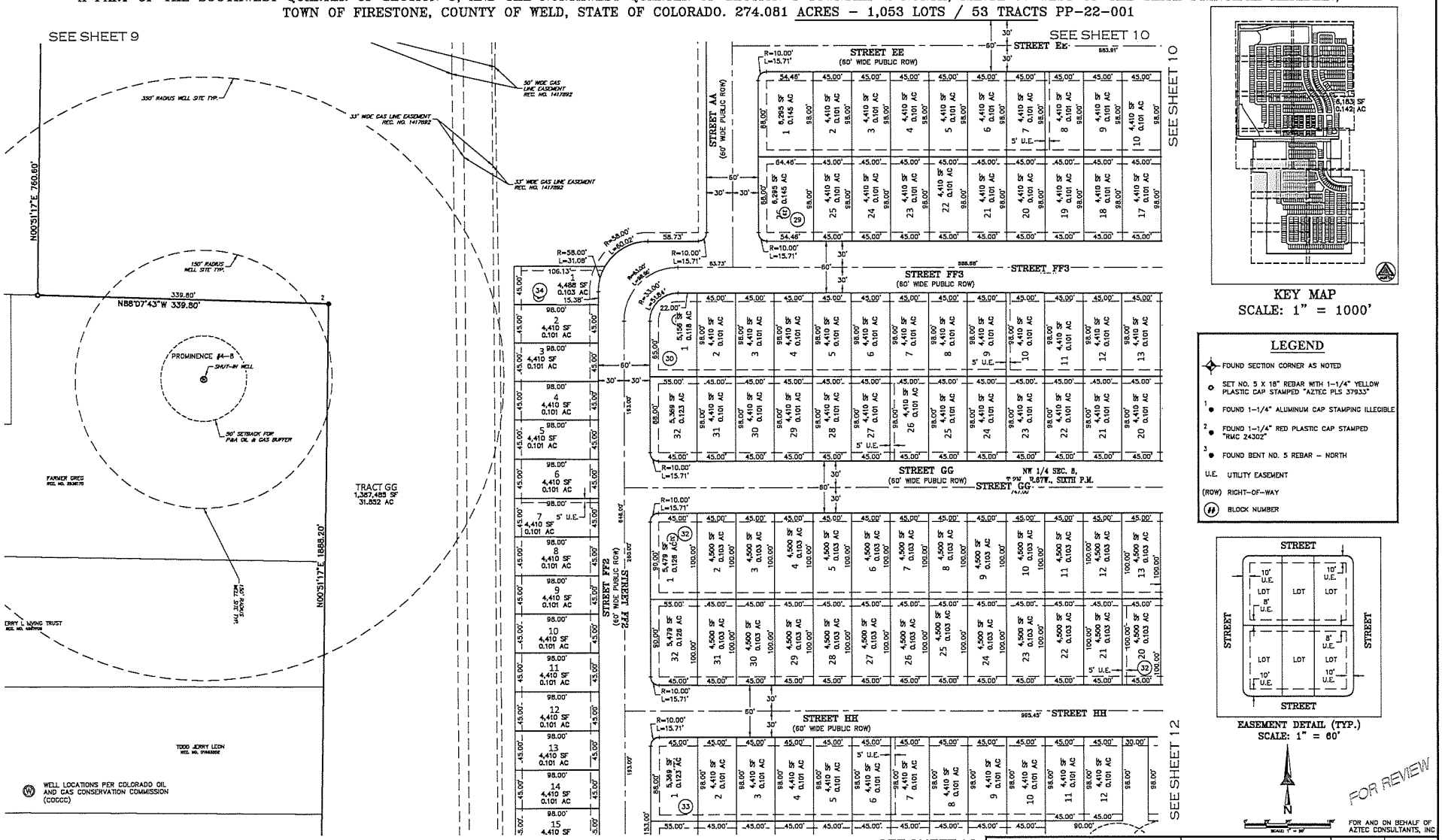

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BROOMFIELD, COLORADO

DATE OF PREPARATION	12-21-2021
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SHEET 11 OF 16	

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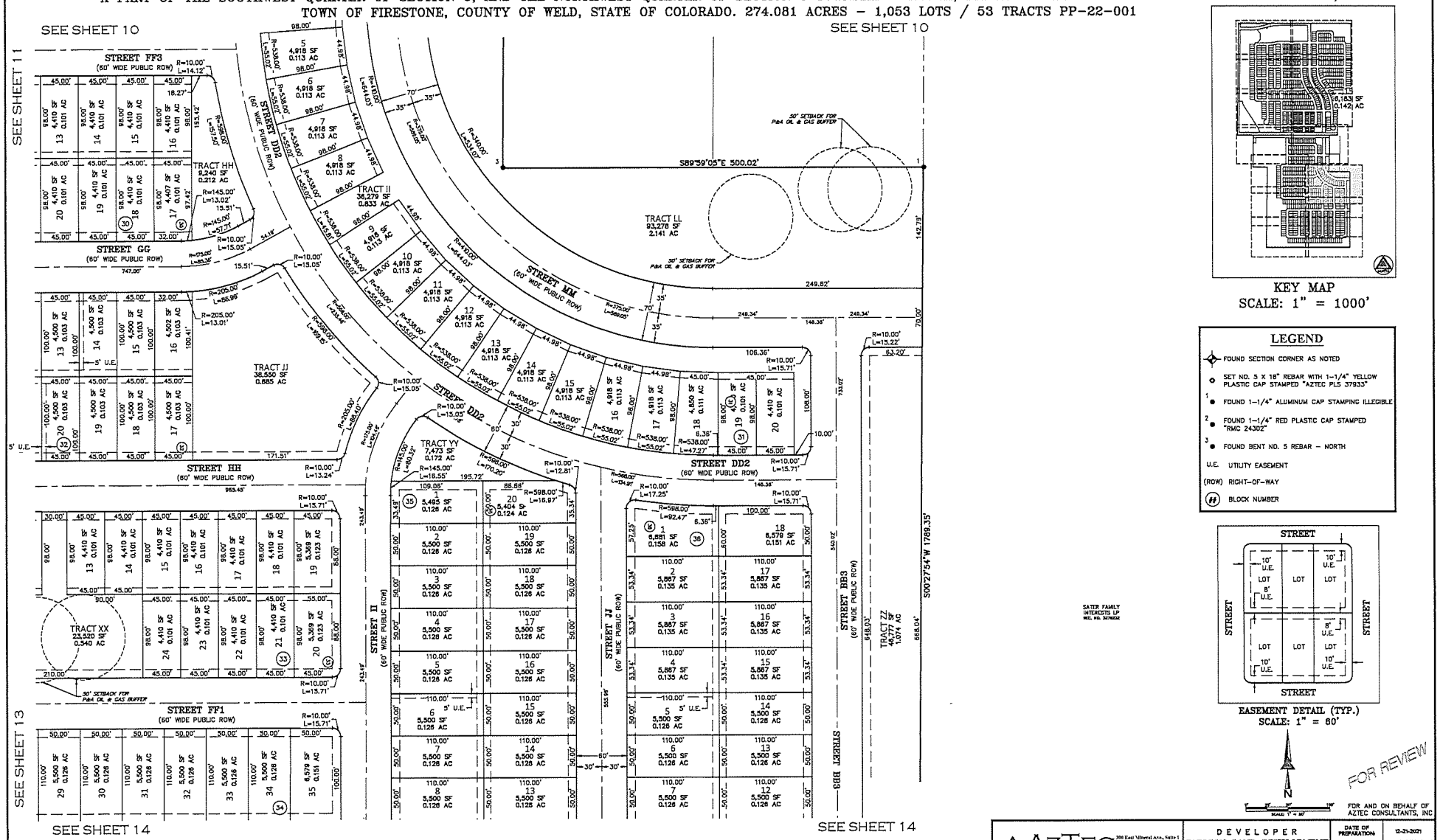

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AzTec Proj. No.: 167923-01 Drawn By: RDR

DEVELOPER
CARLSON LAND DEVELOPMENT
145750 CLAY STREET
BROOMFIELD, COLORADO

DATE OF PREPARATION	12-21-2021
SCALE	1"=60'
SHEET 12 OF 18	

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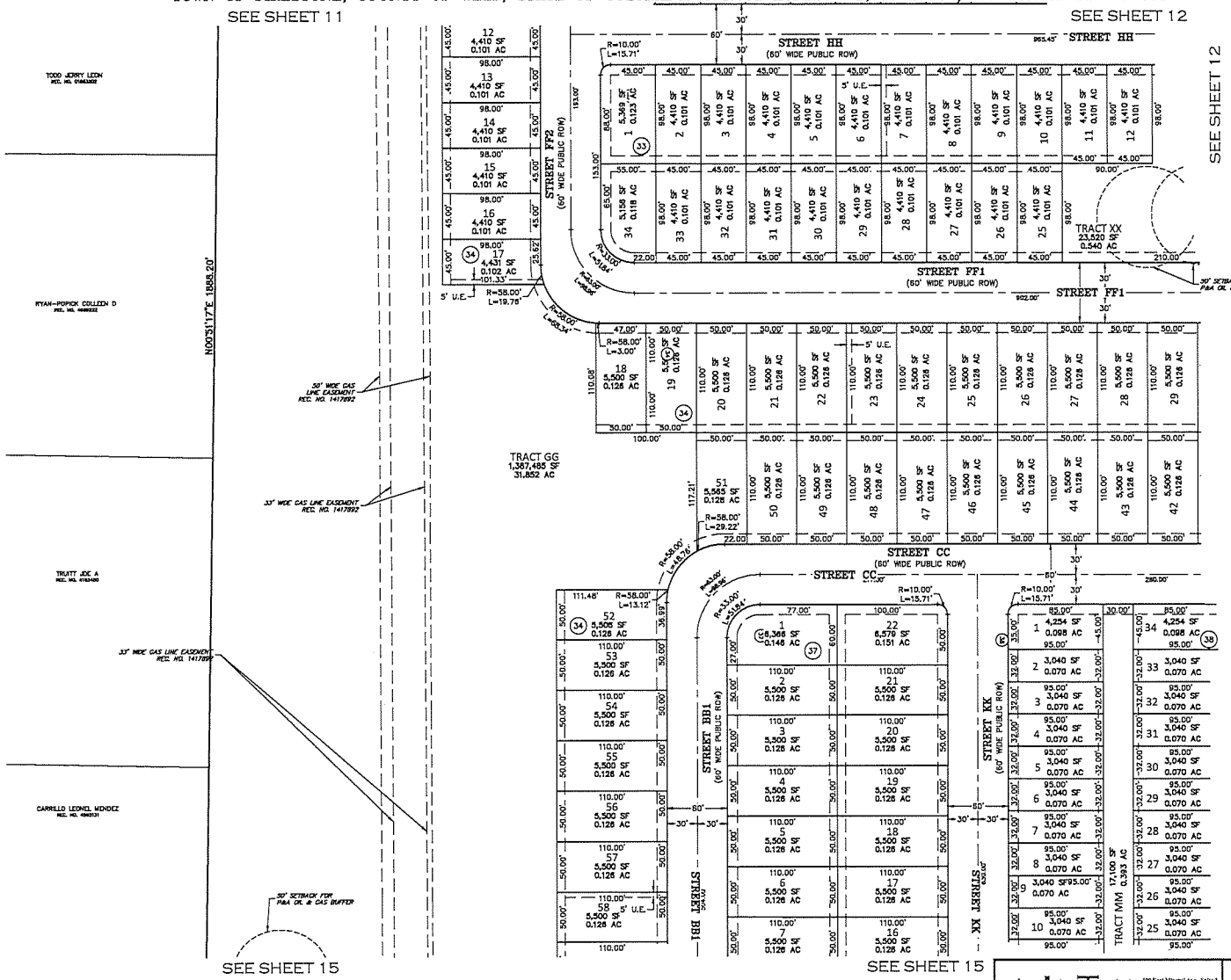

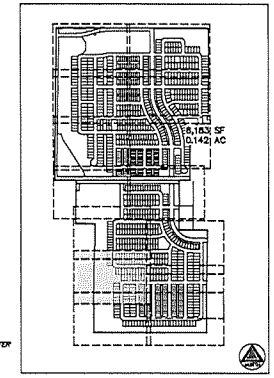

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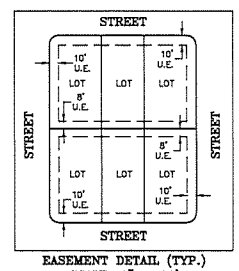

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SHEET 13 OF 16	

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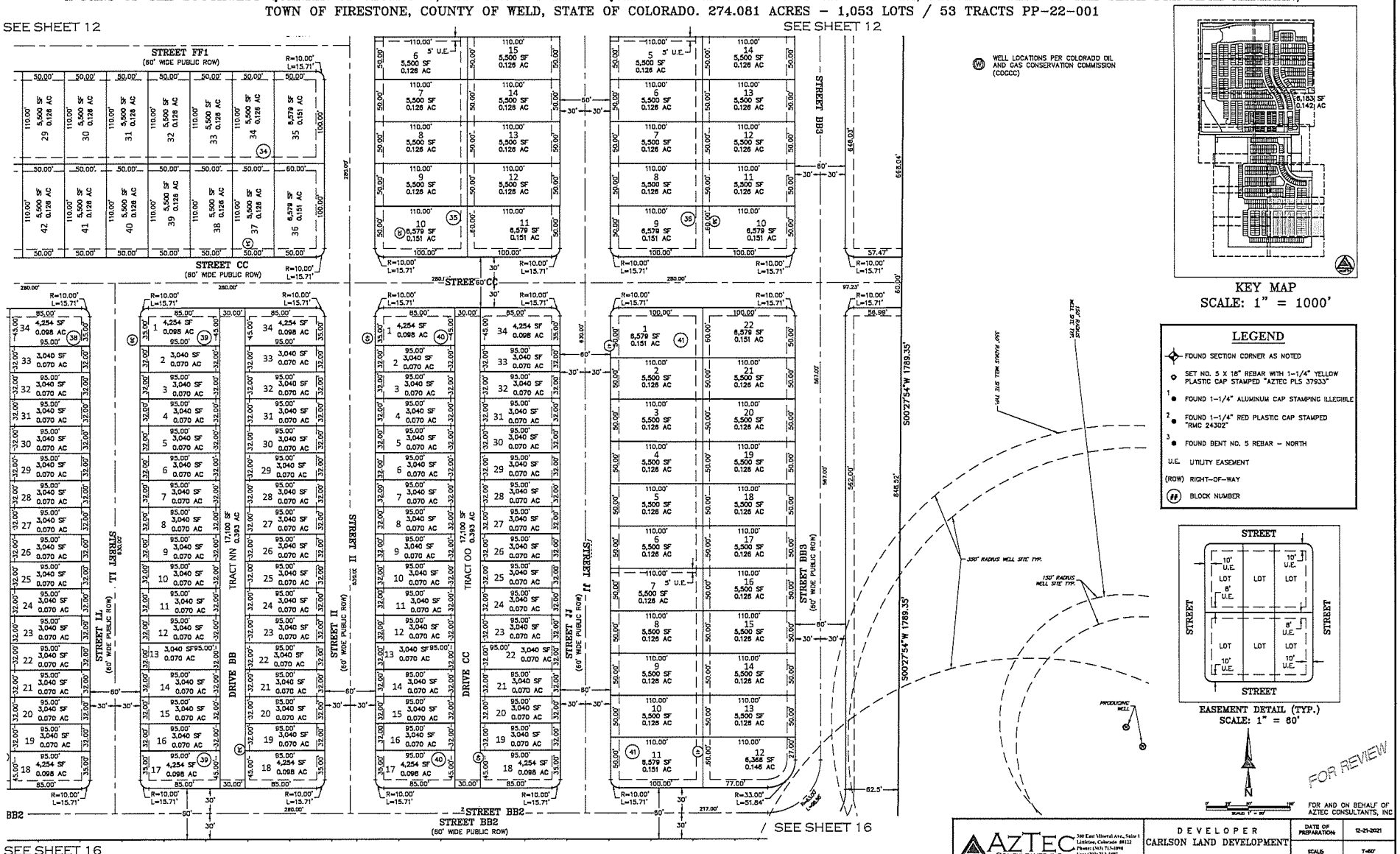

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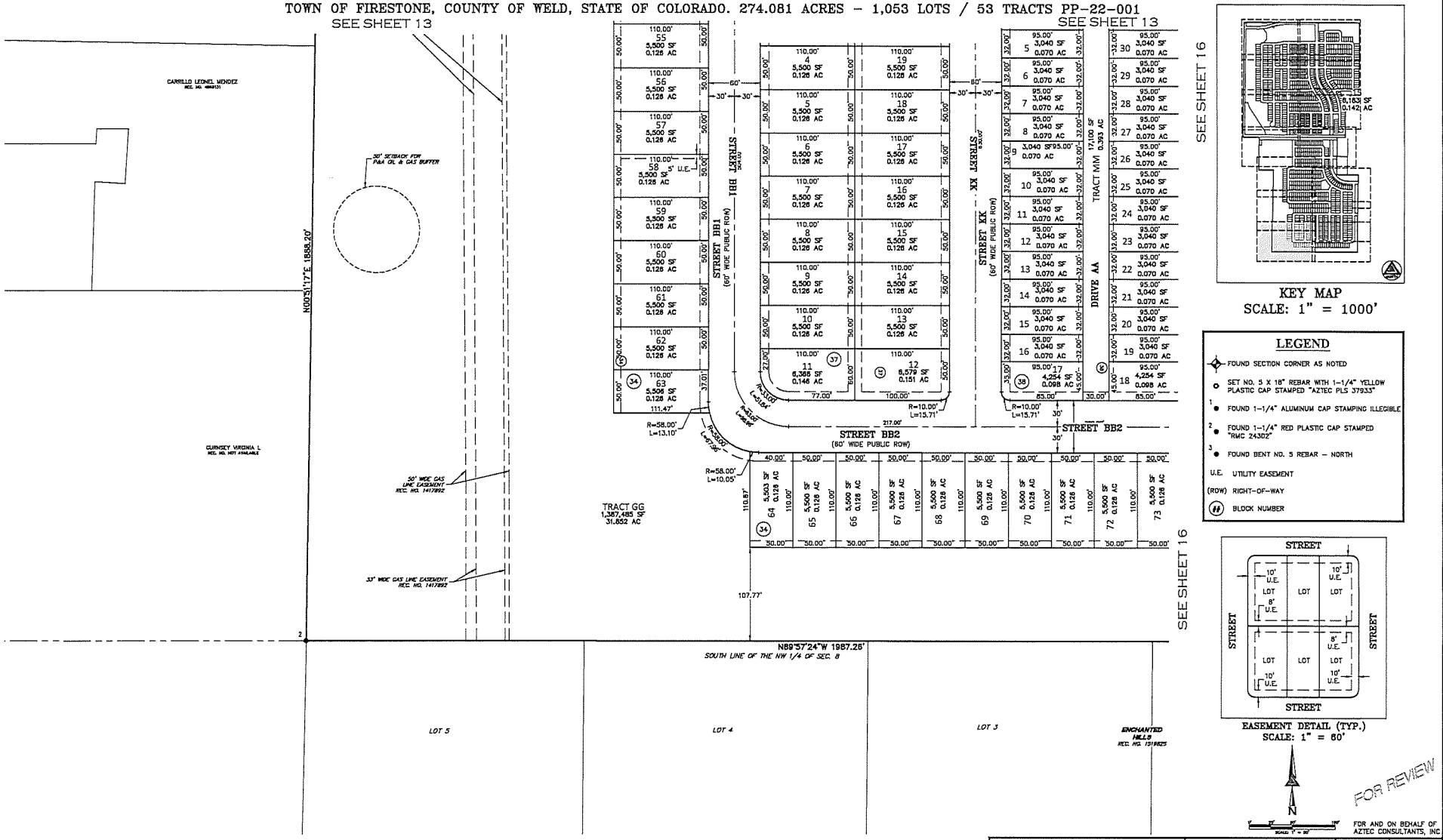

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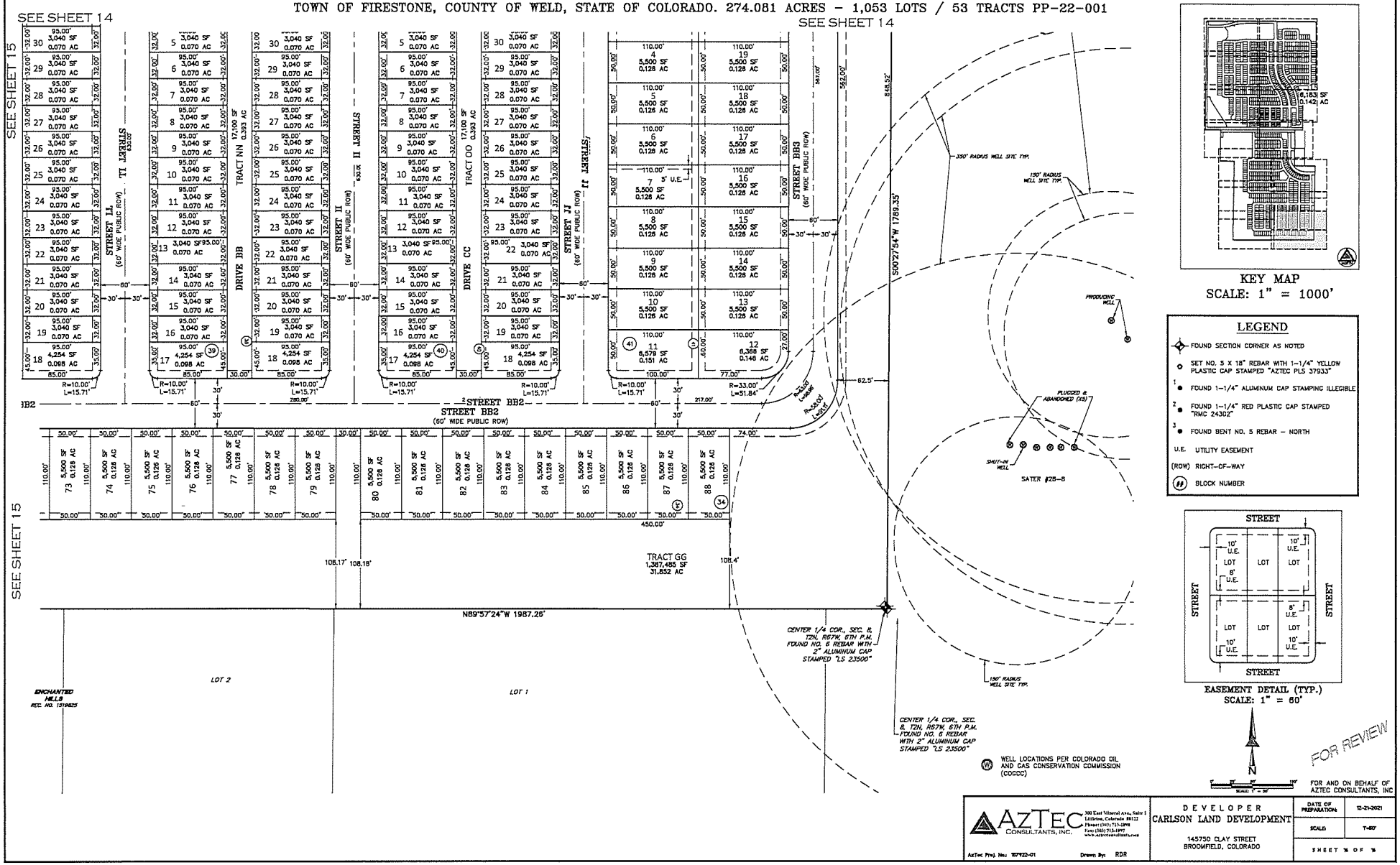

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DATE OF PREPARATION	12-21-2021
SCALE	1"=60'
SHEET	16 OF 16

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 8.a

Discussion/Action

Meeting Date: July 27, 2022

Initiated By: Dave Lindsay

Dept: Public Works

AGENDA TITLE

Resolution 22-89: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE COLORADO APPROVING CHANGE ORDER NO. 5 TO THE TOWN OF FIRESTONE AND E-Z EXCAVATING INC.'S AGREEMENT FOR THE INSTALLATION OF A POTABLE WATERLINE AND APPURTENANCES FOR THE ST. VRAIN WATER TREATMENT PLANT TRANSMISSION PIPELINE PROJECT

SUMMARY

The St. Vrain WTP Transmission Pipeline project is nearly completed. With most of the work done now, the Engineer and Contractor have been able to resolve final quantities to reflect actual installed quantities. In addition to final quantity adjustment, the change order includes equipment and labor charges for idle time related to the resolution of conflicts with fiber optic lines and gas lines. However, the net quantity adjustments resulted in an overall contract reduction.

HISTORY AND PREVIOUS BOARD ACTION

On July 14, 2021, the Board of Trustees approved Resolution 21-85, awarding the construction contract for the Phase 1 Potable Water Transmission Pipeline Project.

On October 27, 2021, the Board of Trustees approved Resolution 21-115, approving Change Order No. 1.

On January 26, 2022, the Board of Trustees approved Resolution 22-19, approving Change Order No. 2.

On March 9, 2022, the Board of Trustees approved Resolution 22-37, approving Change Order No. 3.

On May 11, 2022, the Board of Trustees approved Resolution 22-62, approving Change Order No. 4.

RECOMMENDATION

Staff recommends the Board of Trustees approve the attached resolution approving Change Order No. 5 to the construction contract for the St Vrain WTP Transmission Pipeline project with EZ Excavating, Inc., and authorize the Mayor to execute the change order on behalf of the Town.

ALTERNATIVES

NA

ATTACHMENTS

1. Res 22-89 E-Z Excavating Change Order 4 Res (1)
2. W2020-9524.04 SVWTP Transmission Pipeline CO 5 (EZ)
3. Vicinity Map

FINANCIAL CONSIDERATIONS

The change order results in a decrease of $38,541.50 and brings the contract amount down to $3,741,685.90.

RESOLUTION NO. 22-89

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE COLORADO APPROVING CHANGE ORDER NO. 5 TO THE TOWN OF FIRESTONE AND E-Z EXCAVATING INC.'S AGREEMENT FOR THE INSTALLATION OF A POTABLE WATERLINE AND APPURTENANCES FOR THE ST. VRAIN WATER TREATMENT PLANT TRANSMISSION PIPELINE PROJECT

WHEREAS, by adoption of Resolution No. 21-85 the Town of Firestone ("Town") entered into an agreement with E-Z Excavating Inc., ("EZ") for the installation of a transmission pipeline to convey water from the St. Vrain Water Treatment Plant to the Town's water distribution system; and

WHEREAS, as the Project is nearing completion EZ and the Project Engineer have reconciled the quantities of material actually installed which has resulted in a reduction of the Project's costs; and

WHEREAS, EZ incurred additional costs as a result of downtime due to the resolution of fiber optic and gas line conflicts.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

Change Order No.5 to the Town of Firestone and E-Z Excavating Inc.'s Agreement for the installation of a potable waterline and appurtenances, for the St. Vrain Water Treatment Plant Transmission Pipeline Project is approved in substantially the same form as the copy attached hereto and made a part of this resolution, and the Mayor is authorized to execute the Change Order on behalf of the Town.

INTRODUCED, READ, AND ADOPTED this __ day of _____, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

SECTION 00941
CHANGE ORDER

No. 005

Date of Issuance: 2022.06.22 Effective Date: 2022.07.13

Project: St. Vrain WTP Transmission Pipeline Project – Phase 1	Owner: Town of Firestone	Owner's Contract No.: W2020-9524.04
Contract: St. Vrain WTP Transmission Pipeline Project – Phase 1		Date of Contract: 2021.07.14
Contractor: EZ Excavating Inc.		Engineer's Project No.: 227704289

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Contractor has submitted time and costs related to deductions in butterfly valve (BFV) installations due to early shipments, deductions in bid item quantities not needed, and downtime related to unforeseeable circumstances.

Reconciled Quantities (refer to Attachment A for more information):

(Existing) Item #9 18-in DR-14 Transmission Pipeline: Original Quantity = 3964 LF; New Quantity = 3821 LF

(Existing) Item #10 18-in DR-18 Transmission Pipeline: Original Quantity = 8670 LF; New Quantity = 8726 LF

(Existing) Item #11 18-in Direct Bury Butterfly Valve: Original Quantity = -17 EA; New Quantity = -14 EA

(Existing) Item #11.1 Cut in 18" MJ Butterfly Valve & Box - Foreman w/ Truck: Original Quantity = 120 HR; New Quantity = 90 HR

(Existing) Item #11.2 Cut in 18" MJ Butterfly Valve & Box - Operator: Original Quantity = 360 HR; New Quantity = 270 HR

(Existing) Item #11.3 Cut in 18" MJ Butterfly Valve & Box - Laborer: Original Quantity = 240 HR; New Quantity = 180 HR

(Existing) Item #11.4 Cut in 18" MJ Butterfly Valve & Box - 330 Excavator: Original Quantity = 120 HR; New Quantity = 90 HR

(Existing) Item #11.5 Cut in 18" MJ Butterfly Valve & Box - 950 Loader: Original Quantity = 120 HR; New Quantity = 90 HR

(Existing) Item #11.6 Cut in 18" MJ Butterfly Valve & Box - Water Truck: Original Quantity = 120 HR; New Quantity = 90 HR

(Existing) Item #11.7 Cut in 18" MJ Butterfly Valve & Box - Trench Boxes: Original Quantity = 120 HR; New Quantity = 90 HR

(Existing) Item #11.9 Cut in 18" MJ Butterfly Valve & Box - Valve: Original Quantity = 12 EA; New Quantity = 9 EA

(Existing) Item #11.10 Cut in 18" MJ Butterfly Valve & Box - Sleeve: Original Quantity = 12 EA; New Quantity = 9 EA

(Existing) Item #11.11 Cut in 18" MJ Butterfly Valve & Box - Misc Material: Original Quantity = 12 EA; New Quantity = 9 EA

(Existing) Item #22 Pipe Trench Stabilization: Original Quantity = 1600 LF; New Quantity = 800 LF

(New) 42.1 Remove & Replace Asphalt Pavement: Quantity = 87

Asphalt replacement as necessary to repair roads due to excessively sandy soil excavation and caving.

Downtime Costs (refer to Attachment B for more information):

(New) Item #52.1 Downtime - Laborers: Quantity = 73 HR

(New) Item #52.2 Downtime - Operators: Quantity = 61.5 HR

(New) Item #52.3 Downtime - Foreman w/ Truck: Quantity = 33.5 HR

(New) Item #52.4 Downtime - CAT 950 Wheel Loader: Quantity = 3 HR

(New) Item #52.5 Downtime - 330 Excavator: Quantity = 3 HR

(New) Item #52.6 Downtime - 349 Excavator: Quantity = 9 HR

(New) Item #52.7 Downtime - Pothole Truck: Quantity = 3 HR

Furthermore, Contract Time has been extended to accommodate for delays in power supply delivery by Others.

Attachments (list documents supporting change):

Attachment A: Price Quote from EZ Excavating Inc for reconciliation items.
Attachment B: Price Quote from EZ Excavating Inc for downtime costs and descriptions.

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price: $3,480,936.00	Original Contract Times: ☐ Working days ☒ Calendar days Substantial completion (date): 12/31/2021 Ready for final payment (date): 01/31/2022
Increase from previously approved Change Orders No. 001 to No. 004: $299,291.40	Increase from previously approved Change Orders No. 001 to No. 004: Substantial completion (date): 06/21/2022 Ready for final payment (date): 07/05/2022
Contract Price prior to this Change Order: $3,780,227.40	Contract Times prior to this Change Order: Substantial completion (date): 06/21/2022 Ready for final payment (date): 07/05/2022
Decrease of this Change Order: $ (38,541.50)	Increase of this Change Order: Substantial completion (date): 08/12/2022 Ready for final payment (date): 08/26/2022
Contract Price incorporating this Change Order: $ 3,741,685.90	Contract Times with all approved Change Orders: Substantial completion (date): 08/12/2022 Ready for final payment (date): 08/26/2022

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: Wiggins, David (Digitally signed by Wiggins, David DN: CN="Wiggins, David", OU=Internal, OU=users, OU=cantec, DC=corp, DC=ads Reason: I am the author of this document Date: 2022.06.22 14:48:40-06'00')	By:	By: Nic Tiller (Digitally signed by Nic Tiller DN: C=US, E=ntiller@ezexcavating.com, O="E-Z Excavating, Inc", OU=Project Management, CN=Nic Tiller Date: 2022.06.23 05:43:20-06'00')
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: 6/22/2022	Date:	Date: 2022.06.23

CHANGE ORDER
INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

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

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

ATTACHMENT A
Reconciliation Items

E-Z Excavating, Inc
8123 Indian Peaks Ave
Frederick, CO 80516
P (303) 772-8121
F (303) 250-9618

To:	Town Of Firestone, CO	**Contact:**	
Address:	151 Grant Ave. Firestone, CO	**Phone:** **Fax:**	
Project Name:	7642 - St. Vrain WTP - P1 CO#07 Qty Reconciliation	**Bid Number:**	2021-0498
Project Location:	Firestone, CO	**Bid Date:**	7/1/2021

01 - Qty Reconciliation

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
9	18-in DR-14 Transmission Pipeline	-143.00	LF	$56.50	($8,079.50)
10	18-in DR-18 Transmission Pipeline	56.00	LF	$95.00	$5,320.00
11	18-in Direct Bury Butterfly Valve	3.00	EACH	$6,800.00	$20,400.00
11.1	Cut In 18" MJ Butterfly Valve & Box - Foreman W/Truck	-30.00	HR	$67.50	($2,025.00)
11.10	Cut In 18" MJ Butterfly Valve & Box - Sleeve	-3.00	EACH	$2,150.00	($6,450.00)
11.11	Cut In 18" MJ Butterfly Valve & Box - Misc Material	-3.00	EACH	$2,704.00	($8,112.00)
11.2	Cut In 18" MJ Butterfly Valve & Box - Operator	-90.00	HR	$57.50	($5,175.00)
11.3	Cut In 18" MJ Butterfly Valve & Box - Laborer	-60.00	HR	$52.50	($3,150.00)
11.4	Cut In 18" MJ Butterfly Valve & Box - 330 Excavator	-30.00	HR	$175.00	($5,250.00)
11.5	Cut In 18" MJ Butterfly Valve & Box - 950 Loader	-30.00	HR	$140.00	($4,200.00)
11.6	Cut In 18" MJ Butterfly Valve & Box - Water Truck	-30.00	HR	$95.00	($2,850.00)
11.7	Cut In 18" MJ Butterfly Valve & Box - Trench Boxes	-30.00	HR	$31.50	($945.00)
11.9	Cut In 18" MJ Butterfly Valve & Box - Valve	-3.00	EACH	$3,820.00	($11,460.00)
22	Pipe Trench Stabilization	-800.00	LF	$35.50	($28,400.00)
	Total Price for above 01 - Qty Reconciliation Items:				**($60,376.50)**

02 - Asphalt R/R Per Town Of Firestone

42.1	Remove & Replace Asphalt Pavement (West Side Of Frontier As Directed By Town)	87.00	SY	$95.00	$8,265.00
	Total Price for above 02 - Asphalt R/R Per Town Of Firestone Items:				**$8,265.00**

Total Bid Price: ($52,111.50)

Notes:

- EXCLUDED FROM THIS PROPOSAL are the following: Staking, Surveying, Engineering, Fees, Permits, Inspections, Plant Investment Fees, Tap Fees, Soils Testing, Landscaping, Winter Protection, Frost Removal, Rock Excavation, Dewatering, Snow Removal, Chemical Stabilization, Hazardous Materials Removal or Abatement, Signage, Striping, Rotomill and Overlay, Infrared Asphalt, Erosion Control, Export of Spoils, SWMP, Arrow Boards or Message Boards for Traffic Control, and Bond (Add 2% if reqd).
- E-Z Excavating is a civil contractor that prepares estimates based on our review of the civil drawings. Work or scope that is shown on drawings or documents other than the civil drawings is not typically included in our proposals. Pricing subject to review of final approved plans and Soils Report.
- • Any soft or unstable areas will be corrected on an hourly basis at the direction of the Owner's Representative.
  - Final billing will be based on actual field measured quantities installed.
  - While every attempt will be made to ensure proper drainage, we cannot guarantee complete drainage in those areas with less than 2 percent slope. Small water puddles may occur.
- Proposal is based on the drawings dated ##/##/##

- PAYMENT FOR SERVICES: Net 10th. Finance charges of 1.5% per month will be charged on past due billings. All material is guaranteed to be as specified. All work to be completed in a substantial workmanlike manner according to specifications. Scope changes involving extra cost will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents, or delays beyond our control. Owner to carry fire, tornado, and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance.
- This proposal is VALID for sixty (60) days from the date of Proposal above.
- The above prices, specifications, and conditions are satisfactory and are hereby accepted. E-Z Excavating is authorized to do the work as specified. Payment will be made as outlined above. _____
- Scheduling of the work is based on E-Z's current workload. Advanced notice of acceptance is appreciated and scheduling of the work will not be completed until after award of the project is received. The project is bid to lay pipe from the lowest to highest points, installed sequentially and uninterrupted from the lower to higher utility. Materials (pipe, aggregates, fuel) are subject to surcharges if there are dramatic changes in the prices.
- Due to an increase in Multi-Family litigation, E-Z Excavating will not perform work on any Multi-Family project without the Owner first procuring an OCIP insurance policy that covers E-Z Excavating and E-Z Excavating's scope of work.

ACCEPTED: The above prices, specifications and conditions are satisfactory and hereby accepted. **Buyer:** _____ **Signature:** _____ **Date of Acceptance:** _____	**CONFIRMED:** **E-Z Excavating, Inc** **Authorized Signature:** _____ **Estimator:** Kyle Herman (303) 720-745-3331 kherman@ezexcavating.com

ATTACHMENT B
Downtime Costs and Descriptions

CHANGE ORDER

NO. 005 ~~07~~
97.64202/3/8/9

EZ EXCAVATING
P.O. Box 1439
Longmont, Colorado 80502
(303) 772-8121
Fax (303) 772-3640

ATTN: ~~Ben Strate~~
COMPANY: Town of Firestone
ADDRESS: 151 Grant Ave.
Firestone, CO
PHONE #: (970) 305-2924
FAX #:

DATE: 4/26/2022
JOB #: 7642
JOB NAME: St. Vrain WTP
LOCATION: Firestone, CO

Description of work:
Crew downtime due to unknown fiber optic damage at Frontier St. and Summerset Ave. (97.64202), Extra time to expose fiber optic, pull aside & install water line (97.64203), extra time to excavate buried concrete and sort from onsite fill material (97.64208), and downtime due to Town of Firestone water shut down failure (97.64209).

ITEM #	DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM COST
	Crew downtime due to unknown fiber optic damage at Frontier and Summerset Jan. 21, 26, & 28				
52.1	Laborers	41	MH	$ 55.00	$ 2,255.00
52.2	Operators	43	MH	$ 65.00	$ 2,795.00
52.3	Foreman	24	MH	$ 75.00	$ 1,800.00
	Extra time to expose fiber optic, pull aside & install water line				
52.1	Laborers	20	MH	$ 55.00	$ 1,100.00
52.2	Operators	14.5	MH	$ 65.00	$ 942.50
52.3	Foreman with pickup	5.5	MH	$ 75.00	$ 412.50
52.4	CAT 950 Wheel Loader	1	HR	$ 145.00	$ 145.00
52.5	CAT 330 Excavator	3	HR	$ 180.00	$ 540.00
52.6	CAT 349 Excavator	7	HR	$ 195.00	$ 1,365.00
52.7	Pothole Truck	3	HR	$ 105.00	$ 315.00
	Extra time to excavate buried concrete and sort from onsite fill material				
52.4	CAT 950 Wheel Loader	2	HR	$ 145.00	$ 290.00
52.7	CAT 349 Excavator	2	HR	$ 195.00	$ 390.00
	Crew downtime due to Town of Firestone water shut down failure - April 12, 2022				
52.1	Laborers	12	MH	$ 55.00	$ 660.00
52.2	Operators	4	MH	$ 65.00	$ 260.00
52.3	Foreman	4	MH	$ 75.00	$ 300.00
				TOTAL:	$ 13,570.00

The Contract Time will be extended by _____ days

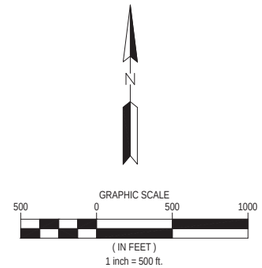
Firm:		Contractor:	E-Z Excavating, Inc.
Signature:		Signature:	Nic Tiller
Print Name:		Print Name:	Nic Tiller
Title:		Title:	Project Manager
Date:		Date:	4/26/2022

E-Z Management Use Only:

	CO Added to CO Log			Owner CO
	B2W Estimate CO TROB Created		Status:	Approved
	Track Budget Updated			Pending
	Foundation Budget Updated			Rejected
	Excel Billing Sheet Updated			Internal

5/3/2021 10:28:18 AM





WENCK
now part of
Stantec
203 SOUTH MAIN STREET
#2003
SHERIDAN, WY 82801
PHONE: 307-675-1148
FAX: 307-675-1149
WWW.WENCK.COM

PROJECT PARTNER:
acuity, llc

CLIENT:
FIRESTONE COLORADO

PROJECT TITLE:
PHASE 1 SWWTP
TRANSMISSION PIPELINE
TOWN OF FIRESTONE
FIRESTONE, WELD COUNTY, COLORADO

ISSUE NO.:	DESCRIPTION:	DATE:
1	ISSUED FOR BID	5/3/2021

CERTIFICATION:
NOT FOR CONSTRUCTION

PROJECT NO.: 6365-20-500

DWN BY:	CHK'D BY:	APP'D BY:
JTP	RAG	MJK

ISSUE DATE: 5/3/2021

ISSUE NO.:

SHEET TITLE:
PROJECT MAP

SHEET NO.:
C-101

COLORADO 811

M:\6365\20-500 Firestone SVWTP Delivery System\5_DESIGN\1_CAD\3 PLANSHEETS\PROJECT MAP.dwg 5/3/2021 ROSHAN A. GREENE

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 8.b

Discussion/Action

Meeting Date: July 27, 2022

Initiated By: Dave Lindsay

Dept: Public Works

AGENDA TITLE

Resolution 22-90: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE COLORADO AND STANTEC CONSULTING SERVICES INC. REGARDING CONSTRUCTION ENGINEERING SERVICES FOR THE ST VRAIN WATER TREATMENT PLANT PUMP STATION

SUMMARY

Stantec Consulting Services was the design engineer for the potable water pump station that will deliver treated water from the St Vrain Water Treatment Plant into the Town's existing distribution system. The Town also retained Stantec to serve as the construction engineer for the project when we were ready to build the pump station. Two issues beyond the control of Stantec have increased their efforts on the project. First, Firestone added the FAST Pipeline Project to the construction contract for this pump station via a change order with Integrated Water Services. Second, the completion of the pump station is tied to the completion of the water treatment plant, and that project is delayed beyond the original budget estimate for the pump station construction engineering contract. Stantec has worked with staff to develop a contract amendment that incorporates the additional time spent on the project. Those adjustments are shown in redline form on the last page of the proposed amendment, included in the packet.

HISTORY AND PREVIOUS BOARD ACTION

On May 26, 2021, the Board of Trustees approved Resolution 21-69, awarding the CE contract to Stantec.

On December 8, 2021, the Board approved Resolution 21-209, approving CO 1 to the IWS construction contract, adding the FAST Pipeline work to their construction contract.

RECOMMENDATION

Staff recommends the Board of Trustees approve the attached resolution approving the contract amendment with Stantec for the St Vrain WTP Pump Station Construction Engineering Services and authorize the Mayor to execute the amendment on behalf of the Town.

ALTERNATIVES

NA

ATTACHMENTS

1. Res 22-90 Pump Station Stantec
2. W2020-9524.03 Stantec SVWTP Pump Station CE Contract Amendment 1 (2022.06.17)
3. Site Plan
4. Pump X-Section
5. Pipeline Exhibit

FINANCIAL CONSIDERATIONS

The contract amendment increases the consultant fee by $24,995.00 to a new total amount of $158,455.00 and will be paid from the Water Fund.

RESOLUTION NO. 22-90

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE COLORADO AND STANTEC CONSULTING SERVICES INC. REGARDING CONSTRUCTION ENGINEERING SERVICES FOR THE ST VRAIN WATER TREATMENT PLANT PUMP STATION

WHEREAS, upon adoption of Resolution 21-69, on May 26, 2021, the Board of Trustees of the Town of Firestone awarded the contract for the St. Vrain Water Treatment Plant Pump Station Construction Engineering to Stantec Consulting Services Inc., ("Contractor"); and

WHEREAS, during the course of construction of the project, several unanticipated issues arose that were beyond the reasonable control or expectation of Contractor that required more work than had been originally estimated; and

WHEREAS, delays in the delivery of certain construction materials and equipment required processing of additional change and field orders, which extended the construction period beyond the original contract time; and

WHEREAS, addition of the Firestone Alluvial Supply and Treatment ("FAST") pipeline to the construction contract required processing of additional change and field orders and submittal reviews.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

The First Amendment to the Professional Services Agreement between the Town of Firestone and Stantec Consulting Services Inc., regarding Construction Engineering for the St Vrain Water Treatment Plant Pump Station is approved in substantially the same form as the copy attached hereto and made a part of this resolution, and the Mayor is authorized to execute the First Amendment on behalf of the Town.

INTRODUCED, READ, AND ADOPTED this __ day of _____, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

FIRST AMENDMENT TO AN AGREEMENT BY AND BETWEEN THE TOWN OF FIRESTONE AND STANTEC CONSULTING SERVICES INC. FOR PROFESSIONAL SERVICES

THIS FIRST AMENDMENT TO PROFESSIONAL SERVICES AGREEMENT for the St Vrain Water Treatment Plant Pump Station Construction Engineering (W2020-9524.03) is made and entered into effective as of the ____ day of _____, 2022, by and between the **TOWN OF FIRESTONE**, a Colorado municipal corporation, hereinafter referred to as the "Town", and **Stantec Consulting Services Inc.**, a New York corporation, hereinafter referred to as the "Contractor" with reference to that certain Professional Services Agreement between the Town and Contractor approved with Resolution 21-69 and executed by the Town on May 26, 2021, hereinafter referred to as the "Original Agreement."

WHEREAS, during the course of the construction of the project, several unanticipated issues arose that were beyond the reasonable control or expectation of Contractor that required more of their time than had been originally estimated, and;

WHEREAS, delays in the delivery of certain construction materials and equipment and delays in the start up of the water treatment plant have extended the construction period beyond the original contract time, and;

WHEREAS, the addition of the FAST Pipeline to the construction contract required processing of additional change orders, field orders, and submittal reviews, and;

WHEREAS, the Parties believe it to be in the best interest to amend the Original Agreement as set forth herein.

NOW, THEREFORE, for good and valuable consideration, the Parties agree as follows:

1. Section III of the Original Agreement is hereby amended to increase the not-to-exceed compensation amount to a new total of $158,455.00.

2. Exhibit A of the Original Agreement is hereby further amended to include the attached Exhibit A1 - Additional Scope of Services, that details the additional construction engineering effort.

3. The Original Agreement, as herein further amended by this First Amendment, is hereby ratified and confirmed and remains in full force and effect in accordance with its terms.

IN WITNESS WHEREOF, the Parties have executed this First Amendment to Professional Services Agreement effective as of the day and year first above set forth.

TOWN OF FIRESTONE,
a Colorado Municipal Corporation

By:_____
Drew Alan Peterson, Mayor

Attest:_____
Jessica Koenig, Town Clerk

Approved as to Form:

_____
William P. Hayashi, Town Attorney

CONSULTANT:
STANTEC CONSULTING SERVICES INC.
a New York corporation,

By: Massaro, Pamela
Digitally signed by Massaro, Pamela
DN: CN="Massaro, Pamela", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Location: 3325 South Timberline Road, 2nd Fl., Fort Collins CO
Reason: I have reviewed this document
Contact Info: pamela.massaro@stantec.com
Date: 2022.06.17 15:07:15-06'00'

Print Name: Pamela Massaro

Title: Principal, Senior Water Resources Engineer

Attest: Wiggins, David
Digitally signed by Wiggins, David
DN: CN="Wiggins, David", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Reason: I am the author of this document
Date: 2022.06.17 15:11:05-06'00'

Print Name: David Wiggins

Title: Senior Civil Water Engineeer

Exhibit A1 – Additional Scope of Services

[See Following 3 Pages]

Stantec

April 20, 2022

Attention: David B. Lindsay
Colorado Civil Group, Inc.
2204 Hoffman Drive
Loveland, CO 80538

Dear Mr. Lindsay,

Reference: St. Vrain Water Treatment Plant Pump Station Construction Engineering Contract Amendment Request

Pursuant to the Agreement on the above project dated May 26, 2021, Stantec is requesting an increase in the total budget compensation for additional professional services according to Paragraph I of the document. Compensation is described as to estimates in the form of an individual's professional time, subconsultant costs, and direct expenses.

This increase in the total budget compensation is the result of the following:

- The construction schedule has extended due to contractor delays in commencement.
- Significant supply material shortages
- Preparing and reviewing RFI's, Change Orders, and Field Orders related to supply chain shortages.
- Addition of the FAST Pipeline Project to the contractor's contract.

The additional budget for these items is $24,955.

Please review this request and contact us with any questions. If you agree with this request, please sign and date the following page.

Regards,

Wiggins, David

Digitally signed by Wiggins, David
DN: CN="Wiggins, David", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Reason: I am the author of this document
Date: 2022.06.06 11:47:45-06'00'

David Wiggins PE
Senior Civil Water Engineer
Phone: (970) 449-8601
David.Wiggins@stantec.com

Pamela A. K. Massaro

Digitally signed by Massaro, Pamela
Date: 2022.04.25 14:01:11-06'00'

Pamela Massaro PE
Principal, Senior Water Resources Engineer
Phone: 970 893-4807
pamela.massaro@stantec.com

Reference: **Town of Firestone Water Delivery Projects – Construction Management Services Budget Moves**

By signing this proposal, Colorado Civil Group, Inc. authorizes Stantec to proceed with the services herein described which shall be governed by the Professional Services Agreement entered into by Colorado Civil Group, Inc. with the Town of Firestone, on behalf of itself and its subsidiaries and affiliates, dated May 26, 2021 ("Agreement"). In the event of a discrepancy or a conflict between the Agreement and this proposal, the terms of the Agreement shall control. Any capitalized terms used in this proposal that are undefined shall have the meaning assigned to the in the Agreement

This proposal is accepted and agreed on the ____ day of June 2022.

Colorado Civil Group, Inc.

By:____
Name:_
Title:___

Firestone CM Services: Draft Fees 5-18-21

		David Wiggins	Wenck Labor								Use
		~~Marcus Krall~~	Victor Anderson	Brandon Noble	Acuity	Bates (Structural)	Michael Baldin	TOTAL LABOR	Expenses	TOTAL PROJECT	
Rates		$ 155.00	$ 190.00	$ 145.00	$ 193.00		$ 155.00				
Labor Hours											
1.0 Construction Management											
1.1 Pre-Con Mtg		8	2	4	2			16			
1.2 Weekly Coordination Mtgs		~~50~~ 55	25	50	25			150			
1.3 Submittals		~~40~~ 44	16	100		$ 5,000.00	20	176			
1.4 Change Management		~~24~~ 28	16	20	20			80			
1.5 RFI's/Clarifications		~~30~~ 34	16					46			
1.6 Bld Permit		8	2	2				12			
1.7 Misc Coordination		~~40~~ 164	12					52			
Subtotal (hrs)		~~200~~ 341	*89*	*176*	*47*		*20*	532			
Subtotal ($)	$52,855	*$ ~~31,000.00~~*	*$ 16,910.00*	*$ 25,520.00*	*$ 9,071.00*	*$ 5,000.00*	*$ 3,100.00*	$ 90,601.00	$ 6,592.55	$ 97,193.55	$ 97,200.0
2.0 Site Observation											
2.1 Special Inspections		50	0	25				75			
Subtotal (hrs)		50	0	25				75			
Subtotal ($)		*$ 7,750.00*	*$ -*	*$ 3,625.00*				$ 11,375.00	$ 568.75	$ 11,943.75	$ 11,900.0
3.0 Project Close-Out											
3.1 Equipment Start-Up/Commissioning		12	6		4			18			
3.2 Punchlist		2	2	6	2			12			
3.2 Record Drawings		~~8~~ 24	3	40	4			55			
3.3 O and M/Reporting		~~12~~ 16	6		4			18			
3.4 Aftermarket Support/Warranty		12	8		8			20			
Subtotal (hrs)		~~46~~ 66	25	46	22			139			
Subtotal ($)	$10,230	*$ ~~7,130.00~~*	*$ 4,750.00*	*$ 6,670.00*	*$ 4,246.00*			$ 22,796.00	$ 1,569.90	$ 24,365.90	$ 24,400.0
BUDGETARY COST	$70,835	~~$45,880~~	**$21,660**	**$35,815**	**$13,317**	**$5,000**	**$3,100**	**$124,772**	**$8,731**	~~$133,503~~	$ 133,500.00
										$158,458	

CONTINUATION BY OTHERS

6" CONCENTRATE LINE TO DEEP WELL INJECTION

20" RAW WATER

3/4" DOMESTIC WATER SERVICE

UTILITY SETBACK 50' FROM PROPERTY LINE

PROPERTY PERIMETER GRAVEL ACCESS ROAD

STORM WATER RETENTION POND (SEE SHEET C-020)

DAYLIGHT 24" OVERFLOW INTO SWALE WITH CORRUGATED METAL END SECTION & RIPRAP INV ELEV 4807.0

DOMESTIC WATER SERVICE METER PIT (FOR DEEP WELL SITE)

0.5 MG RAW WATER STORAGE TANK (SEE SHEET C-013)

24" OVERFLOW

8" TANK DRAIN

24" HDPE DRAIN LINE INVERT ELEV 4807.12

10' MIN

24" TANK OVERFLOW/DRAIN WITH FLAPPER VALVE ON END OF PIPE

STORAGE POND 1634.0 CY (SEE SHEET C-017)

12" PIPE EXPOSED ON BOTTOM OF POND

12" EL UP WITH SCREEN

12" BACKWASH RECYCLE

3" RESIDUAL DISCHARGE WITH FLAPPER VALVE ON END OF PIPE

12" DRAIN LINE

8" TANK DRAIN

16" BFV

16"x16"x16"TEE WITH 16" BFV AND PLUG

1.0 MG FINISHED WATER STORAGE TANK (SEE SHEET C-014)

20"X 6" TEE

WET WELL AND FLOW METER MANHOLE (1/C-028)

GEOTUBES (SEE SHEET C-016)

20" RAW WATER

24" GRAVITY DRAIN

GATE VALVE WITH VALVE BOX AND COLLAR

3" RESIDUALS LINE

24"x24"x24" TEE WITH (3) 24" BFVs AND (2) PLUGS

18" END CAP

18" 90° BEND

ClO_2 INJECTION MANHOLE

16" FINISHED WATER LINE

ASPHALT

GRAVEL

TRASH AND RECYCLING

3/4" TAP FOR DOMESTIC WATER SERVICE

18" FINISHED WATER LINE

CHLORINE DIOXIDE (ClO_2) TO MANHOLE

LIMESTONE STORAGE

18" CALCITE CONTACTOR FLUSH WASTE LINE

4" MANHOLE DRAIN LINE

6" RO CONCENTRATE LINE

CALCITE CONTACT VESSELS

16" FINISHED WATER

6" FIRE SERVICE LINE

18"x 18"x 6" TEE & 6" GATE VALVE

2" TAP AND DOMESTIC WATER SERVICE METER PIT

2" DOMESTIC WATER SERVICE

12" CALCITE CONTACTOR RETURN

12" CALCITE CONTACTOR FEED

2" GAS SERVICE

2" GAS METER; REFER TO MECHANICAL PLUMBING PLAN

5'ø MANHOLE W/2' LID (1/C-027)

10" CALCITE FLUSH FEED

18" FINISHED WATER LINE

18"x 18"x 6" TEE & 6" GATE VALVE TO HYDRANT

UTILITY SETBACK 50' FROM PROPERTY LINE

CHAIN LINK FENCE

EMERGENCY GENERATOR

PROPERTY PERIMETER GRAVEL ACCESS ROAD

FIRE HYDRANT WITH 2 BOLLARDS

MONITORING MANHOLE REFER TO DETAIL

UTILITY TRANSFORMER

GRAVEL

ASPHALT

2" GAS SERVICE

WROUGHT IRON FENCE

FUTURE WATER LINE (NOT IN WTF SCOPE OF WORK)

GATE AND KEYPAD

GATE

POWER POLE

18" TEE, GATE VALVE AND END CAP (BEGINS SCOPE OF WORK)

18" GATE VALVE

4" SANITARY SEWER

18" WATER LINE

18" GATE VALVE & END CAP

IRRIGATION DITCH LATERAL

SEWER TAP INTO EXISTING SANITARY SEWER

EXIST. SAN SEWER MANHOLE

GAS MAIN LOCATION NOT IDENTIFIED ON SURVEY; COORDINATE WITH GAS UTILITY TO PROVIDE TIE-IN LOCATION

COUNTY ROAD 26 (ZINNIA AVENUE)

EXIST. SAN SEWER MANHOLE

Firestone Pump Station Location

30' 0 30' 60'

SCALE: 1"= 60'-0"
(11"x17" PRINTS)

NOTES:

1. FOR ELECTRICAL AND COMMUNICATION CONDUIT LOCATIONS, REFER TO ELECTRICAL SITE PLAN AND REFER TO INSTRUMENTATION LOCATION PLAN FOR DUCT BANK SCHEDULE.
2. ALL PIPE CONNECTIONS TO BUILDING AND TANKS SHALL HAVE DUAL FLEXIBLE COUPLING ADAPTERS.

PLUMMER
1485 FLORIDA RD, SUITE C206 | DURANGO, CO 81301
970.247.0724 | TBPE REGISTERED FIRM NUMBER F-13

NO.	DATE	DESCRIPTION
1	5/2020	CONSTRUCTION SET
2	9/4/20	REVISION 2
3	11/6/20	FIELD ORDER 6
4	1/20	FIELD ORDER 14

TOWN OF FIRESTONE
ST. VRAIN WATER TREATMENT FACILITY

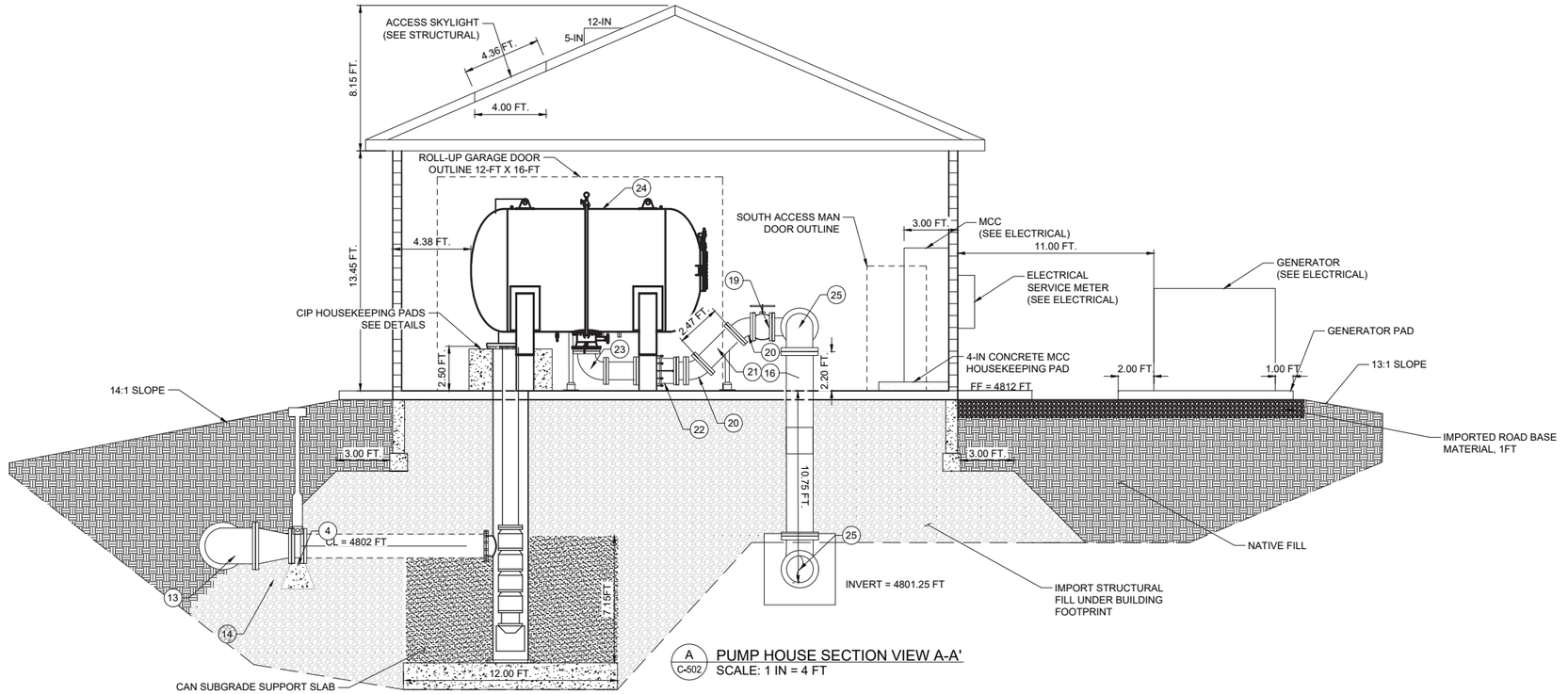
FACILITY YARD PIPING PLAN

IF THIS BAR DOES NOT MEASURE ONE INCH, DRAWING IS NOT TO LABELED SCALE

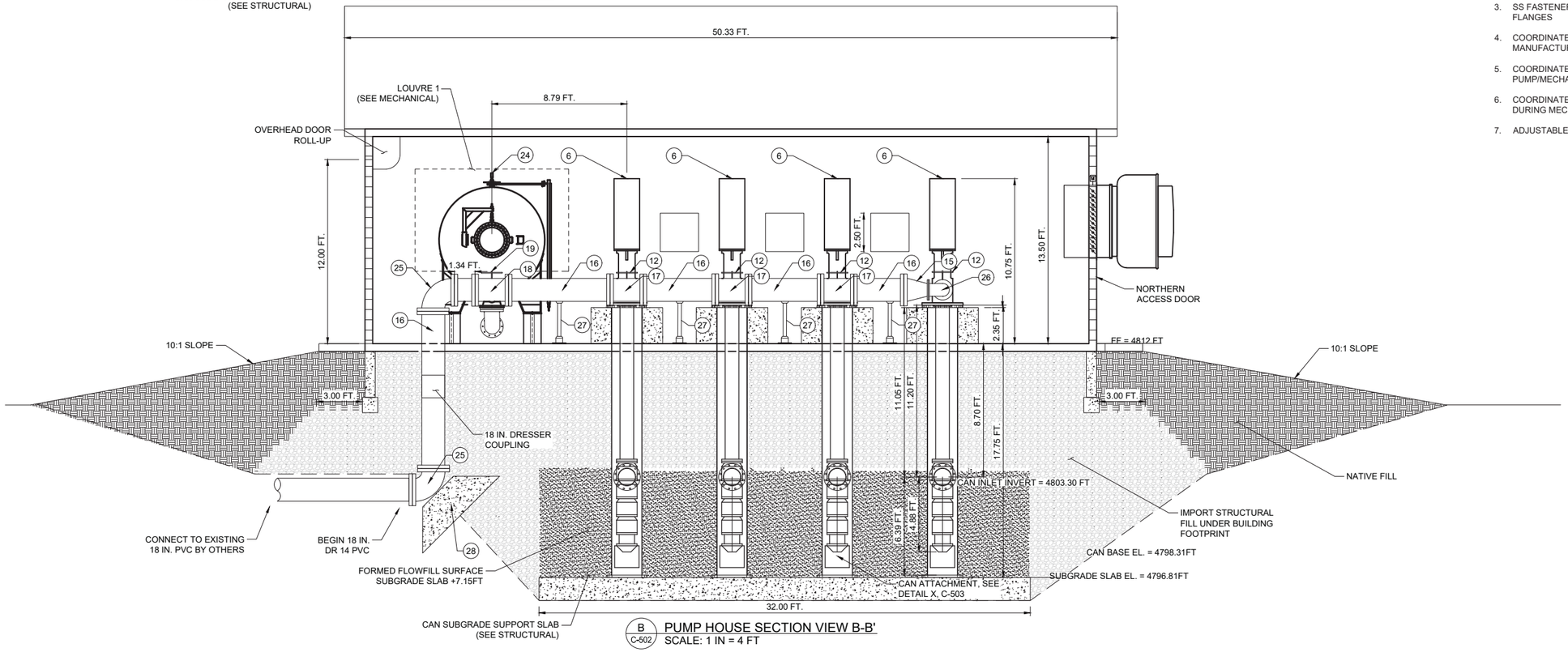
DESIGNED J. PAIZ
DRAWN R. PEMBERTON
CHECKED K. FEARNEY
REVIEWED P. O'BRIEN

Seq. of
Dwg. No. C-009
4129-001-01

PRINTED: 2/17/2021 7:59 AM V:\CADD DRAWINGS\FRACHETT\FRSTN-0305 - FIRESTONE WTP DESIGN\C-009-010-011_FACILITY YARD PIPING PLANS - REVISED_recover000.dwg SAVED: 2/16/2021 4:17 PM SAVED BY: Rpemberton USER: Pemberton, Ron



A C-502 PUMP HOUSE SECTION VIEW A-A'
SCALE: 1 IN = 4 FT



B C-502 PUMP HOUSE SECTION VIEW B-B'
SCALE: 1 IN = 4 FT

SAINT VRAIN WATER TREATMENT PLANT, PUMP STATION NO. 1 (PS-01)	
ITEM	DESCRIPTION
1	24IN DIP TEE (MJ X MJ RESTRAINED)
2	24IN MANIFOLD SUPPLY PIPE (MJ X MJ RESTRAINED)
3	24IN X 16IN X 24IN DIP TEE (FL XFL)
4	16IN BUTTERFLY VALVE (FL X FL)
5	16IN DIP
6	PUMP AND CAN ASSEMBLY FOR 350HP VTP (COGENT)
7	8IN X 10IN REDUCER (FL X FL)
8	10IN DIP
9	10IN MAGNETIC FLOWMETER (FL X FL)
10	10IN DISMANTLING JOINT ROMAC
11	10IN SURGEBUSTER/CHECK VALVE VALMATIC
12	10IN BUTTERFLY VALVE
13	24IN 1/4 (90 DEG) DI (FL X FL)
14	24IN X 16IN REDUCER (FL X FL)
15	10IN X 18IN REDUCER (FL X FL)
16	18IN DIP
17	18IN X 10IN X 18IN DIP TEE
18	18IN X 12IN X 18IN DIP TEE
19	12IN BUTTERFLY VALVE
20	12IN 1/8 (45 DEG) DI (FL X FL)
21	12IN DIP
22	12IN DISMANTLING JOINT ROMAC
23	12IN 1/4 (90 DEG) DI (FL X FL)
24	PRESSURE SURGE TANK - CHARALATTE
25	18IN 1/4 (90 DEG) DI (FL X FL)
26	10IN 1/4 (90 DEG) DI (FL X FL)
27	ADJUSTABLE PIPE STAND (ALL SPOOLS)
28	THRUST BLOCK
29	COMBINATION AIR VACCUM VALVE, PLUMB DISCHARGE TO TRENCH DRAIN

SHEET NOTES

1. PREPARE STRUCTURAL FOUNDATION PER SECTION 02200
2. ALL INTERNAL PIPING TO BE FLANGED DIP (CLASS 150)
3. SS FASTENERS ON ALL INTERNAL FITTINGS AND FLANGES
4. COORDINATE FINAL CAN AND PUMP DIMENSIONS WITH MANUFACTURER
5. COORDINATE SKY-LIGHT ACCESS OPENINGS WITH PUMP/MECHANICAL LAYOUTS
6. COORDINATE REQUIRED SURGE TANK LEG HEIGHT DURING MECHANICAL SUBMITTALS
7. ADJUSTABLE PIPE STANDS BELOW ALL PIPE SPOOLS

WENCK
4025 AUTOMATION WAY, BLDG E
FORT COLLINS, CO 80525
PHONE: 970-223-4705
FAX: 970-223-4706
WWW.WENCK.COM

SUB CONSULTANT:

CLIENT:

PROJECT TITLE: PUMP STATION PACKAGE
TOWN OF FIRESTONE
FIRESTONE, WELD COUNTY COLORADO

ISSUE NO:	DESCRIPTION:	DATE:
1	50% SUBMITTAL	12/02/2020

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

LICENSE NO.:

DATE:

PROJECT NO.: 6365-20-500

DWN BY:	CHK'D BY:	APP'D BY:
RDC	BCN	MJK

ISSUE DATE: 12/02/2020

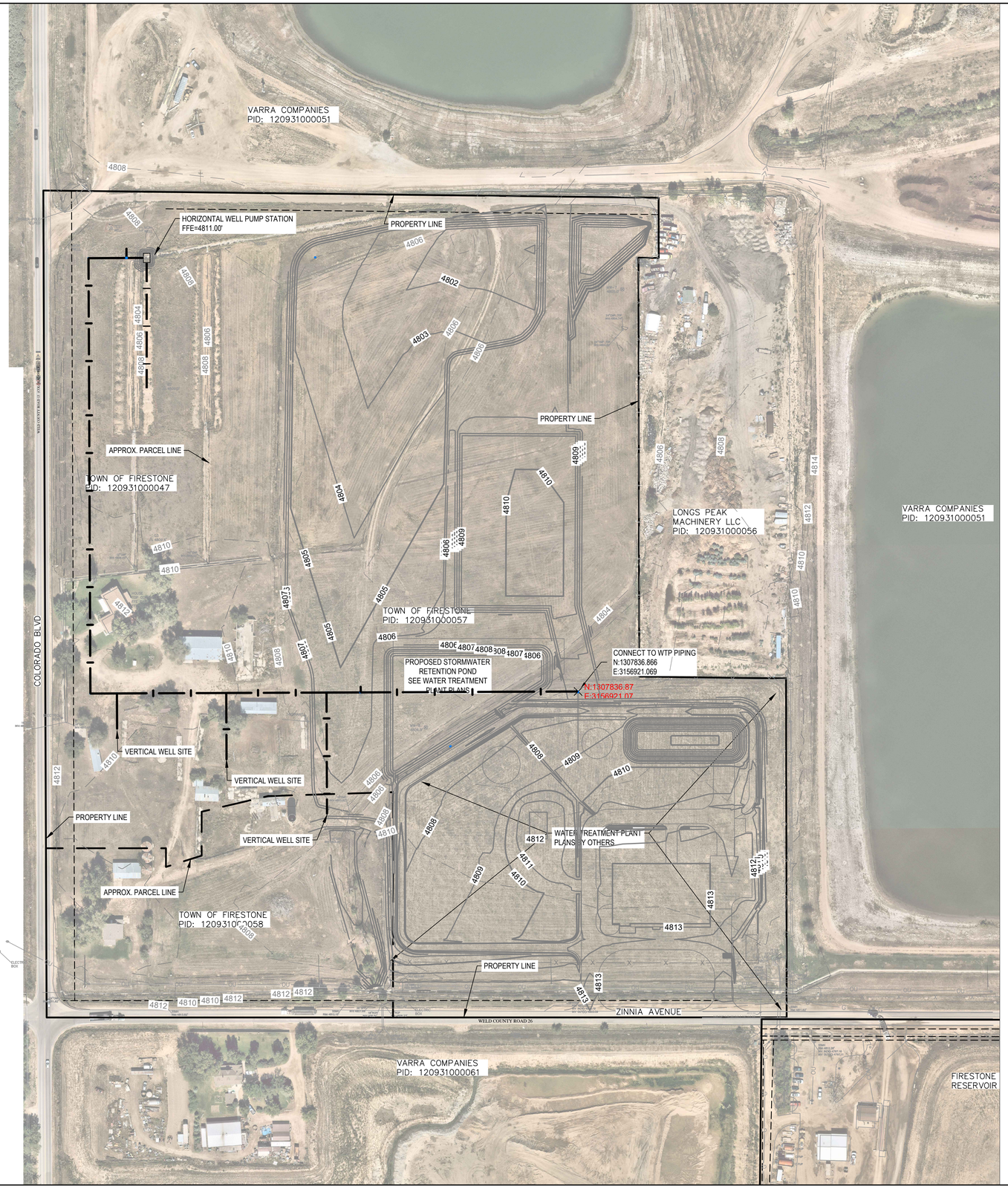
ISSUE NO.: 1

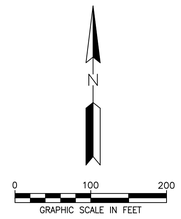
SHEET TITLE: PUMP STATION SECTIONS

SHEET NO.: C-502

3/9/2021 9:27:46 AM
Y:\1.Technical\8000\836-Firestone\20-500-SVWTPDelivery\0_ACAD\DWGS SHEETS\8000836_C-502.dwg 3/8/2021 BRANDON C. NOBLE

10/7/2021 8:46:45 AM





WENCK
now part of
Stantec
4025 AUTOMATION WAY, BLDG E
FORT COLLINS, CO 80525
PHONE: 970-223-4705
FAX: 970-223-4706
WWW.WENCK.COM

PRIMARY CONSULTANT:
acuity, llc

CLIENT:
FIRESTONE COLORADO

PROJECT TITLE:
FIRESTONE HORIZONTAL WELL PROJECT
CITY OF FIRESTONE
WELD COUNTY, COLORADO

ISSUE NO:	DESCRIPTION:	DATE:
1	PRELIMINARY DESIGN	10/07/2021

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF COLORADO.

LICENSE NO.:

DATE:

LOR FOR CONSTRUCTION

PROJECT NO.: 227701472

DWN BY:	CHK'D BY:	APP'D BY:
SAG	KO	PAKM

ISSUE DATE: 10/07/2021

ISSUE NO.: 1

SHEET TITLE:
OVERALL SITE MAP

SHEET NO.:
C-101

Z:\227701472\drafting\DESIGN\CAD\3 Plansheets\C-101 OVERALL SITE PLAN.dwg

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 8.c

Discussion/Action

Meeting Date: July 27, 2022

Initiated By: Dave Lindsay

Dept: Public Works

AGENDA TITLE

Resolution 22-91: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE COLORADO AND STANTEC CONSULTING SERVICES INC REGARDING CONSTRUCTION ENGINEERING SERVICES FOR THE ST VRAIN WATER TREATMENT PLANT TRANSMISSION PIPELINE

SUMMARY

Stantec Consulting Services was the design engineering firm for the Phase 1 St Vrain WTP Transmission Pipeline project and were retained to serve as the construction engineer for the project when it was ready to be built. Stantec has experienced some additional time and effort on the project resulting from the redesign, additional contract document preparation and review, and additional time resulting from the construction time being extended beyond the original estimate. Most of the redesign efforts came from vertical adjustments in the pipeline alignment resulting from conflicts with fiber optic lines and for the relocation of Blend Station No 1. The additional contract document preparation and review came from the contract change orders resulting from the extended delay in getting butterfly valves and addressing the AT&T fiber optic line crossings. And because the contract time has extended, their efforts in progress meeting participation and as-built preparations have also been extended. The impacts of these items are reflected in redline form on the last page of their contract amendment included in the packet.

HISTORY AND PREVIOUS BOARD ACTION

On August 11, 2021, the Board of Trustees approved Resolution 21-91, approving the construction engineering services contract with Stantec.

RECOMMENDATION

Staff recommends the Board of Trustees approve the attached resolution approving the construction engineering contract amendment with Stantec and authorize the Mayor to execute the amendment on behalf of the Town.

ALTERNATIVES

NA

ATTACHMENTS

1. Re 22-91 Transmission PipelineStantec App
2. W2020-9524.06) Stantec SVWTP Transmission Pipeline CE Contract Amendment 1 (2022.06.17)

FINANCIAL CONSIDERATIONS

The contract amendment increases the consultant fee by $14,946.00 for new contract amount of $117,846.00 and will be paid from the Water Fund.

RESOLUTION NO. 22-91

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE COLORADO AND STANTEC CONSULTING SERVICES INC REGARDING CONSTRUCTION ENGINEERING SERVICES FOR THE ST VRAIN WATER TREATMENT PLANT TRANSMISSION PIPELINE

WHEREAS, upon adoption of Resolution 21-91, on August 11, 2021, the Board of Trustees of the Town of Firestone awarded Stantec Consulting Services Inc ("Contractor") the St. Vrain Water Treatment Plant Transmission Pipeline Construction Engineering Contract; and

WHEREAS, during the course of the construction of the pipeline, several unanticipated issues arose that were beyond the reasonable control or expectation of the Contractor that required more work than had been originally estimated; and

WHEREAS, delays in the delivery of certain construction materials and equipment required processing of additional change and field orders, which extended the construction period beyond the original contract time; and

WHEREAS, conflicts with existing utilities required modification of design drawings, processing of additional change and field orders and submittal reviews.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

The First Amendment to the Professional Services Agreement between the Town of Firestone and Stantec Consulting Services Inc., regarding Construction Engineering for the St. Vrain Water Treatment Plant Transmission Pipeline is approved in substantially the same form as the copy attached hereto and made a part of this resolution, and the Mayor is authorized to execute the First Amendment on behalf of the Town.

INTRODUCED, READ, AND ADOPTED this __ day of _____, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

FIRST AMENDMENT TO AN AGREEMENT BY AND BETWEEN THE TOWN OF FIRESTONE AND STANTEC CONSULTING SERVICES INC. FOR PROFESSIONAL SERVICES

THIS FIRST AMENDMENT TO PROFESSIONAL SERVICES AGREEMENT for the St Vrain Water Treatment Plant Transmission Pipeline Construction Engineering (W2020-9524.06) is made and entered into effective as of the ____ day of _____, 2022, by and between the **TOWN OF FIRESTONE**, a Colorado municipal corporation, hereinafter referred to as the "Town", and **Stantec Consulting Services Inc.**, a New York corporation, hereinafter referred to as the "Contractor" with reference to that certain Professional Services Agreement between the Town and Contractor approved with Resolution 21-91 and executed by the Town on August 11, 2021, hereinafter referred to as the "Original Agreement."

WHEREAS, during the course of the construction of the project, several unanticipated issues arose that were beyond the reasonable control or expectation of Contractor that required more of their time than had been originally estimated, and;

WHEREAS, delays in the delivery of certain construction materials and equipment required processing of additional change orders and field orders, and have extended the construction period beyond the original contract time, and;

WHEREAS, conflicts with existing utilities required modification of design drawings, processing of additional change orders, field orders, and submittal reviews, and;

WHEREAS, the Parties believe it to be in the best interest to amend the Original Agreement as set forth herein.

NOW, THEREFORE, for good and valuable consideration, the Parties agree as follows:

1. Section III of the Original Agreement is hereby amended to increase the not-to-exceed compensation amount to a new total of $117,846.00.

2. Exhibit A of the Original Agreement is hereby further amended to include the attached Exhibit A1 - Additional Scope of Services, that details the additional construction engineering effort.

3. The Original Agreement, as herein further amended by this First Amendment, is hereby ratified and confirmed and remains in full force and effect in accordance with its terms.

IN WITNESS WHEREOF, the Parties have executed this First Amendment to Professional Services Agreement effective as of the day and year first above set forth.

TOWN OF FIRESTONE,
a Colorado Municipal Corporation

By:_____
Drew Alan Peterson, Mayor

Attest:_____
Jessica Koenig, Town Clerk

Approved as to Form:

_____
William P. Hayashi, Town Attorney

CONSULTANT:
STANTEC CONSULTING SERVICES INC.
a New York corporation,

By: Massaro, Pamela
Digitally signed by Massaro, Pamela
DN: CN="Massaro, Pamela", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Location: 4305 South Timberline Road, 2nd Fl, Fort Collins CO
Reason: I have reviewed this document
Contact Info: pamela.massaro@stantec.com
Date: 2022.06.17 15:07:09-04'00'

Print Name: Pamela Massaro

Title: Principal, Senior Water Resources Engineer

Attest: Wiggins, David
Digitally signed by Wiggins, David
DN: CN="Wiggins, David", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Reason: I am the author of this document
Date: 2022.06.17 15:12:10-06'00'

Print Name: David Wiggins

Title: Senior Civil Water Engineeer

Exhibit A1 – Additional Scope of Services

[See Following 3 Pages]

Stantec

April 20, 2022

Attention: David B. Lindsay
Colorado Civil Group, Inc.
2204 Hoffman Drive
Loveland, CO 80538

Dear Mr. Lindsay,

Reference: St. Vrain Water Treatment Plant Transmission Pipeline Construction Engineering Contract Amendment Request

Pursuant to the Agreement on the above project dated August 11, 2021, Stantec is requesting an increase in the total budget compensation for additional professional services according to Paragraph I of the document. Compensation is described as to estimates in the form of an individual's professional time, subconsultant costs, and direct expenses.

This increase in the total budget compensation is the result of the following:

- The construction schedule has extended due to contractor delays in commencement.
- Significant supply material shortages
- Preparing and reviewing RFI's, Change Orders, and Field Orders related to supply chain shortages.
- Design changes to assist with ease of construction of the pipeline.

The additional budget for these items is $14,946.00.

Please review this request and contact us with any questions. If you agree with this request, please sign and date the following page.

Regards,

Wiggins, David

Digitally signed by Wiggins, David
DN: CN="Wiggins, David", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Reason: I am the author of this document
Date: 2022.04.25 15:09:28-06'00'

David Wiggins PE
Senior Civil Water Engineer
Phone: (970) 449-8601
David.Wiggins@stantec.com

Pamela A. K. Massaro

Digitally signed by Massaro, Pamela
Date: 2022.04.25 14:01:00-06'00'

Pamela Massaro PE
Principal, Senior Water Resources Engineer
Phone: 970 893-4807
pamela.massaro@stantec.com

Reference: **Town of Firestone Water Delivery Projects – Construction Management Services Budget Moves**

By signing this proposal, Colorado Civil Group, Inc. authorizes Stantec to proceed with the services herein described which shall be governed by the Professional Services Agreement entered into by Colorado Civil Group, Inc. with the Town of Firestone, on behalf of itself and its subsidiaries and affiliates, dated August 11, 2021 ("Agreement"). In the event of a discrepancy or a conflict between the Agreement and this proposal, the terms of the Agreement shall control. Any capitalized terms used in this proposal that are undefined shall have the meaning assigned to the in the Agreement

This proposal is accepted and agreed on the ____ day of June 2022.

Colorado Civil Group, Inc.

By:____
Name:_
Title:___

Firestone PIpeline CM Services: DRAFT Fees 7-14-21

	Professional Fees					Expenses	TOTAL PROJECT
	Benjamin Strate/Trent	Pamela Massaro	Brierly	Kumar & Assoc	TOTAL LABOR		
Rates	$ 141.00	$ 207.00					
Labor Hours							
1.0 Construction Management							
1.1 Bidding	24	8			32		
1.2 Pre-Con Mtg	8	4			12		
1.3 Weekly Coordination Mtgs	~~88~~ 98	16	$ 3,700.00		104	$ 700.00	
1.4 Submittals	~~60~~ 64	12	$ 7,300.00		72		
1.5 Change Management	~~40~~ 50	8			48		
1.6 RFI's/Clarifications/Coordination/Permits	~~96~~ 173	60			156		
1.7 Pay Apps	~~88~~ 93				88		
Subtotal (hrs)	~~372~~ 478	*96*			468		
Subtotal ($)	$ 67,398 *52,452*	*$ 19,872*	*$11,000.00*	*$0.00*	$ 72,324	$ 700	$ 84,100.00
2.0 Site Observation Vault Install & Bore Crossings							
2.1 Special Observation	50	8		$ 245.00	58	$ -	
Subtotal (hrs)	50	8			58		
Subtotal ($)	*$ 7,050.00*	*$ 1,656.00*	$ -	*$245.00*	$ 8,706.00	$ -	$ 9,000.00
3.0 Project Close-Out							
3.1 Equipment Start-Up/Commissioning	16	2			18		
3.2 Punchlist	4				4		
3.3 Record Drawings	16	2			18		
3.4 O and M/Reporting	8	2			10		
3.5 Aftermarket Support/Warranty	12	2			14		
Subtotal (hrs)	56	8			64		
Subtotal ($)	*$ 7,896.00*	*$ 1,656.00*	$ -	$ -	$ 9,552.00	$ 238.80	$ 9,800.00
BUDGETARY COST	**~~$67,398~~**	**$23,184**	**$11,000**	**$245**	**$90,582**	**$939**	**~~$102,900~~**
	$82,344						$117,846

AGENDA INFORMATION MEMORANDUM FIRESTONE TOWN BOARD OF TRUSTEES	**AIM#:** 8.d **Discussion/Action** **Meeting Date:** July 27, 2022 **Initiated By:** Julie Pasillas **Dept:** Public Works

AGENDA TITLE

Resolution 22-93: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE ENGINEERING SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND PLUMMER ASSOCIATES, INC.

SUMMARY

Plummer Associates, Inc. is providing construction management and site observation services for the Town for the St Vrain Water Treatment Plant. Plummer has requested an amendment to their 2022 Engineering Service Agreement due to increased costs from processing requests for information, Safebuilt coordination, structural design, and project time delays requiring additional office engineering services and resident project representative services, all of which either exceeded or were outside of Plummer's 2022 scope of services.

HISTORY AND PREVIOUS BOARD ACTION

Firestone has worked with Plummer under a master services agreement that is updated annually for their anticipated work in the coming year. In 2022, Plummer Associates, Inc. Engineering Services Agreement was approved by the Board on December 8, 2021.

RECOMMENDATION

Staff recommends the Board approve the attached resolution approving the First Amendment to the 2022 Engineering Services Agreement with Plummer Associates, Inc., and authorize the Mayor to execute the amendment on behalf of the Town.

ALTERNATIVES

NA

ATTACHMENTS

1. Res 22-93 Plummer Assoc 1st Amend Agm Res
2. 2022 Engineering Services Agmt Amendment 1 v2_Plummer

FINANCIAL CONSIDERATIONS

The amendment increases the Plummer contract amount by $389,072.00 and will be paid from the Water Fund.

RESOLUTION NO. 22-93

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING THE FIRST AMENDMENT TO THE ENGINEERING SERVICES AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND PLUMMER ASSOCIATES, INC.

WHEREAS, in December 2021 the Town of Firestone ("Town") and Plummer Associates, Inc., ("Plummer") entered into the 2022 Engineering Services Agreement ("Agreement") regarding the St. Vrain Water Treatment Plan Project ("Project"); and

WHEREAS, the Agreement provides that Plummer will provide Project Engineering Services for the Town; and

WHEREAS, Plummer requests that the Agreement be amended as a result of cost increases from processing requests for information, Safebuilt coordination, structural design, and project time delays requiring additional office engineering services and resident project representative services all of which either exceeded or were outside of Plummer's 2022 scope of services

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

The First Amendment to the 2022 Engineering Services Agreement between the Town of Firestone and Plummer Associates, Inc., is approved in substantially the same form as the copy attached hereto and made a part of this resolution and the Mayor is authorized to execute the First Amendment on behalf of the Town.

INTRODUCED, READ AND ADOPTED this 27th day of July, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

FIRST AMENDMENT TO AN AGREEMENT BY AND BETWEEN THE TOWN OF FIRESTONE AND PLUMMER ASSOCIATES, INC.

FOR ENGINEERING SERVICES

THIS FIRST AMENDMENT TO CONSULTING SERVICES AGREEMENT is made and entered into effective as of the _____ day of July, 2022, by and between the **TOWN OF FIRESTONE**, a Colorado municipal corporation, hereinafter referred to as the "Town", and **PLUMMER ASSOCIATES, INC**., a Texas corporation, hereinafter referred to as the "Consultant" with reference to that certain Engineering Services Agreement between the Town and Consultant executed by the Town on December 8, 2021, and hereinafter referred to as the "Original Agreement."

WHEREAS, the Original Agreement Scope of Services included construction management and site observation to be performed during 2022 for the construction phase of the project, and:

WHEREAS, Consultant has expended more time on some elements of the Scope of Services than reasonably anticipated, and:

WHEREAS, Consultant has expended time on tasks outside of the Scope of Services directed by the Town, and:

WHEREAS, based on the summary of costs for additional services provided by Consultant and the Town's desire to have these additional services provided, the Parties believe it to be in the best interest to amend the Original Agreement as set forth herein.

NOW, THEREFORE, for good and valuable consideration, the Parties agree as follows:

Exhibit A of the Original Agreement is hereby amended to include the attached Exhibit Al — Additional Scope of Services that details the additional construction phase services to be provided and increases the not-to-exceed amount of the Original Agreement by $389,072 for a new total not-to-exceed amount of $ 674,430.

The Original Agreement, as herein amended by this First Amendment, is hereby ratified and confirmed and remains in full force and effect in accordance with its terms.

IN WITNESS WHEREOF, the Parties have executed this First Amendment to Consulting Agreement effective as of the day and year first above set forth.

TOWN OF FIRESTONE,
a Colorado Municipal Corporation

By: _____ Attest: _____
Drew Alan Peterson, Mayor Jessica Koenig, Town Clerk

Approved as to Form:

By: _____
William Hayashi, Town Attorney

CONSULTANT:
PLUMMER ASSOCIATES, INC.
a Texas corporation.

By: _____ Attest: _____
Patrick OBrien Kelly Fearney

_____ _____
Date Date

Title: Principal Title: Project Manager

EXHIBIT A1 – ADDITIONAL SCOPE OF SERVICES
AMENDMENT NO. 1

1. **The Effective Date of this Amendment is: May 1, 2022**

2. **Background Data:**

   a) Effective Date of Owner-Engineer Agreement:

   b) Project: St. Vrain Water Treatment Plant Project

3. **Nature of Amendment:**

   _____ Additional Services to be performed by Engineer

   _____ Modifications to services of Engineer

   _____ Modifications to responsibilities of Owner

   X Modifications of payment to Engineer

   _____ Modifications to time(s) for rendering services

   _____ Modifications to other terms and conditions of the Agreement

4. **Description of Modifications:**

   The following work was completed on the project or is anticipated to be completed in 2022, and not anticipated in the originally scope and budget preparation.

   a) RFIs and Safebuilt Coordination

   The architectural subcontractor responded to multiple RFIs and submittals including development of an alternative fire wall detail including multiple conference calls, a site visit, and development of the solution with approval by a third party for engineering judgement. The architect also provided additional coordination with the Engineer on questions from Safebuilt and the Contractor.

   The Mechanical Engineering subconsultant has assisted in multiple RFI responses and provided coordination with the Engineer to respond to Safebuilt comments and questions. In addition, multiple submittals were reviewed on the fire sprinkler system including additional coordination to address concerns with the high service pump station.
   The Structural Engineering subcontractor has responded to multiple RFIs including

changes to the calcite contactors platform and monorail, design of fall protection at the flocculation basin, and concrete pavement details.

The Engineer has provided additional coordination with Safebuilt and revisions to electrical drawings to address Safebuilt's requests and required design changes.

Additional cost $16,702.

b) Structural Design

The Structural Engineering subcontractor provided design of the light gate framing at the front and west side of the building. Per the Contract, the Contractor should have provided this design through the metal building supplier. Due to schedule constraints from the metal building supplier, the Engineer provided the design to help with the overall construction schedule. **Additional cost $3,686**.

c) Project Time Delay – Office Engineering

Per the Contract documents and Change Order 01, Substantial completion was April 4, 2022 and Final Completion April 25, 2022. These were the dates utilized to build the budget for the original 2022 Engineering Services. This amendment accounts for an additional 6 months of office engineering through October 31st with project close-out occurring in November 2022. **Additional cost $214,788**.

d) Project Time Delay – Resident Project Representative

Per the Contract documents and Change Order 01, Substantial completion was April 4, 2022 and Final Completion April 25, 2022. These were the dates utilized to build the budget for a full time Resident Project Representative as included the original 2022 Engineering Services. This amendment accounts for an additional 6 months of full time RPR through Oct 31st with project close-out occurring in November 2022. Start-up assistant is estimated to include up to 80 hours of additional engineering assistance in conjunction with the RPR. **Additional cost $153,896**.

5. Exclusions and Assumptions

a) None

6. Agreement Summary:

a)	Original agreement amount	$ 285,358
b)	Net change for prior amendments	$ 0

c)	**This amendment amount**		**$ 389,072**
(1)	RFIs and Safebuilt	$ 16,702	
(2)	Structural Design	$ 3,686	
(3)	Office Engineering	$ 214,788	
(4)	RPR	$ 153,896	
Adjusted Agreement amount			**$ 674,430**

Change in time for services (days or date, as applicable): Construction Phase Services through Final Completion in October 2022 with Project Close-out in November 2022.

The foregoing Agreement Summary is for reference only and does not alter the terms of the Agreement.

The Town of Firestone and Plummer Associates, Inc. hereby agree to modify the above-referenced Agreement as set forth in this Amendment. All provisions of the Agreement not modified by this or previous Amendments remain in effect.

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 8.e

Discussion/Action

Meeting Date: July 27, 2022

Initiated By: Nate Haasis

Dept: Engineering - Town

AGENDA TITLE

Resolution 22-85: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND STURGEON ELECTRIC, INC. FOR THE TRAFFIC SIGNAL AND HAWK SIGNAL PROJECT LOCATED AT KING SCOOPERS ACCESS AND COLORADO BLVD AND OAK MEADOWS CROSSING AND COLORADO BLVD.

SUMMARY

In November 2021, Bohannan Huston (BHI) presented the results of a Traffic Signal Warrant Study showing a signal was warranted at the Colorado Blvd and King Soopers access intersection. The study also included a recommendation for a HAWK Signal at Oak Meadows Blvd and Colorado Blvd. In early 2022, the Board approved resolutions that approved executing agreements with BHI for design and construction services for the installation of the signals. Those plans were advertised for construction services in a Request for Bids that was issued on June 3, 2022. Bids were received and opened on June 21, 2022. The Town received three bids:

1. Sturgeon Electric - $824,748
2. Morton Electric - $890,557
3. Goodland Construction - $1,044,328

After reviewing the bids, staff determined Sturgeon Electric to be the lowest responsible bidder. Sturgeon has also historically been the Town's On-call traffic maintenance contractor.

HISTORY AND PREVIOUS BOARD ACTION

BHI presented the results of a Traffic Signal Warrant Study at the November 12, 2021 Board meeting.
On January 12, 2021, the Board approved Resolution 22-08, approving an agreement with BHI for the design of the King Soopers Signal.
On March 9, 2021, the Board approved Resolution 22-34, approving an agreement with BHI for the design of the Oak Meadows HAWK Signal.
The Board approved the 2022 Budget, which included $800,000 for the installation of new traffic signals and $40,000 for signal upgrades.

RECOMMENDATION

Staff recommends that the Board approve Resolution 22-85, a resolution approving the Construction Services Agreement between the Town of Firestone and Sturgeon Electric, INC. for construction services for the King Soopers Traffic Signal and HAWK Signal Project.

ALTERNATIVES

The Board may choose not to approve Resolution 22-85 and provide Staff with additional direction.

ATTACHMENTS

1. Res No 22-85 Sturgeon Electrical Co In Construction Contract

2. Contract S2022-9226_Full_07.21.2022

FINANCIAL CONSIDERATIONS

The agreement includes an amount of $824,748 for construction. Sufficient funds have been budgeted and appropriated in the Capital Projects Fund. The 2022 budget included $800k for traffic signal construction and $40k for traffic signal upgrades. Any remaining funds and cost savings on signal construction will be applied to additional traffic signal upgrades.

RESOLUTION NO. 22-85

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND STURGEON ELECTRIC COMPANY, INC. FOR A TRAFFIC SIGNAL LOCATED AT FIRESTONE BOULEVARD AND COLORADO BOULEVARD, AND A HAWK SIGNAL LOCATED AT COLORADO BOULEVARD AND OAK MEADOWS BOULEVARD

WHEREAS, the Town of Firestone ("Town") is in need of construction services for the Firestone Traffic Signal and HAWK Signal Project; and

WHEREAS, the Town issued an invitation for bids for the work and upon review of those submitted selected Sturgeon Electrical Company, Inc. as the lowest responsive and responsible bidder.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

The Construction Contract between the Town of Firestone and Sturgeon Electrical Company, Inc. for the Firestone Traffic Signal and HAWK Signal Project is approved in substantially the same form as the copy attached hereto and made a part of this resolution and the Mayor is authorized to execute the Contract on behalf of the Town.

INTRODUCED, READ AND ADOPTED this 27th day of June, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

CONSTRUCTION CONTRACT

THIS CONSTRUCTION CONTRACT (the "Construction Contract" or “Agreement”) is made and entered into this _____ day of _____, 2022 (the "Effective Date"), by and between the **TOWN OF FIRESTONE**, a Colorado municipal corporation with an address of 9950 Park Avenue, Firestone, Colorado 80504 (the "Town" or the “Owner”), and **Sturgeon Electric Company, INC.** an independent contractor with a principal place of business at 12150 E. 112th Ave, Henderson, Colorado 80640 ("Contractor") (each a "Party" and collectively the "Parties").

WHEREAS, the Town requires services; and

WHEREAS, Contractor has been found by the Town as having the expertise and experience to perform the required services.

NOW THEREFORE, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. SCOPE OF WORK

A. Contractor shall complete all Work and perform all Services which are described or reasonably implied from the Scope of Work set forth in Exhibit A and the Contract Documents, attached hereto and incorporated herein by this reference and known as: **Firestone - Traffic Signal & HAWK Signal (S2022-9226).**

B. A change in the Scope of Work shall not be effective unless authorized as a written amendment to this Agreement or change order in accordance with the Contract Documents. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum meruit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

C. Within 10 days of the Effective Contract Date, Contractor shall provide the performance bond and labor & material payment bond and certificate of insurance required by the contract Documents.

II. DESIGN PROFESSIONAL

This Project has been designed by: **BOHANNAN HUSTON, INC.**

who is hereinafter called DESIGN PROFESSIONAL and who is to act as FIRESTONE's representative, assume all duties and responsibilities and have the rights and authority assigned to DESIGN

PROFESSIONAL in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

III. CONTRACT TIMES; COMMENCEMENT AND COMPLETION OF WORK

A. The Work shall be substantially completed within 60 days of delivery of signal poles, mast arms, and associated signal material and equipment to Contractor, and shall continue until Contractor completes the Scope of Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

C. Should a delay in completion constitute a compensable inconvenience to the Town and its residents, the liquidated damages established in this Section shall be enforced. Such damages are not a penalty, the parties recognize the delays, expense and difficulties involved in proving the actual loss suffered by the Town if the Work is not completed on time. For each day that all or a portion of the Work is delayed beyond the deadlines set forth in Section III hereof, plus any extensions thereof allowed, the Contractor shall be assessed the amount of two hundred fifty dollars ($250) each day until the Work is complete.

IV. COMPENSATION

In consideration for the completion of the Work by Contractor, the Town shall pay Contractor, subject to all of the terms and conditions of the Contract Documents, an amount not to exceed **$840,000** (the "Contract Price"). The Contract Price shall include all fees, costs and expenses incurred by Contractor, and no additional amounts shall be paid by the Town for such fees, costs and expenses.

V. PAYMENT PROCEDURES

Contractor may submit Applications for Payment for completed work per the UNIT-PRICE BID FORM or the LUMP-SUM BID FORM. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

VI. RESPONSIBILITY

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and licenses in good standing, required by law.

B. The Work performed by Contractor shall be in accordance with generally accepted practices and the level of competency presently maintained by other practicing contractors in the same or similar type of work in the applicable community.

C. The Work performed by Contractor hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations, including the Keep Jobs in Colorado Act, C.R.S. 8-17-101, et seq.

(the "Act") and the rules adopted by the Division of Labor of the Colorado Department of Labor and Employment implementing the Act (the "Rules").

D. The Town's review, approval or acceptance of, or payment for any completed Work shall not be construed to operate as a waiver of any rights under this Construction Contract or of any cause of action arising out of the performance of this Construction Contract.

E. Contractor hereby warrants to the Town that all materials and equipment used in the Work, and made a part of the Work, or placed permanently in the Work, shall be new unless otherwise specified in the Contract Documents. Contractor further warrants that all equipment and materials shall be of good quality, conform to the requirements of the Contract Documents and will be free from defects. All Work, materials, or equipment not conforming to the Contract Documents shall be considered defective. Nothing herein shall be construed to be a warranty from Contractor for Town provided equipment or materials.

F. The Contractor shall warrant and guarantee all materials and equipment furnished under the Contract and all Work performed for one year after the date of Substantial Completion. Under this warranty, Contractor agrees to repair or replace, at its own expense, any Work that is found to be defective. There are no warranties which extend beyond the description on the face hereof. The expiration of the warranty period shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

VII. OWNERSHIP

Any materials, items, and work specified in the Scope of Work, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Work constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change such work without providing notice to or receiving consent from Contractor.

VIII. INDEPENDENT CONTRACTOR

Contractor is an independent contractor. Notwithstanding any other provision of this Construction Contract, all personnel assigned by Contractor to perform work under the terms of this Construction Contract shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

IX. INSURANCE

A. 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 Contractor pursuant to this Construction Contract. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers reasonably acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees, or its contractors shall be excess and not contributory insurance to that provided by Contractor as required under this Agreement. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Construction Contract.

X. INDEMNIFICATION

Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, 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 Construction Contract if such injury, loss, or damage is caused in whole or in part by, the act, omission, error, professional error, mistake, negligence, or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor.

XI. ILLEGAL ALIENS

A. Certification. By entering into this Construction Contract, Contractor hereby certifies that, at the time of this certification, it does not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who will perform work under this Construction Contract and that Contractor will participate in either the E-Verify Program administered by the U.S. Department of Homeland Security and Social Security Administration or the Department Program administered by the Colorado Department of Labor and Employment to confirm the employment eligibility of all employees who are newly hired to perform work under this Construction Contract.

B. Prohibited Acts. Contractor shall not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, to perform work under this Construction Contract, or enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, to perform work under this Construction Contract.

C. Verification.

1. If Contractor has employees, Contractor has confirmed the employment eligibility of all employees who are newly hired to perform work under this Construction Contract through participation in either the E-Verify Program or the Department Program.

2. Contractor shall not use the E-Verify Program or Department Program procedures to undertake pre-employment screening of job applicants while this Construction Contract is being performed.

3. If Contractor obtains actual knowledge that a subcontractor performing work under this Construction Contract knowingly employs or contracts with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Construction Contract, Contractor shall: notify the subcontractor and the Town within 3 days that Contractor has actual knowledge that the subcontractor is employing or contracting with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Construction Contract; and terminate the subcontract with the subcontractor if within 3 days of receiving the notice required pursuant to subsection 3 hereof, the subcontractor does not stop employing or contracting with the worker without authorization who is performing work under this Construction Contract; except that Contractor shall not terminate the subcontract if during such 3 days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Construction Contract.

D. Duty to Comply with Investigations. Contractor shall comply with any reasonable request by the Colorado Department of Labor and Employment made in the course of an investigation conducted pursuant to C.R.S. § 8-17.5-102(5)(a) to ensure that Contractor is complying with the terms of this Section XI.

E. Affidavits. If Contractor does not have employees, Contractor shall sign the "No Employee Affidavit" attached hereto. If Contractor wishes to verify the lawful presence of newly hired employees who perform work under the Construction Contract via the Department Program, Contractor shall sign the "Department Program Affidavit" attached hereto.

XII. CONTRACT DOCUMENTS

The Contract Documents, which comprise the entire agreement between the Town and Contractor concerning the Scope of Services, consist of the following:

A. Exhibit to this Construction Contract:
    1. Exhibit A: Scope of Work: Firestone - Traffic Signal & HAWK Signal
        a. King Soopers Traffic Signal – Colorado Blvd and King Soopers Access
        b. HAWK Signal - Colorado Blvd and Oak Meadows Blvd
        c. Traffic Signal Upgrade Scope of Services

B. Performance Bond and Labor & Material Payment Bond.

C. Notice of Award.

D. Notice to Proceed.

E. "Specifications" bearing the title: _____.

F. "Drawings" consisting of:

    a. King Soopers Traffic Signal – Colorado Blvd and King Soopers Access
    b. HAWK Signal - Colorado Blvd and Oak Meadows Blvd

G. Addendum numbers:

    1. Addendum #1: _____.
    2. Addendum #2: _____.

H. The following which may be delivered or issued after the Effective Date of the Construction Contract and are attached hereto: All written amendments and other documents amending, modifying, or supplementing of the Contract Documents.

There are no Contract Documents other than those listed above in this Section XII.

XIII. MISCELLANEOUS

A. Governing Law and Venue. This Construction Contract shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Weld County, Colorado.

B. No Waiver. Delays in enforcement or the waiver of any one or more defaults or breaches of this Construction Contract by the Town shall not constitute a waiver of any of the other terms or obligation of this Construction Contract.

C. Integration. This Construction Contract and any attached exhibits constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. Third Parties. There are no intended third-party beneficiaries to this Construction Contract.

E. Notice. Any notice under this Construction Contract shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

F. Severability. If any provision of this Construction Contract is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. Modification. This Construction Contract may only be modified upon written agreement of the Parties.

H. Assignment. Neither this Construction Contract nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. Governmental Immunity. The Town and its officers, attorneys and employees, are relying on, and do 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, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. Rights and Remedies. The rights and remedies of the Town under this Construction Contract are in addition to any other rights and remedies provided by law. The expiration of this Construction Contract shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. Subject to Annual Appropriation. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

IN WITNESS WHEREOF, the Parties have executed this Construction Contract as of the Effective Date.

TOWN OF FIRESTRONE, COLORADO

_____
Drew Peterson, Mayor

ATTEST:

_____
Jessica Koenig CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

CONTRACTOR

By: _____

STATE OF COLORADO)

) ss.

COUNTY OF _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2022, by _____ as _____ of _____.

My commission expires:

(S E A L)

_____
Notary Public

DEPARTMENT PROGRAM AFFIDAVIT

To be completed only if Contractor participates in the Department of Labor Lawful Presence Verification Program

I, _____, as a public contractor under contract with the Town of Firestone (the "Town"), hereby affirm that:

1. I have examined or will examine the legal work status of all employees who are newly hired for employment to perform work under this public contract for services ("Agreement") with the Town within 20 days after such hiring date;

2. I have retained or will retain file copies of all documents required by 8 U.S.C. § 1324a, which verify the employment eligibility and identity of newly hired employees who perform work under this Agreement; and

3. I have not and will not alter or falsify the identification documents for my newly hired employees who perform work under this Agreement.

_____ _____

Signature Date

STATE OF COLORADO)

) ss.

COUNTY OF _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2022, by _____ as _____ of _____.

My commission expires:

(S E A L)

_____

Notary Public

FIRESTONE
COLORADO

EXHIBIT A
SCOPE OF WORK

Contractor's Duties

During the term of this Construction Contract, Contractor shall perform the following duties, as directed by the Town:

- Contractor shall perform:
  - **i.** Traffic Signal location at Colorado Blvd and Kings Soopers access (approximately 670' south of Firestone Blvd): Installation of traffic signal poles and mast arms, signal heads, pedestrian signals and push buttons, signage, pavement markings, and associated wiring and equipment. Traffic control, resident notification (Vehicle Message Boards), and Stormwater BMP compliance are required. All Towns Standards and Specifications are to be followed.
  - **ii.** HAWK Signal location at Colorado Blvd and Oak Meadows Blvd: Installation of HAWK signal poles and mast arms, signal heads, pedestrian signals and push buttons, signage, pavement markings, and associated wiring and equipment.
    Traffic control, resident notification (Vehicle Message Boards), and Stormwater BMP compliance are required. All Towns Standards and Specifications are to be followed.
    HAWK Signal location at Colorado Blvd and Oak Meadows Blvd: Installation of HAWK signal
  - **iii. Traffic Signal Upgrade Scope of Services**

UNIT-PRICE BID FORM

Bid Tab 1 of 2

COLORADO BLVD AT KING SOOPERS TRAFFIC SIGNAL - FIRESTONE, CO					
Item Code	**Description**	**Unit**	**Qty.**	**Unit Price**	**Cost**
202-00705	REMOVAL OF LIGHT STANDARD FOUNDATION	EA	2	$1,000.00	$2,000.00
202-00810	REMOVAL OF GROUND SIGN	EA	2	$250.00	$500.00
202-00827	REMOVAL OF PULL BOX	EA	2	$250.00	$500.00
204	EROSION CONTROL	LS	1	$7,500.00	$7,500.00
503	DRILLED CAISSON (36 INCH)	LF	76	$700.00	$53,200.00
613-00200	2 INCH ELECTRICAL CONDUIT	LF	210	$23.00	$4,830.00
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	650	$27.00	$17,550.00
613-00300	3 INCH ELECTRICAL CONDUIT	LF	210	$25.00	$5,250.00
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	650	$31.00	$20,150.00
614-72855	TRAFFIC SIGNAL CONTROL CABINET	EA	1	$36,000.00	$36,000.00
613-07034	PULL BOX (24"X36"X18")	EA	1	$1,880.00	$1,880.00
613	PULL BOX (17"X30"X12")	EA	3	$1,490.00	$4,470.00
613-07039	PULL BOX (30"X48"X18")	EA	1	$2,740.00	$2,740.00
613-10000	WIRING	LS	1	$16,000.00	$16,000.00
614	LUMINAIRE (15')	EA	4	$1,100.00	$4,400.00
614-10160	SIGNAL HEAD BACKPLATE	EA	14	$160.00	$2,240.00
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	8	$750.00	$6,000.00
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EA	10	$1,100.00	$11,000.00
614-70488	TRAFFIC SIGNAL FACE (12-12-12-12)	EA	8	$1,309.00	$10,472.00
614-72860	PEDESTRIAN PUSH BUTTON	EA	8	$510.00	$4,080.00
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EA	4	$2,200.00	$8,800.00
614-72886	INTERSECTION DETECTION SYSTEM (CAMERA)	EA	4	$7,000.00	$28,000.00
614-81125	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-25 FOOT MAST ARM)	EA	2	$21,700.00	$43,400.00
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EA	2	$24,500.00	$49,000.00
614-00011	SIGN PANEL (CASS I)	SF	80	$54.00	$4,320.00
614-00014	LIGHTED STREET NAME SIGN	EA	4	$5,000.00	$20,000.00
625	SURVEY	LS	1	$4,100.00	$4,100.00
626	MOBILIZATION	LS	1	$24,750.00	$24,750.00
627-00070	PREFORMED THERMOPLASTIC PAVEMENT MARKING	SF	1000	$19.00	$19,000.00
630	TRAFFIC CONTROL	LS	1	$52,000.00	$52,000.00
	SUBTOTAL				
	FORCE ACCOUNT				
700	MINOR CONTRACT REVISIONS	F/A			$46,050.00
700	UTIILITIES	F/A			$11,500.00
700	FURNISH AND INSTALL ELECTRIC SERVICE	F/A			$10,000.00
	TOTAL (1 of 2)				**$531,682.00**

PLEASE NOTE THERE IS PAGE TWO OF THE BID TAB FOUND ON THE FOLLOWING PAGE.

FIRESTONE
COLORADO

UNIT-PRICE BID FORM

Bid Tab 2 of 2

OAK MEADOWS BLVD PEDESTRIAN CROSSING - FIRESTONE, CO

Item Code	Description	Unit	Qty.	Unit Price	Cost
202-00700	REMOVAL OF LIGHT STANDARD	EA	1	$1,100.00	$1,100.00
202-00810	REMOVAL OF GROUND SIGN	EA	4	$250.00	$1,000.00
204	EROSION CONTROL	LS	1	$11,500.00	$11,500.00
503	DRILLED CAISSON (36 INCH)	LF	38	$700.00	$26,600.00
613-00200	2 INCH ELECTRICAL CONDUIT	LF	150	$23.00	$3,450.00
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	160	$27.00	$4,320.00
613-00300	3 INCH ELECTRICAL CONDUIT	LF	150	$25.00	$3,750.00
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	160	$31.00	$4,960.00
614-72855	TRAFFIC SIGNAL CONTROL CABINET	EA	1	$35,000.00	$35,000.00
613-07034	PULL BOX (24"X36"X18")	EA	1	$1,880.00	$1,880.00
613	PULL BOX (17"X30"X12")	EA	1	$1,490.00	$1,490.00
613-10000	WIRING	LS	1	$13,000.00	$13,000.00
614	LUMINAIRE (15')	EA	2	$1,100.00	$2,200.00
614-10160	SIGNAL HEAD BACKPLATE	EA	6	$190.00	$1,140.00
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	2	$750.00	$1,500.00
614	HAWK BEACON INDICATOR SIGNAL FACE	EA	6	$1,400.00	$8,400.00
614-72860	PEDESTRIAN PUSH BUTTON	EA	2	$510.00	$1,020.00
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EA	2	$24,500.00	$49,000.00
614-84000	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EA	2	$5,140.00	$10,280.00
614-00011	SIGN PANEL (CASS I)	SF	124	$54.00	$6,696.00
614-00014	LIGHTED STREET NAME SIGN	EA	2	$5,000.00	$10,000.00
625	SURVEY	LS	1	$2,500.00	$2,500.00
626	MOBILIZATION	LS	1	$12,750.00	$12,750.00
627-00070	PREFORMED THERMOPLASTIC PAVEMENT MARKING	SF	370	$19.00	$7,030.00
630	TRAFFIC CONTROL	LS	1	$31,000.00	$31,000.00
	SUBTOTAL				
	FORCE ACCOUNT				
700	MINOR CONTRACT REVISIONS	F/A			$25,200.00
700	UTIILITIES	F/A			$6,300.00
700	FURNISH AND INSTALL ELECTRIC SERVICE	F/A			$10,000.00
	TOTAL (2 of 2)				**$293,066.00**

TOTAL 1 + TOTAL 2	**$824,748.00**

Please note any exceptions you take to this bid, *e.g.*, minimum quantity requirements:

NONE

BIDDER'S INFORMATION:

Company Name: STURGEON ELECTRIC COMPANY, INC., A MICHIGAN CORPORATION

Principle/Mailing Address: 12150 E 112TH AVE, HENDERSON, CO 80602

Telephone Number: 303-286-8000 Email: TMCGINN@MYRGROUP.COM

STURGEON ELECTRIC COMPANY, INC. CORPORATE SEAL 1974 MICHIGAN

The bidder hereby acknowledges receipt of Addendum Nos. 1, 2, ___, ___, ___, ___, to these specifications. (Insert number of each addendum received.)

Name and Title of Authorized Company Representative:

JIM BUSHNELL — VICE PRESIDENT, CO TRANSPORTATION

Name (Please print) — Title

Signature

Agent for Service Process: CT Corporation, 1675 Broadway, Denver,CO 80202

Dated this 21ST day of JUNE, 2022.

FIRESTONE COLORADO

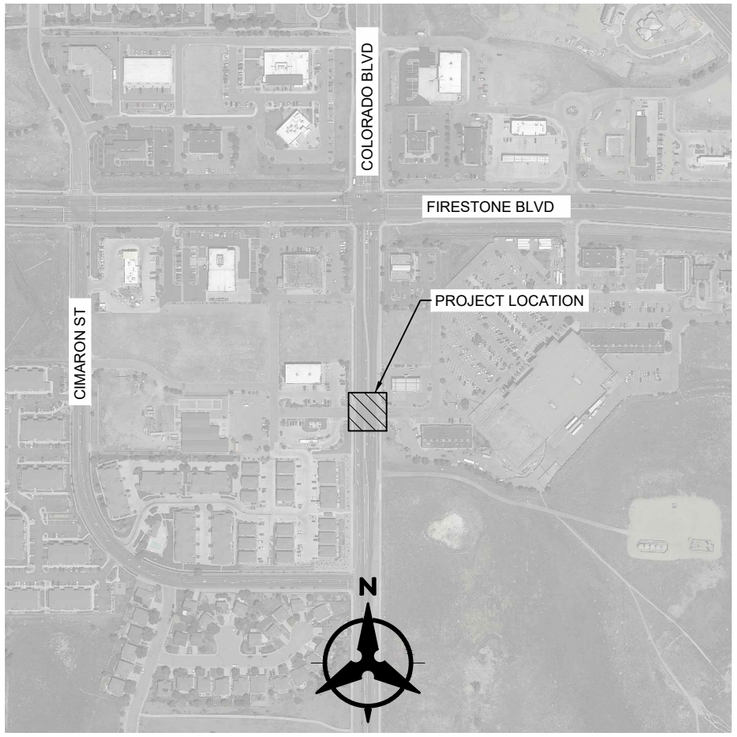
PUBLIC IMPROVEMENT CONSTRUCTION PLANS

TOWN OF FIRESTONE

KING SOOPERS TRAFFIC SIGNAL

WELD COUNTY, COLORADO

SCALE OF ORIGINAL DRAWINGS



PROJECT LOCATION MAP

0' 250' 500' 1000'

INDEX OF SHEETS

SHEET NO.	SUBSET SHEETS	DESCRIPTION
01	T-01	TITLE SHEET
02	GEN-01	GENERAL NOTES
03	SIG-01	SIGNAL PLAN
04	SNS-01	SIGNING AND STRIPING PLAN
05-15	DET-01 OF 11	SIGNAL DETAILS

COLORADO LICENSED
KYLE D. MORRIS
58748
05/11/2022
PROFESSIONAL ENGINEER

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

ACCEPTED BY: _____ TOWN ENGINEER _____ DATE

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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PLOTTED BY: DANIEL POHLEN, 5/11/2022 4:09 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

Bohannan Huston
www.bhinc.com 800.877.5332
9785 Maroon Circle Suite 140 Englewood , CO 80112-5928

R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED		PROJECT NO./CODE
NO REVISIONS:	CONTRACTOR:	
	PROJECT MANAGER:	
REVISED:	PROJECT ENGINEER:	
	PROJECT STARTED: ACCEPTED:	
VOID:	COMMENTS:	SHEET NUMBER 01

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST "DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS FOR PUBLIC IMPROVEMENTS" BY THE TOWN OF FIRESTONE. COPIES OF THE STANDARDS AND SPECIFICATIONS MAY BE OBTAINED FROM THE TOWN WEB SITE. CONTRACTOR SHALL HAVE A SET ON SITE AT ALL TIMES.
2. THE OWNER SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN OF FIRESTONE ENGINEERING STAFF PRIOR TO THE START OF CONSTRUCTION. THOSE IN ATTENDANCE SHALL INCLUDE THE OWNER, HIS ENGINEER, THE TOWN ENGINEERING STAFF, REPRESENTATIVES OF THE CONTRACTORS AND OTHER AFFECTED AGENCIES. PLANS SIGNED AND ACCEPTED BY THE TOWN WILL BE DISTRIBUTED AT THE PRECONSTRUCTION MEETING. CONTRACTOR SHALL HAVE (1) COPY OF THE SIGNED PLANS ON SITE AT ALL TIMES.
3. THE TOWN OF FIRESTONE, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. THE OWNER AND DESIGN ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT. REPORT ALL DISCREPANCIES TO THE DESIGN ENGINEER IMMEDIATELY.
4. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY/ALL WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK SITE FROM ADJACENT PRIVATE PROPERTY OWNERS. A COPY OF ALL AGREEMENTS SHALL BE PROVIDED TO THE TOWN. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
5. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE TOWN ENGINEERING STAFF. THE TOWN RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO TOWN STANDARDS AND SPECIFICATIONS. INSPECTIONS AND ONSITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE TOWN ENGINEERING STAFF OF THE CONTRACTORS'' CONTRACTUAL COMMITMENT. REQUESTS FOR INSPECTION BY THE TOWN SHALL BE MADE BY THE CONTRACTOR A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE.
6. CONSTRUCTION WATER IS AVAILABLE TO THE CONTRACTOR AS ESTABLISHED IN THE TOWN STANDARDS AND SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE TOWN REGARDING CURRENT REGULATIONS, FEES AND REQUIRED AGREEMENTS RELATED TO THE PROVISION OF CONSTRUCTION WATER.
7. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE AFFECTED UTILITY COMPANIES AND SHALL NOTIFY THE UTILITY NOTIFICATION CENTER, PHONE NUMBER 811, THREE (3) BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION.
8. UTILITIES IN THE AREA OF CONSTRUCTION ARE APPROXIMATE ONLY. THEY HAVE BEEN LOCATED FROM FIELD INVESTIGATION AND THE BEST AVAILABLE UTILITY RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL CONTACT ALL RESPECTIVE UTILITIES AND HAVE ALL UTILITIES FIELD-LOCATED PRIOR TO CONSTRUCTION. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, IT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TOWN ENGINEERING STAFF AND DESIGN ENGINEER PRIOR TO PROCEEDING.
9. THE CONTRACTOR SHALL NOTIFY TOWN ENGINEERING STAFF OF ANY PROBLEM IMPACTING WATER AND WASTE WATER FACILITIES THAT WOULD POTENTIALLY REQUIRE A VARIANCE FROM THE APPROVED PLANS AND SPECIFICATIONS. ANY VARIANCE FROM THE APPROVED DOCUMENTS SHALL BE AT THE SOLE DISCRETION OF THE TOWN ENGINEERING STAFF.
10. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE SPECIFICATIONS AND PERMITS NECESSARY TO PERFORM THE PROPOSED WORK.
11. AS-BUILT DRAWINGS AS REQUIRED IN THE SPECIFICATIONS, ARE TO BE SUBMITTED BY THE OWNER/DEVELOPER PRIOR TO INITIAL ACCEPTANCE OF THE CONSTRUCTION.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ANY EXISTING SIGNS, STRUCTURES, FENCES, ETC., ENCOUNTERED ON THE JOB AND RESTORING THEM TO THEIR ORIGINAL CONDITION.
13. THE CONTRACTOR IS RESPONSIBLE FOR:
    - 13.A. NOTIFYING THE TOWN UTILITY CUSTOMERS OF POTENTIAL SERVICE OUTAGES, AND COORDINATE WITH THE TOWN FOR DETERMINATION OF MINIMUM TIME REQUIREMENT.
    - 13.B. NOTIFYING THE TOWN ENGINEERING STAFF IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE TOWN FORTY-EIGHT (48) HOURS PRIOR TO RESTART.
    - 13.C. IN THE EVENT OF AN AFTER HOURS EMERGENCY, CALL 720-652-4222.
    - 13.D. NOTIFYING THE FREDERICK FIRESTONE FIRE PROTECTION DISTRICT OF ALL STREET CLOSURES AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.
14. PRIOR TO INSTALLATION OF UTILITY MAINS, ROAD CONSTRUCTION MUST HAVE COMPLETED THE OVER LOT GRADING STAGE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. A CONSTRUCTION DEWATERING PERMIT MUST BE OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE). GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS OR EROSION OF ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. THE USE OF ANY SANITARY SEWER TO DISPOSE OF TRENCH WATER WILL NOT BE PERMITTED. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE TOWN, AND THE DESIGN ENGINEER AT THE TIME OF THE OCCURRENCE
16. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO RESOLVE CONSTRUCTION PROBLEMS WITH THE TOWN DUE TO CHANGED CONDITIONS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE OPINION OF THE TOWN, PROPOSED ALTERATIONS TO THE SIGNED CONSTRUCTION PLANS INVOLVES SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE TOWN FOR REVIEW AND ACCEPTANCE, PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
17. DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. THE TOWN OR THE DESIGN ENGINEER EXERCISE NO CONTROLS OVER THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERINTENDING OF THE SAME. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE DESIGN ENGINEER OR THE TOWN. THE TOWN ENGINEERING STAFF, OR ANY CONTRACTED ENGINEER, ARE NOT RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS RELATING THERETO.
18. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
19. REGULAR WORK HOURS ARE SEVEN (7) A.M. UNTIL SEVEN (7) P.M. OR DUSK (WHICHEVER OCCURS FIRST) OF THE SAME DAY, MONDAY THROUGH FRIDAY THE CONTRACTOR WILL NOT PERMIT OVERTIME WORK OUTSIDE OF REGULAR WORKING HOURS OR THE PERFORMANCE OF WORK ON SATURDAY, SUNDAY OR ANY LEGAL HOLIDAY WITHOUT RECEIVING WRITTEN CONSENT FROM THE TOWN ENGINEER. REQUESTS FOR WEEKEND WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN NO LATER THAN WEDNESDAYS AT 3:30PM FOR SUBSEQUENT WEEKEND AND REQUESTS FOR HOLIDAY WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN NO LATER THAN 7:00AM-2 BUSINESS DAYS PRIOR TO THE HOLIDAY. ALL EXPENSES INCURRED B THE TOWN SHALL BE REIMBURSED AT A RATE TO BE DETERMINED BY DIRECTOR OF FINANCE.
20. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FOR ANY PROJECT DISTURBING OVER ONE ACRE FROM BOTH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND THE TOWN.
21. EACH TYPE OF CONSTRUCTION SHALL BE COMPLETED BY A CONTRACTOR THAT HAS DEMONSTRATED ACCEPTABLE QUALIFICATIONS TO THE TOWN AND IS A LICENSED CONTRACTOR IN THE TOWN.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION. ALL TRAFFIC CONTROLS SHALL CONFORM TO THE TOWN STANDARDS AND SPECIFICATIONS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITIONS. A PLAN SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
23. ALL BACKFILL SHALL CONFORM TO THE TRENCH DETAIL LOCATED IN THE TOWN STANDARDS & SPECIFICATIONS.
24. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS.
25. THE CONTRACTOR SHALL REPAIR ANY EXCAVATION OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.
26. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPING AND/OR PAVEMENT MARKINGS, WHICH HAVE BEEN EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED DURING HIS OPERATION. RENEWAL OF PAVEMENT STRIPING AND MARKING SHALL BE DONE IN CONFORMANCE WITH THE TOWN STANDARD SPECIFICATIONS.
27. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE EVERY MEASURE NECESSARY TO COMPLY WITH ANY STATE, COUNTY OR TOWN DUST CONTROL ORDINANCE.
28. CONSTRUCTION VEHICLES SHALL USE TRUCK ROUTES DESIGNATED BY THE TOWN. OVERSIZE AND/OR OVERWEIGHT VEHICLES REQUIRE AN OVERWIEGHT VEHICLE PERMIT FROM THE TOWN PRIOR TO TRAVELLING ON TOWN STREETS.
29. THE OWNER/DEVELOPER WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF TWO (2) YEARS FROM THE DATE OF INITIAL ACCEPTANCE OF THE IMPROVEMENTS BY THE TOWN ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE OWNER/CONTRACTOR TO THE SATISFACTION OF THE TOWN AT NO EXPENSE TO THE TOWN.
30. THE SOILS ENGINEER SHALL PERFORM SUFFICIENT INSPECTIONS DURING GRADING AND CONSTRUCTION SO THAT AN OPINION CAN BE RENDERED AND VERIFIED IN WRITING AS TO COMPLIANCE WITH THE PLANS AND CODES WITHIN THE SOILS ENGINEER'S PURVIEW.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND COORDINATING STAGING AREAS, CONCRETE WASHOUT LOCATION, AND DISPOSAL OF REMOVED MATERIALS.

COLORADO LICENSED
KYLE D. MORRIS
58749
05/11/2022
PROFESSIONAL ENGINEER

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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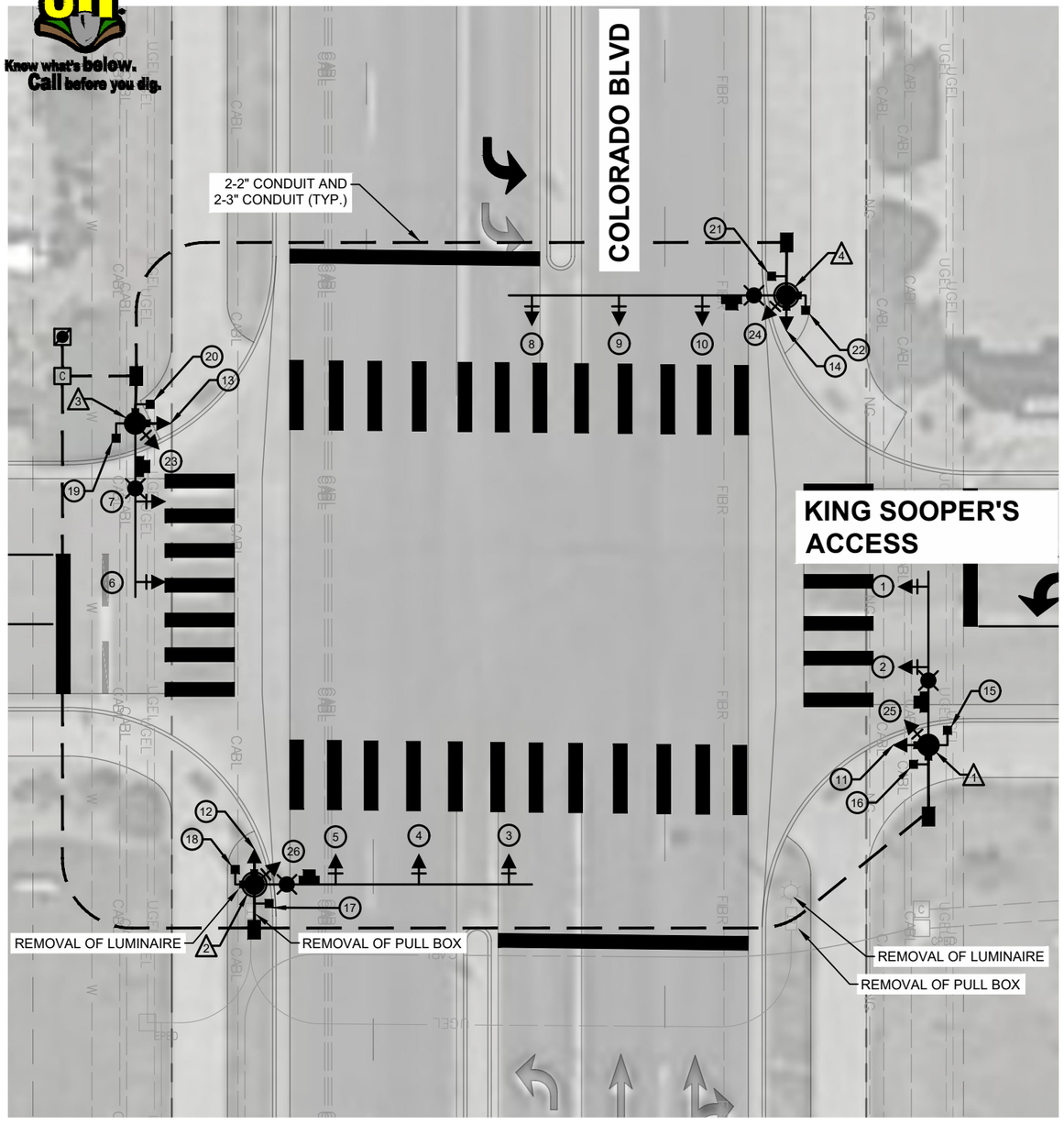
PLOTTED BY: DANIEL POHLEN, 5/11/2022 4:10 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

Bohannan Huston
www.bhinc.com 800.877.5332
9785 Maroon Circle Suite 140 Englewood , CO 80112-5928

R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	KING SOOPERS TRAFFIC SIGNAL GENERAL NOTES			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: GENERAL	SHEETS:	GEN-01 OF 01	SHEET NUMBER 02



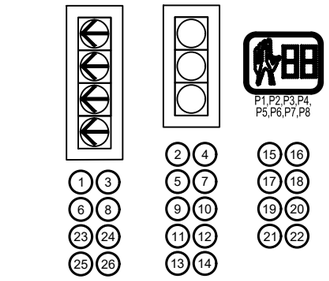
SIGNAL POLE SCHEDULE		
POLE ID	MAST ARM LENGTH	LUMINAIRE ARM LENGTH
1	25'	12'
2	40'	12'
3	25'	12'
4	40'	12'

N

20 10 0 20

1"=20'

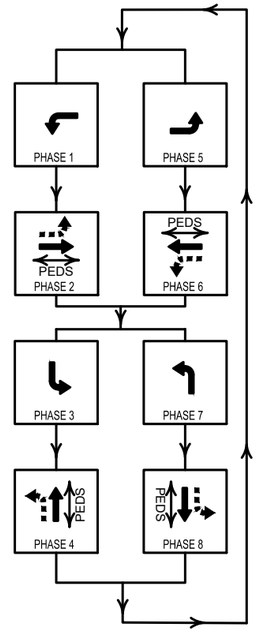
TYPICAL SIGNAL FACE LENS ARRANGEMENTS



LEGEND

- TRAFFIC SIGNAL POLE, FOUNDATION
- PEDESTRIAN PUSH BUTTON
- TRAFFIC SIGNAL FACE WITH RETRO-REFLECTIVE STRIP
- PEDESTRIAN SIGNAL
- CONTROLLER CABINET
- PULL BOX
- VIDEO DETECTION
- ELECTRICAL CONDUIT
- SIGNAL POLE IDENTIFICATION SYMBOL
- SIGNAL POLE IDENTIFICATION SYMBOL
- SERVICE POINT

SIGNAL PHASING



SIGNAL NOTES

1. EXTEND CONDUIT RUNS AS NECESSARY FOR NEW PULL BOX LOCATIONS.
2. COORDINATE UTILITY SERVICE WITH UNITED POWER AT 1=303-637-1230 IN BRIGHTON.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY APPLICABLE TOWN OF FIRESTONE BUILDING PERMITS FOR ELECTRICAL WORK.
4. ALL CONDUITS WITHOUT CONDUCTORS SHALL BE EQUIPPED WITH A #10 AWG SOLID COPPER CONDUCTOR FOR FUTURE TRACING.
5. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS, NOT INCLUDING THE DAY OF, PRIOR TO EXCAVATING. CONTRACTOR STALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
6. SEE TOWN OF FIRESTONE TRAFFIC SIGNAL DETAIL TS8 FOR REQUIRED CONDUIT INSTALLATIONS.
7. ALL EXISTING STRIPING IS TO REMAIN AND BE PROTECTED UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL SIGNAL POLE FOUNDATION LOCATIONS WITH THE TOWN OF FIRESTONE.

COLORADO LICENSED
KYLE D. MORRIS
58749
05/14/2022
PROFESSIONAL ENGINEER

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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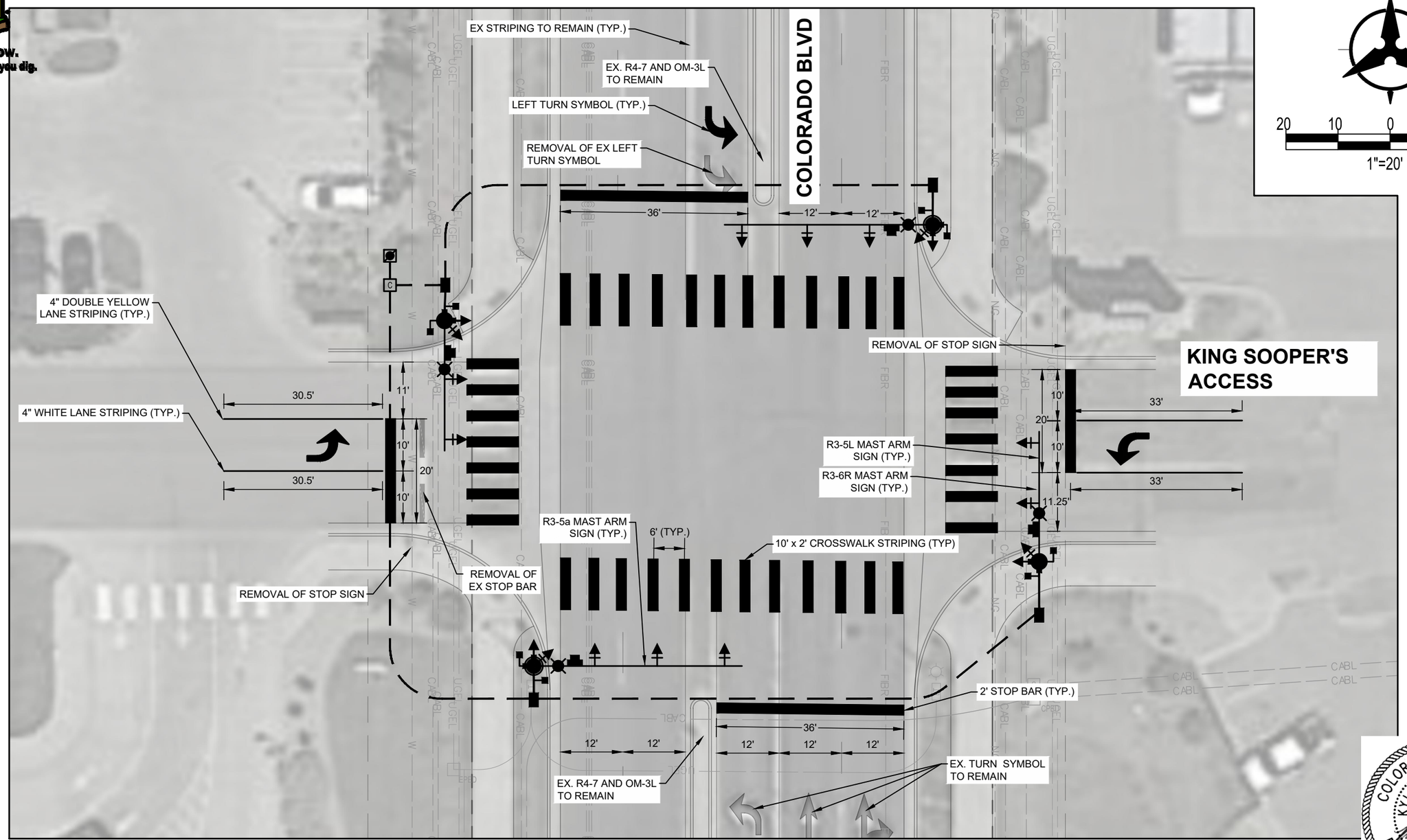
R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	KING SOOPERS TRAFFIC SIGNAL SIGNAL PLAN			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	SIG-01 OF 01	SHEET NUMBER 03

Know what's below. Call before you dig.



APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

COLORADO LICENSED
KYLE D. MORRIS
58748
05/11/2022
PROFESSIONAL ENGINEER

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9785 Maroon Circle Suite 140 Englewood , CO 80112-5928

R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

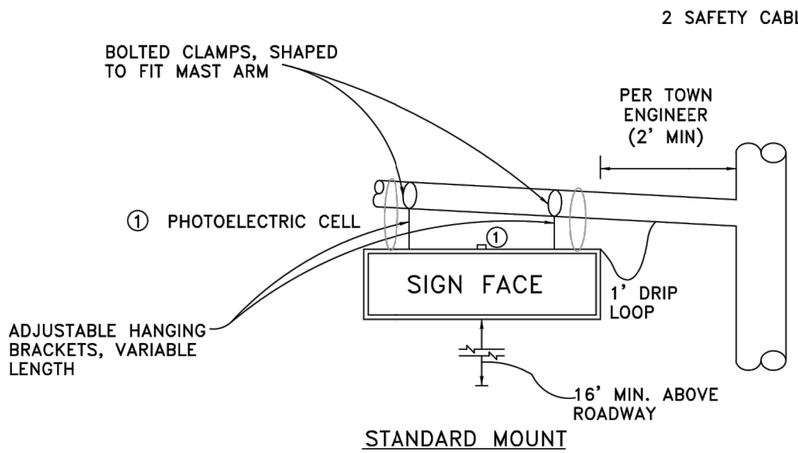
FIRESTONE COLORADO

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

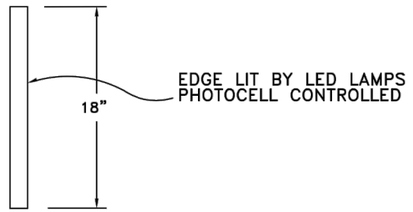
KING SOOPERS TRAFFIC SIGNAL SIGNING AND STRIPING PLAN

DESIGNER: KDM	STR. NO'S.	N/A	
DETAILER: KDM		N/A	
SUBSET: DESIGN	SHEETS:	SNS-01 OF 01	

PROJECT NO./CODE	
SHEET NUMBER	04



STANDARD MOUNT



SIDE VIEW

NOTES

1. FOR DETAILS ON SIGN REFER TO DETAIL NO. 922-01, TYPICAL STREET SIGNS.
2. FINAL SIGN LAYOUT AND LETTERING DETAILS PER TOWN ENGINEER.
3. SIGN TO BE DOUBLE SIDED WITH WHITE PRINT ON GREEN BACKGROUND FOR STREET NAME AND LOGO.



LIGHTED SIGN TYPICAL LAYOUT

GENERAL NOTES

1. STREET NAME SIGN TO BE FREE-SWINGING OR LIMITED-SWINGING. SIGN FIXTURE AND PANELS SHALL WITHSTAND 90 MPH WIND LOADING, WITH STRUCTURAL REQUIREMENTS MEETING AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS," LATEST EDITION.
2. HOUSING TO BE CONSTRUCTED OF ALUMINUM.
3. NEOPRENE GASKETS SHALL BE INSTALLED BETWEEN THE SIGN PANEL FRAME AND FIXTURE HOUSING TO PREVENT WATER ENTRANCE. SCREENED WEEP HOLES SHALL BE PROVIDED ON HOUSING BOTTOM FOR DRAINAGE.
4. SAFETY CABLES (2) CONSISTING OF WIRE CABLE AND 2 CABLE CLAMPS FOR EACH SIDE INSTALLED ON EITHER END OF THE ILLUMINATED STREET NAME SIGN.

ILLUMINATED STREET NAME SIGN

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME	DRAWING:
SCALE: NTS	TS1
DATE: 1/2020	

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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FIRESTONE COLORADO

AS CONSTRUCTED	KING SOOPERS TRAFFIC SIGNAL ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-01 OF 11	SHEET NUMBER 05

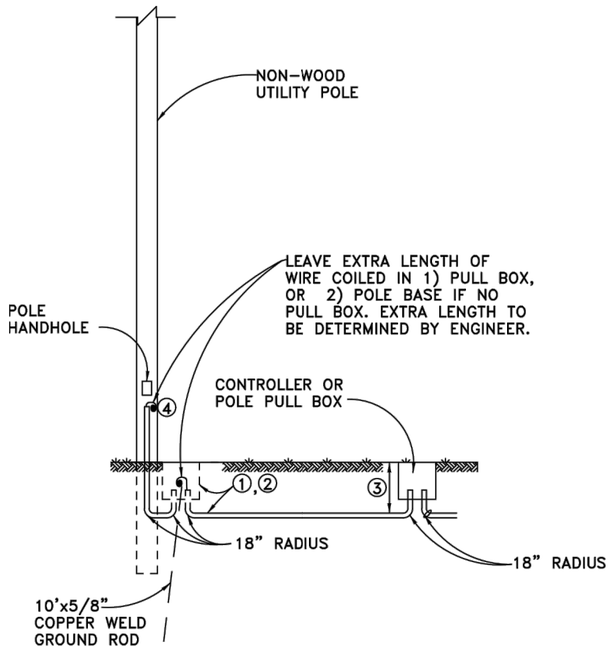
NOTES

① PROVIDE TYPE III PULL BOX/GROUND ROD AND 2" PVC CONDUIT ONLY IF D EXCEEDS 10'

② PROVIDE 2" GRC CONDUIT WITHOUT PULL BOX/GROUND ROD IF D IS LESS THAN 10'

③ MINIMUM CONDUIT DEPTHS:
UNDERGROUND 24"
UNDER PAVEMENT 30"

④ WHERE REQUIRED BY UTILITY COMPANY, CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMIT AND INSPECTION FROM THE STATE ELECTRICAL BOARD.



WITH NON-WOOD UTILITY POLE

TYPICAL UNDERGROUND POWER FEED
FOR TRAFFIC SIGNALS AND SCHOOL FLASHING BEACON ASSEMBLIES

POWER FEED FOR TRAFFIC SIGNALS

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: **TS4**

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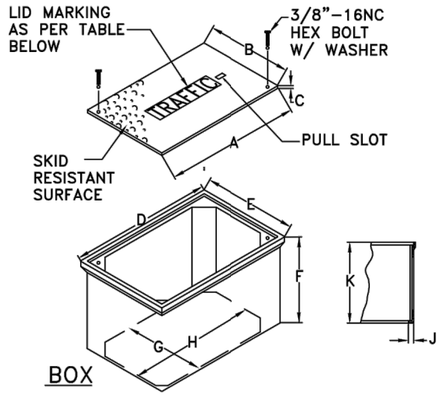
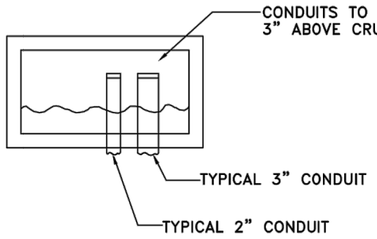
	DETAILER: KDM		N/A	
VOID:	SUBSET: DESIGN	SHEETS:	DET-02 OF 11	SHEET NUMBER 06

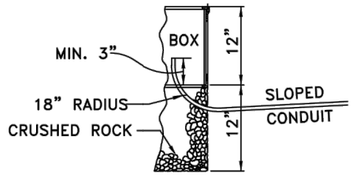
COVER



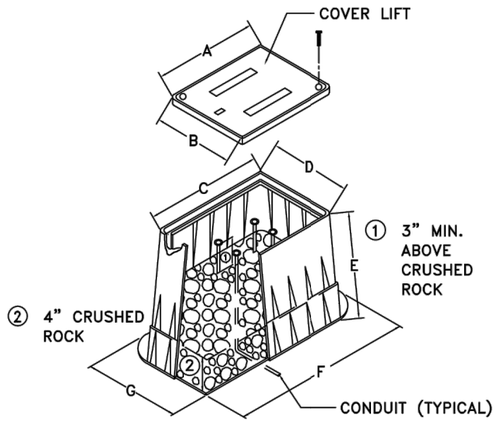
BOX



TYPICAL PULL BOX



TWO BOXES & EXTENSION



FIBERGLASS REINFORCED POLYMER CONCRETE DESIGNED FOR SERVICE LOAD (MINIMUM) OF 15,000 LBS. OVER A 10" SQUARE

PULLBOXES

PULL BOX USAGE	SIZE	PULL BOX LID MARKING
CABINET HOME RUN PULLBOX	24"x36"x18"	TRAFFIC
SIGNAL POLE PULL BOX	17"x30"x12"	TRAFFIC
DETECTOR PULL BOX (SIDE OF ROAD)	12"x12"x12"	TRAFFIC
DETECTOR WATER VALVE	WATER VALVE	TRAFFIC
COMMUNICATION VAULT (T/S CABINET)	30"x48"x18"	TRAFFIC COMM
COMMUNICATION VAULT (INTERMEDIATE LOCATIONS)	24"x36"x18"	TRAFFIC COMM
TELEPHONE DEMARCATION	13"x24"x12"	TRAFFIC COMM
ELECTRICAL DEMARCATION	13"x24"x12"	ELECTRIC

PULL BOX (PLASTIC/PREFAB)

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: **TS5**

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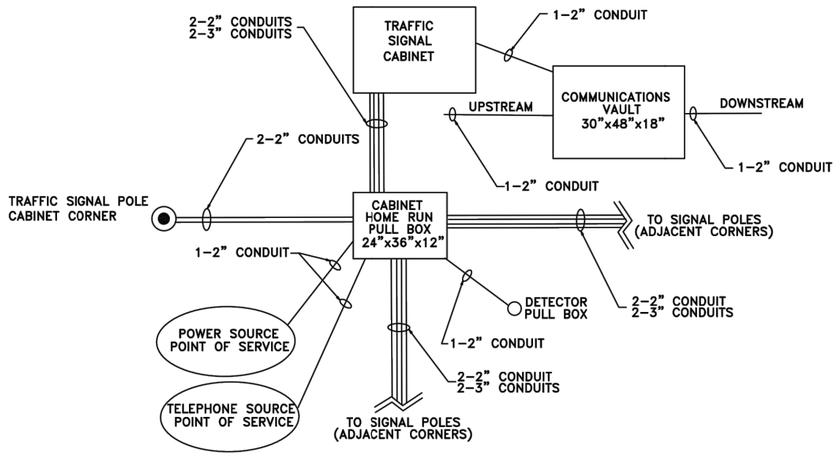
DETAILER: KDM
SUBSET: DESIGN
STR. NO'S. N/A N/A
SHEETS: DET-03 OF 11

PROJECT NO./CODE

SHEET NUMBER 07

UNDERGROUND POWER SOURCE SCHEMATIC FOR SIGNALS WITH LUMINAIRES

NOT TO SCALE



RECOMMENDED CONDUIT/CABLE RELATIONSHIPS

"CABINET HOME RUN PULL BOX" TO "TRAFFIC SIGNAL CABINET"
- 1 OF 2 – 2" CONDUITS: POWER FROM POINT–OF–SERVICE
- 2 OF 2 – 2" CONDUITS: LOW VOLTAGE & VIDEO
- 1 OF 2 – 3" CONDUITS: FIELD WIRING (120 VAC)
- 2 OF 2 – 3" CONDUITS: SPARE

"CABINET HOME RUN PULL BOX" TO "SIGNAL POLE PULLBOX"/
"SIGNAL POLE PULL BOX" TO "SIGNAL POLE PULL BOX" ON ADJACENT CORNERS
- 1 OF 2 – 2" CONDUIT: LUMINAIRE POWER
- 2 OF 2 – 2" CONDUITS: LOW VOLTAGE & VIDEO
- 1 OF 2 – 3" CONDUITS: FIELD WIRING (120 VAC)
- 2 OF 2 – 3" CONDUITS: SPARE

"SIGNAL POLE PULL BOX" TO "SIGNAL POLE"
- 1 OF 1 – 2" CONDUIT: LUMINAIRE POWER
- 2 OF 2 – 2" CONDUITS: FIELD WIRING

"CABINET HOME RUN PULL BOX" TO "POINTS OF SERVICE"
- 1 OF 2 – 2" CONDUITS: POWER FROM POINT OF SERVICE
- 2 OF 2 – 2" CONDUITS: TELEPHONE FROM POINT OF SERVICE

"COMMUNICATIONS VAULT" TO "TRAFFIC SIGNAL CABINET":
- 1 OF 1 – 2" CONDUIT: INTERCONNECT

"COMMUNICATIONS VAULT" UPSTREAM/DOWNSTREAM:
- 1 OF 1 – 2" CONDUIT: INTERCONNECT

"SIGNALPOLE PULL BOX" TO "DECTOR PULL BOX"/"DETECTOR WATER VALVE"
- 1 OF 1 – 2" CONDUIT: INDUCTANCE DETECTOR WIRING

NOTE:
THE "TRAFFIC SIGNAL PULL BOX" ON THE CABINET CORNER IS TO BE SIZED AT 24"x36"x12" DUE TO THE NUMBER OF CONDUITS ENTERING IT. TRAFFIC SIGNAL PULL BOXES" ON REMAINING CORNERS ARE TO BE SIZED 17"x30"x12".

POWER SOURCE SCHEMATIC

FIRESTONE COLORADO	TRAFFIC SIGNAL CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: TS8

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DETAILER: KDM
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SHEETS: DET-04 OF 11

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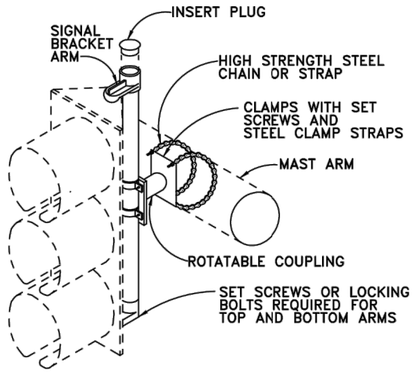
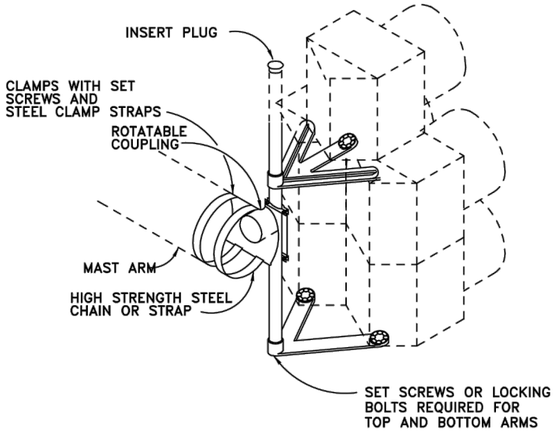


DETAIL OF MAST ARM MOUNTING FOR IN-LINE SIGNAL HEAD (3-SECTION OR 4-SECTION)

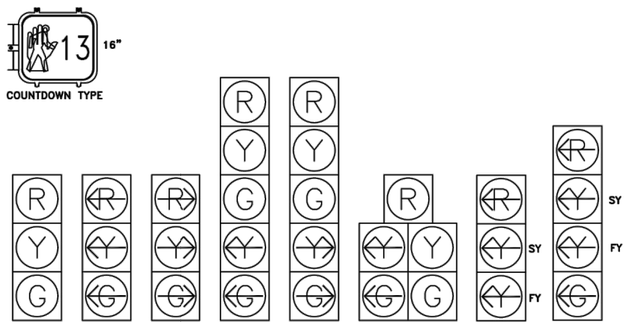


DETAIL OF MAST ARM MOUNTING FOR DOGHOUSE SIGNAL HEAD (5-SECTION)

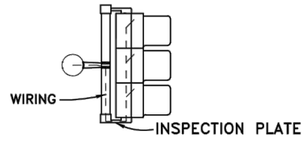
NOTES

ALL VEHICLE SIGNAL HEADS SHALL BE POLYCARBONATE WITH 12" SECTIONS AND TUNNEL VISORS.

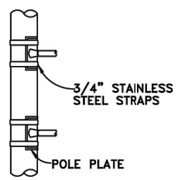
ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE LED TYPE, EXCEPT FOR ONE SIDE OF POLE RED WHICH SHALL BE INCANDESCENT. HEADS SHALL BE BLACK IN COLOR. PEDESTRIAN HEADS SHALL BE COUNTDOWN TYPE.



PEDESTRIAN AND VEHICLE SIGNAL HEADS



WIRING DIAGRAM



TYPICAL SIDE OF POLE SIGNAL MOUNTING

MOUNTING NOTES

1. PIPE COUPLINGS FOR SIGNAL BRACKETS SHALL BE EITHER 1-1/2 OR 2 INCH DEPENDING UPON THE SIGNAL HEAD TO BE INSTALLED. SIGNAL BRACKETS SHALL BE FURNISHED BY THE MANUFACTURER OF THE SIGNAL HEADS.
2. UNLESS OTHERWISE SPECIFIED, ALL TRAFFIC SIGNALS MOUNTED ABOVE THE ROADWAY SHALL HAVE A HEIGHT OF 17' TO 19' ABOVE THE PAVEMENT GRADE AT THE ROADWAY CENTER, ALL SIDE-OF-POLE MOUNTED TRAFFIC SIGNALS SHALL HAVE A HEIGHT OF 10' ABOVE GROUND LINE AND PEDESTRIAN SIGNALS SHALL HAVE A HEIGHT OF 8' ABOVE GROUND LINE AS MEASURED TO THE BOTTOM OF THE SIGNAL HEAD HOUSING OR BRACKET.
3. MAST ARM MOUNTED SIGNAL HEADS SHALL USE ASTRO-BRAC's OR SKY-BRACK. ALL SIGNAL HEADS SHALL BE MOUNTED IN SUCH A MANNER AS TO BE EASILY REMOVED FROM THEIR SUPPORTING STRUCTURE..
4. GASKET SEALING COMPOUND SHALL BE USED IN ADDITION TO ANY LEAD WASHERS REQUIRED FOR CREATING A WATER-TIGHT CONNECTION BETWEEN THE SIGNAL HEAD AND MOUNTING BRACKET.
5. SIGNAL HEADS SHALL BE SECURELY AFFIXED BY USE OF A SERRATED COUPLING OR OTHER ACCESSORIES RECOMMENDED BY THE SIGNAL MANUFACTURER.
6. WIRING FROM INSIDE MAST ARM THROUGH A 1" FIELD DRILLED HOLE IN ARM SHALL BE BROUGHT THROUGH THE MOUNTING SUPPORT TUBE AND LOWER ARM (AS SHOWN). FIELD DRILLED HOLES SHALL HAVE RUBBER GROMMETS INSTALLED.

GENERAL WIRING NOTES

1. TRAFFIC SIGNAL CONDUIT SHALL NOT CARRY WIRING OF OTHER UTILITIES.
2. EXCEPT FOR LOOP DETECTOR LEADS, ALL SPLICES SHALL BE IN HAND HOLES AT POLE BASES AND NOT IN PULL BOXES.
3. PEDESTRIAN AND VEHICLE SIGNAL HEADS SHALL BE INDIVIDUALLY WIRED FROM THE POLE BASE TO THE SIGNAL HEAD.
4. CONTRACTOR SHALL PROVIDE 2 WIRING DIAGRAMS OF THE SIGNAL INSTALLATION TO THE TOWN.
5. UNLESS ALLOWED BY THE TOWN ENGINEER, WIRE SHALL NOT OCCUPY MORE THAN 40% OF THE INSIDE AREA OF CONDUIT.

SIGNAL HEAD MOUNTING

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: TS9

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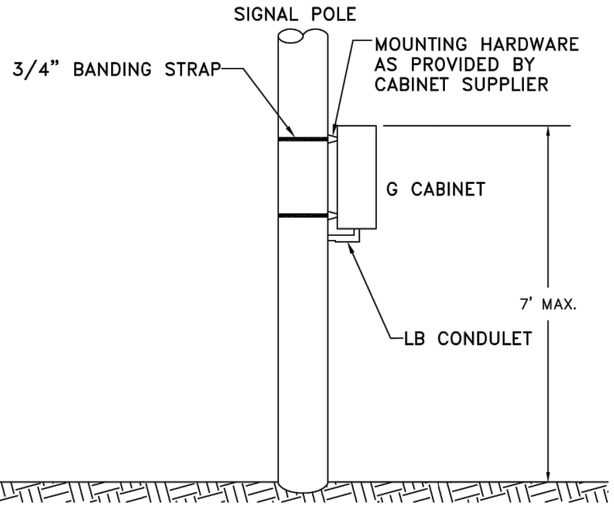
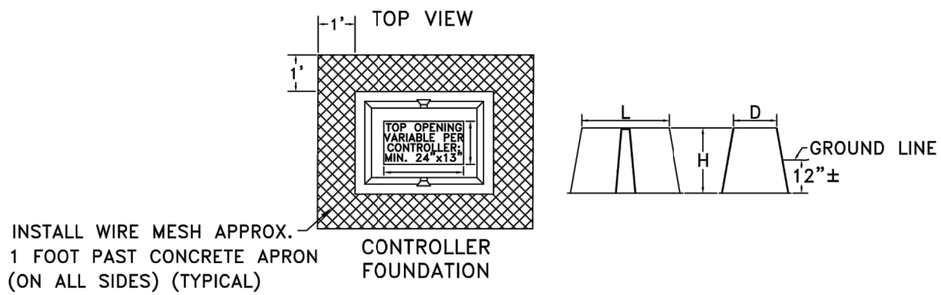
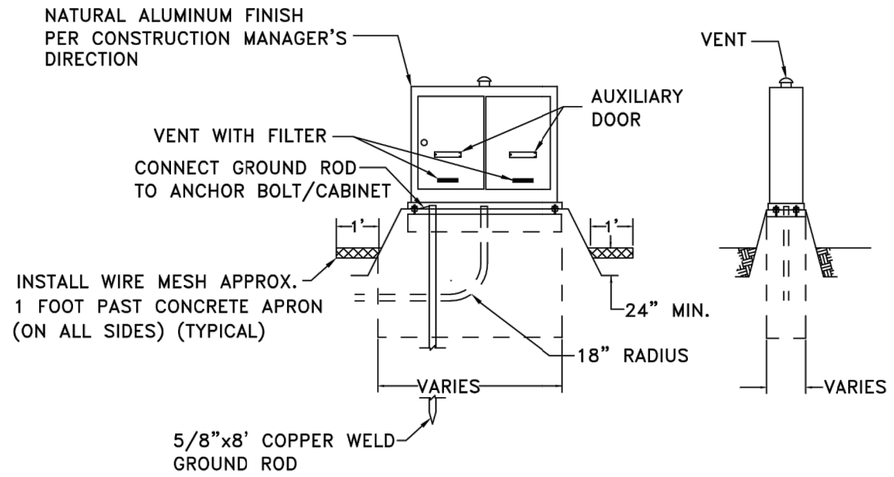


TYPICAL SIDE-OF-POLE MOUNTED CONTROLLER CABINET

CABINET FOUNDATION

	L	D	H
333 SD	44"	29"	24"





TYPICAL BASE MOUNTED CONTROLLER CABINET INSTALLATION AND FIBERGLASS FOUNDATION

CONTROLLER CABINET

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: **TS10**

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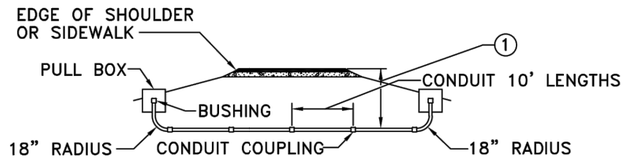

CONDUIT PLACEMENT UNDER PAVEMENT
OR SIDEWALK

NOTES

		UNDER PAVEMENT	UNDER SIDEWALK
1	MINIMUM CONDUIT DEPTH:	30"	24"

ALL PVC CONDUIT SHALL BE SCHEDULE 80

CONDUIT DETAILS

FIRESTONE COLORADO	TRAFFIC SIGNAL CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: TS11

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	DETAILER: KDM		N/A	
VOID:	SUBSET: DESIGN	SHEETS:	DET-07 OF 11	SHEET NUMBER 11

GENERAL NOTES

1. REFER TO THE ROADWAY PLANS FOR THE ACTUAL CONFIGURATION AND LOCATION OF TRAFFIC SIGNAL HEADS AND SIGNS MARKED WITH A ■.
2. ALL POLES SHALL BE FABRICATED WITH ASTM A572 GRADE 65 STEEL.
3. ALL ARMS SHALL BE FABRICATED WITH ASTM A572 GRADE 65 STEEL OR ASTM A595 GRADE A STEEL WITH A MINIMUM YIELD POINT OF 55 KSI.
4. ALL POLES AND ARMS SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A500, A501, OR A595.
5. ALL POLES AND ARMS SHALL BE ROUND OR DODECAGONAL (12 SIDES) TUBES WITH A 0.14 IN/FT TAPER.
6. HARDENED WASHERS SHALL CONFORM TO ASTM F436.
7. ALL POLES AND ARMS SHALL BE GALVANIZED INSIDE AND OUTSIDE AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, UNLESS PAINTING IS CALLED FOR ON THE PLANS. PAINTING SHALL CONFORM TO SECTION 522, DUPLEX COATING SYSTEM.
8. POLE AND MAST ARM SPLICES SHALL BE MECHANICALLY FORCED TOGETHER FOR A SNUG FIT.
9. ALL MAST ARMS MORE THAN 35 FT IN LENGTH SHALL BE TWO PIECE CONSTRUCTION TO LIMIT ARM WEIGHTS.
10. GALVANIZED ASTM A325 H.S. BOLTS SHALL BE USED FOR ATTACHING MAST ARMS. A LUBRICATED TIGHTENING TORQUE OF 178 FT-LBS FOR ¾" DIAMETER BOLTS, AND 1300 FT-LBS FOR 1½" INCH DIAMETER BOLTS SHALL BE USED TO TIGHTEN ALL H.S. BOLTS. MAST ARMS SHALL BE TEMPORARILY SUPPORTED TO TAKE LOAD OFF OF FIELD CONNECTIONS WHILE BOLTS ARE TIGHTENED IN ORDER TO FIRMLY SEAT THE FLANGE PLATE. BOLTS SHALL BE SEQUENTIALLY TIGHTENED.
11. CAST POLE END CAP TO BE SECURED IN PLACE WITH 3 SET SCREWS.
12. ALL SIGNAL HEADS, SIGNS, AND HARDWARE SHALL BE FIELD POSITIONED.
13. ACCESSORIES TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
14. ALL PLATES SHALL BE FABRICATED WITH AASHTO M270 (ASTM A709) GRADE 36 STEEL AND SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A6. ALL HANDHOLES SHALL BE FABRICATED WITH ASTM A572 GRADE 42 STEEL.
15. LEVELING CONCRETE SHALL BE 3000 PSI AIR ENTRAINED CONCRETE VIBRATED IN PLACE BELOW THE POLE BASE PLATE.
16. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH. WET OR CAVING HOLES SHALL BE BACKFILLED WITH FLOW-FILL AND REDRILLED AFTER A THREE DAY CURING PERIOD WITHOUT THE USE OF A CASING.
17. CAISSONS SHALL BE CONSTRUCTED WITH AIR ENTRAINED CLASS BZ CONCRETE IN ACCORDANCE WITH SECTION 503 OF THE STANDARD SPECIFICATIONS. REINFORCING STEEL SHALL BE GRADE 60.
18. CAISSON CONCRETE MUST HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,700 PSI BEFORE INSTALLING THE SIGNAL STRUCTURE; VERIFY CONCRETE STRENGTH WITH MATURITY METER.
19. U-BOLTS AND ANCHOR BOLTS SHALL BE FABRICATED WITH AASHTO M314-90 GRADE 55 STEEL.
20. ANCHOR BOLTS SHALL BE FABRICATED WITH HEAVY HEX NUTS AND FLAT WASHERS, AND EXTENDED A MINIMUM OF ¾" ABOVE THE NUT AFTER COMPLETING THE TIGHTENING PROCESS. THREAD UPPER 12 INCHES AND GALVANIZE UPPER 13 INCHES OF THE ANCHOR BOLTS. FIELD WELDING OF ANCHOR BOLTS TO REBAR DURING ERECTION WILL NOT BE ALLOWED. ANCHOR BOLTS SHALL BE SET WITH A STEEL TEMPLATE UNTIL THE CONCRETE HAS CURED AT LEAST TWO DAYS. THEY SHALL BE TIGHTENED USING THE TURN-OF-NUT METHOD BY FIRST TIGHTENING THEM TO SNUG TIGHT, WHICH IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE UPPER AND LOWER NUTS ARE IN FIRM CONTACT WITH THE BASE PLATE. WITH MAST ARMS FREE TO DEFLECT, THE UPPER AND LOWER NUTS SHALL THEN EACH BE ROTATED AN ADDITIONAL 1/12 TURN (30° ± 5°) WITH A SLUGGING, HYDRAULIC OR AIR IMPACT WRENCH.
21. WELDING OF STEEL SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.1. ALL AREAS TO BE WELDED SHALL BE GROUND TO BRIGHT METAL. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED. ALL CIRCUMFERENTIAL WELDS SHALL BE NON-DESTRUCTIVELY TESTED USING THE ENHANCED MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH SUBSECTION 509.18 (d) OF THE STANDARD SPECIFICATIONS. THE ACCEPTANCE CRITERIA IS STATED IN TABLE 6.1 OF ANSI/AWS D1.1. ALL LONGITUDINAL WELDS WITHIN 6 INCHES OF FULL PENETRATION CIRCUMFERENTIAL GROOVE WELDS AND FULL PENETRATION GROOVE WELDS SHALL BE INSPECTED AS SPECIFIED ABOVE. MAXIMUM WELD UNDERCUT SHALL BE 0.01 INCHES.
22. ALL ELECTRICAL CONNECTIONS TO THE SIGNALS SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
23. CERTIFIED MILL TEST REPORTS INCLUDING CHARPY V-NOTCH (CVN) TEST RESULTS, WELD INSPECTION REPORTS AND ENHANCED MAGNETIC PARTICLE TEST REPORTS SHALL BE SUBMITTED TO CDOT STAFF BRIDGE, 4201 E. ARKANSAS AVE., DENVER COLORADO 80222 AS SOON AS THEY BECOME AVAILABLE. CVN TEST RESULTS FOR ASTM A572 GRADES 42, 55 AND 65 STEEL SHALL HAVE A MINIMUM VALUE OF 15 FT-LBS AT 40°F AS PER THE H FREQUENCY TEST REQUIREMENTS IN AASHTO T243 (ASTM A673).
24. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SUBSECTION 105.02 OF THE STANDARD SPECIFICATIONS.
25. TRAFFIC SIGNALS MOUNTED ON MAST ARMS SHALL BE FURNISHED WITH ASTRO TYPE MOUNTING BRACKETS.
26. END SECTION DIAMETERS MUST BE INCREASED TO ACCOMMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES TO PROVIDE THE MINIMUM REQUIRED ARM SLIP SPLICE LENGTHS AND POLE MEMBER OVERLAPS.
27. SECURE ARM FLANGE PLATE, POLE BASE PLATE, AND CONNECTION FACE PLATE DURING WELDING TO PREVENT DISTORTION.
28. IF THE VERTICAL DEFLECTIONS DURING A 10 TO 20 MPH WIND EXCEED THE GALLOPING DEFLECTION LIMITS LISTED IN THE TABLE ON SHEET 2 OF 4, THE OWNER SHALL INSTALL AN ALUMINUM SIGN BLANK (16" X 66" OR LARGER) NEAR THE FREE END OF THE TRAFFIC SIGNAL MAST ARM. SAID SIGN BLANK SHALL BE ROTATED ABOUT THE LONGITUDINAL AXIS OF THE ARM WHILE THE WIND BLOWS TO MINIMIZE THE GALLOPING DEFLECTIONS. CONTACT STAFF BRIDGE FOR MORE INFORMATION.
29. ONE DRILLED HOLE WITH A MAXIMUM DIAMETER OF ¾" IS ALLOWED AT LOCATIONS MARKED WITH A ▲ TO ACCOMMODATE ELECTRICAL WIRING.
30. SEE S-614-42 AND S-614-43 FOR "CABINET FOUNDATION DETAILS" AND "TRAFFIC LOOP AND MISC. SIGNAL DETAILS" RESPECTIVELY.

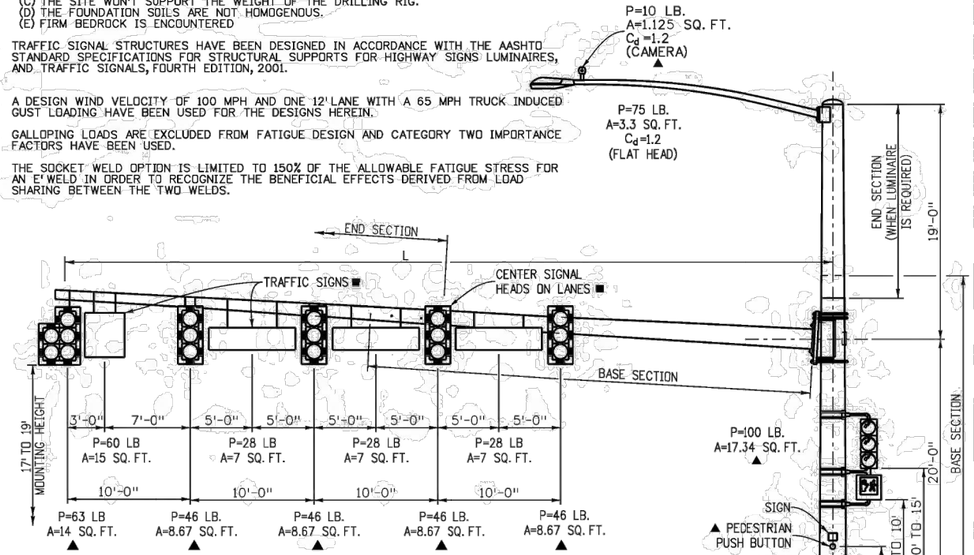
DESIGN DATA

1. DRAWING SHOWN HAS 5 SIGNAL HEADS, SHORTER ARM LENGTHS MAY HAVE FEWER HEADS. THIS CONFIGURATION IS INTENDED TO REPRESENT A WORST CASE LOADING SITUATION.

(55'), 50'	(45'), 40'	(35'), 30'	(25')
5 SIGNAL HEADS	4 SIGNAL HEADS	3 SIGNAL HEADS	2 SIGNAL HEADS

THE DESIGN LENGTH "L" FOR EACH SERIES IS SHOWN IN PARENTHESIS.

2. THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM WITH THE FOLLOWING SOIL PARAMETERS:
   SOIL DENSITY γ = 110 LB./CU.FT.
   SOIL COHESION = 750 LB./SQ.FT. FOR MEDIUM STIFF COHESIVE SOIL
   SOIL ø ANGLE = 30° FOR MEDIUM DENSE COHESIONLESS SOIL
   SF = 1.25 FOR TORSIONAL RESISTANCE AND 3.0 FOR FLEXURAL RESISTANCE
3. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:
   (A) SIGNALS WILL NOT BE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM.
   (B) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.
   (C) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.
   (D) THE FOUNDATION SOILS ARE NOT HOMOGENOUS.
   (E) FIRM BEDROCK IS ENCOUNTERED
4. TRAFFIC SIGNAL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES, AND TRAFFIC SIGNALS, FOURTH EDITION, 2001.
5. A DESIGN WIND VELOCITY OF 100 MPH AND ONE 12' LANE WITH A 65 MPH TRUCK INDUCED GUST LOADING HAVE BEEN USED FOR THE DESIGNS HEREIN.
6. GALLOPING LOADS ARE EXCLUDED FROM FATIGUE DESIGN AND CATEGORY TWO IMPORTANCE FACTORS HAVE BEEN USED.
7. THE SOCKET WELD OPTION IS LIMITED TO 150% OF THE ALLOWABLE FATIGUE STRESS FOR AN E' WELD IN ORDER TO RECOGNIZE THE BENEFICIAL EFFECTS DERIVED FROM LOAD SHARING BETWEEN THE TWO WELDS.



MAST ARM LENGTH (L) (FT.)	POLE DATA							
	BASE SECTION *				END SECTION ◆			
	LENGTH (FT.)	TOP ø (IN.)	BOTTOM ø (IN.)	THK. (IN.)	LENGTH (FT.)	TOP ø (IN.)	BOTTOM ø (IN.)	THK. (IN.)
ALL ARMS	24.47	11.57	15.00	0.3125	16.00	9.90	12.14	0.1793

* BASE SECTION LENGTHS INCLUDE THE SPLICE LENGTH AS PER THE "MAST ARM SLIP SPLICE DETAIL" ON SHEET 2 OF 4

◆ SEE GENERAL NOTE 26

Computer File Information	
Creation Date:	07/04/12
Created By:	LAW
Last Modification Date:	
Last Modified By:	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments

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ALTERNATE TRAFFIC SIGNAL 25' - 55' SINGLE MAST ARMS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 1 of 4
Project Sheet Number:

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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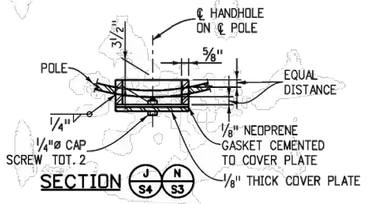
	DATE	DESIGNER:	INITIALS

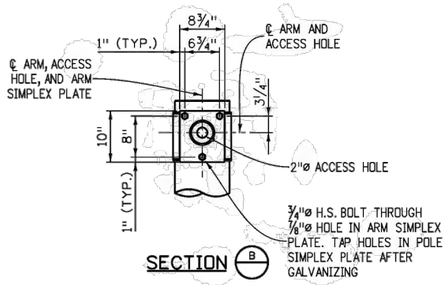
FIRESTONE COLORADO

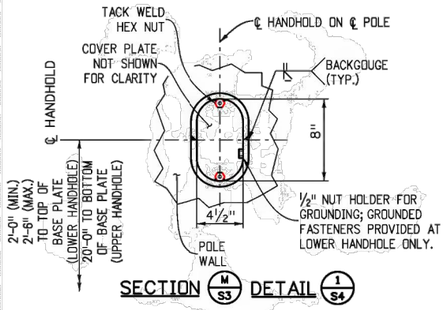
AS CONSTRUCTED	KING SOOPERS TRAFFIC SIGNAL ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-08 OF 11	SHEET NUMBER 12

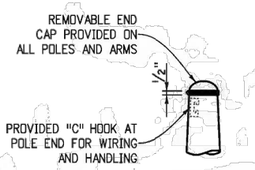
MAST ARM LENGTH (L) (FT.)	MAST ARM DATA								GALLOPING DEFLECTION LIMITS (Δ) (IN) ●
	BASE SECTION ✱				END SECTION ◆				
	LENGTH (FT.)	TIP ø (IN.)	TRUNK ø (IN.)	THK (IN.)	LENGTH (FT.)	TIP ø (IN.)	TRUNK ø (IN.)	THK. (IN.)	
25	23.92	6.65	10.00	0.2391	N.A.	N.A.	N.A.	N.A.	✦
35	33.92	7.50	12.25	0.2391	N.A.	N.A.	N.A.	N.A.	✦
45	25.16	9.73	13.25	0.3125	20.00	7.46	10.26	0.1793	6"
55	25.34	11.20	14.75	0.3125	30.00	7.56	11.76	0.1793	11"

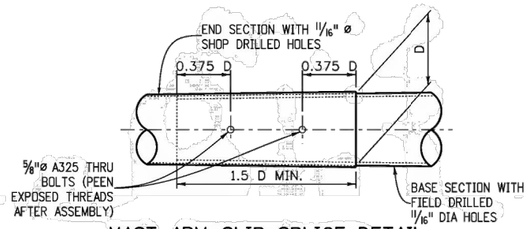
✱ BASE SECTION LENGTH INCLUDES THE SPLICE LENGTH AS PER THE "MAST ARM SLIP SPLICE DETAIL" BELOW.
◆ SEE GENERAL NOTE 26 ON SHEET 1 OF 4.
● SEE GENERAL NOTE 28 ON SHEET 1 OF 4.
✦ DEFLECTION TOO SMALL TO MEASURE.
■ STOP ALL WELDS ½" SHORT OF PLATE EDGES AND BOLT HOLES.

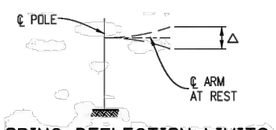


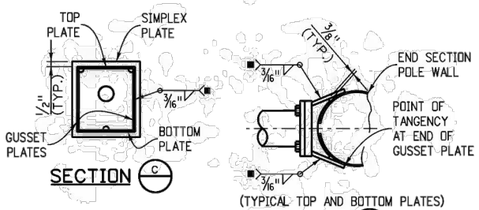


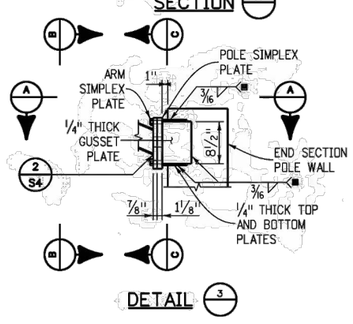


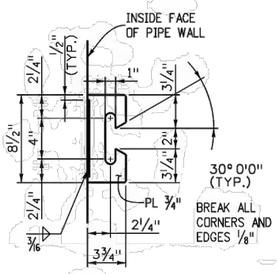








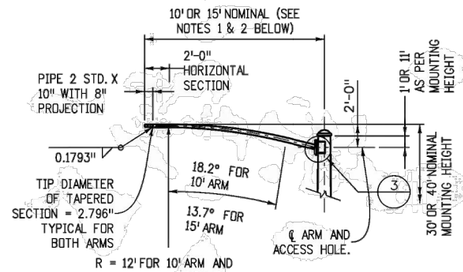






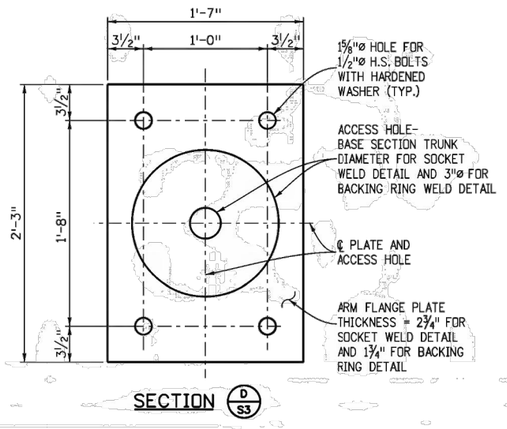
Y = DIAMETER OF A ROUND TUBE.
Z = PERPENDICULAR DISTANCE BETWEEN FLATS.
Y AND Z ARE OUTSIDE DIAMETER DIMENSIONS.
Z/Y RATIO MUST BE .98 MINIMUM.

OPTIONAL MULTI-SIDED POLE OR MAST ARM



LUMINAIRE ARM NOTES

1. 10' LUMINAIRE ARM SHAFT: WALL THICKNESS = 0.1793"; LINEAR TAPER = 0.14 IN./FT.; DIAMETER AT ARM SIMPLEX PLATE = 4.066".
2. 15' LUMINAIRE ARM SHAFT: WALL THICKNESS = 0.1793"; LINEAR TAPER = 0.14 IN./FT.; DIAMETER AT ARM SIMPLEX PLATE = 4.679".



Computer File Information	
Creation Date: 07/04/12	
Created By: LAW	
Last Modification Date:	
Last Modified By:	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments

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ALTERNATE TRAFFIC SIGNAL 25' - 55' SINGLE MAST ARMS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 2 of 4
Project Sheet Number:

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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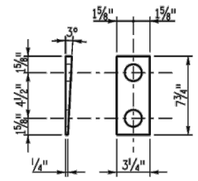
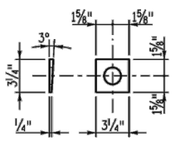
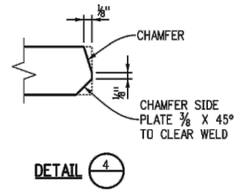
AS CONSTRUCTED	KING SOOPERS TRAFFIC SIGNAL ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-09 OF 11	SHEET NUMBER 13

- BEND RADIUS MEASURED TO THE ℄ OF EACH U-BOLT. INCREASE RADII AS NEEDED TO ACCOMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES. U-BOLTS SHALL BE TIGHTENED 1/12 TURN (30° ± 5°) PAST SNUG TIGHT; PEEN THREADS AFTER TIGHTENING. U-BOLTS AND FACEPLATE SHALL BE MOUNTED ON BASE SECTION PRIOR TO SHIPMENT.
- ✚ MATCH FIT STOP BAR TO SIDE PLATE USING TACK WELDS TO ENSURE UNIFORM REARING.
- ■ STOP ALL WELDS 1/2" SHORT OF PLATE EDGES AND BOLT HOLES.
- * BEND STOP BAR TO MATCH POLE CURVATURE.







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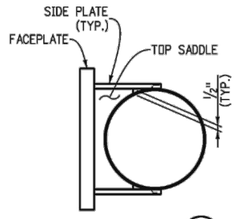
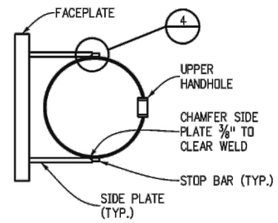


SECTION P



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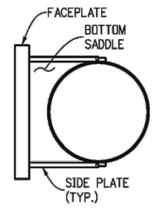

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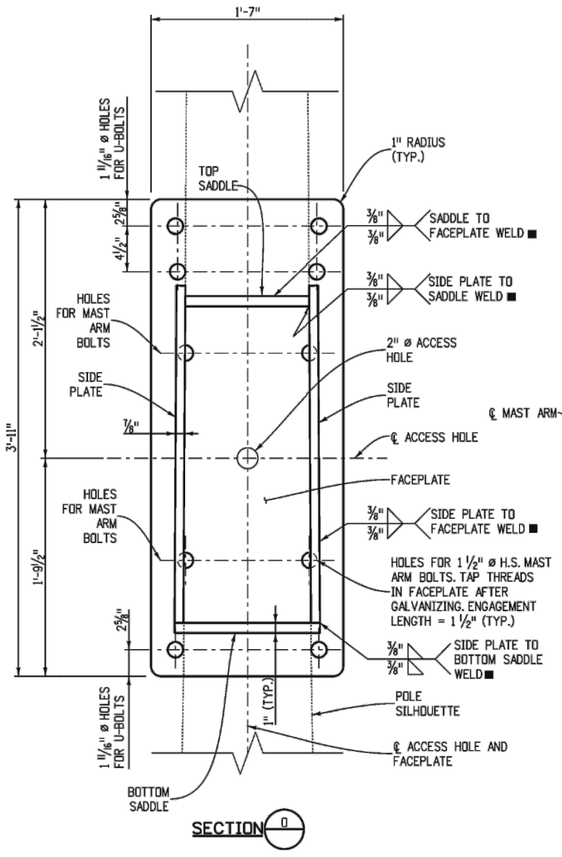
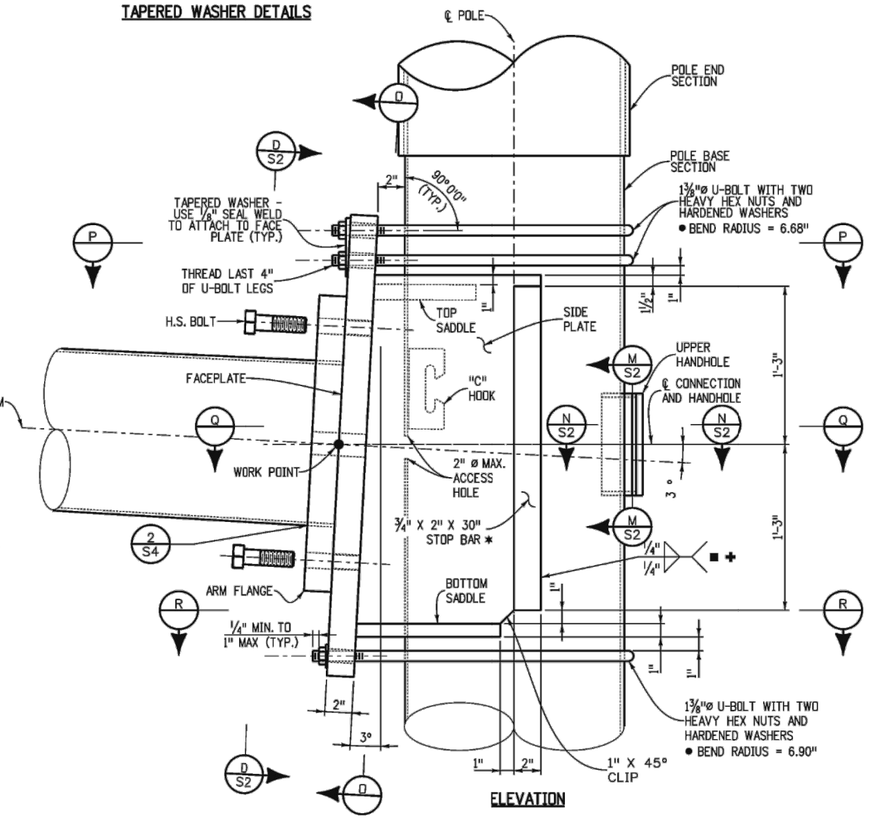


SECTION O

TAPERED WASHER DETAILS



ELEVATION

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: LAW			
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CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

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ALTERNATE TRAFFIC SIGNAL 25' - 55' SINGLE MAST ARMS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 3 of 4
Project Sheet Number:

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SHEET REVISIONS			
R-X	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

KING SOOPERS TRAFFIC SIGNAL
ROADWAY DETAILS

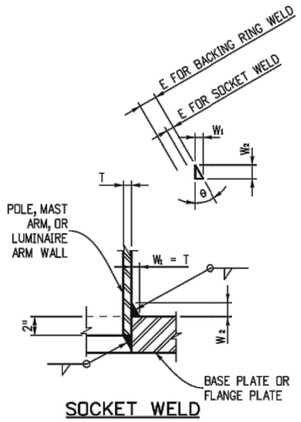
DESIGNER: KDM	STR. NO'S.	N/A	
DETAILER: KDM		N/A	
SUBSET: DESIGN	SHEETS:	DET-10 OF 11	

PROJECT NO./CODE

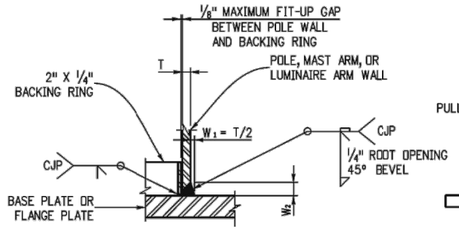
SHEET NUMBER 14

SOCKET WELD DATA					
	ARM LENGTH (FT.)	W_1 (IN.)	W_2 (IN.)	E (IN.)	θ (DEG.)
MAST ARMS	25	0.2391	0.285	0.183	40
	35	0.2391	0.285	0.183	40
	45	0.3125	0.372	0.239	40
	55	0.3125	0.372	0.239	40
POLE	ALL	0.3125	0.372	0.239	40
LUMINAIRE ARMS	ALL	0.1793	0.214	0.138	40

BACKING RING WELD DATA					
	ARM LENGTH (FT.)	W_1 (IN.)	W_2 (IN.)	E (IN.)	θ (DEG.)
MAST ARMS	25	0.1196	0.489	0.289	14
	35	0.1196	0.489	0.289	14
	45	0.1566	0.563	0.385	16
	55	0.1566	0.563	0.385	16
POLE	ALL	0.1566	0.563	0.385	16
LUMINAIRE ARMS	ALL	0.0897	0.429	0.212	12

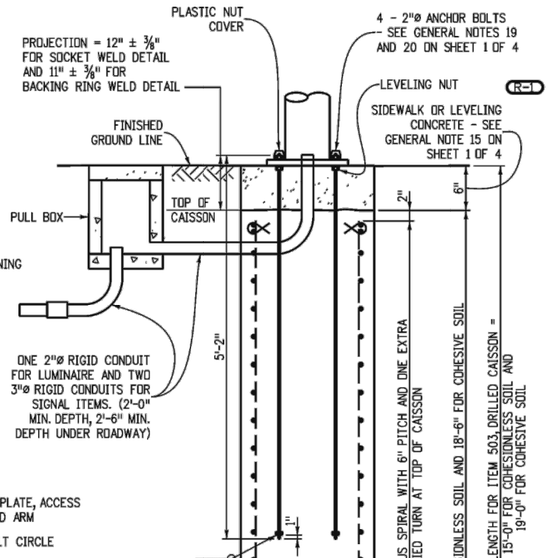


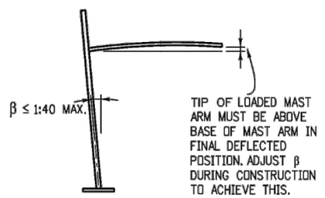
SOCKET WELD



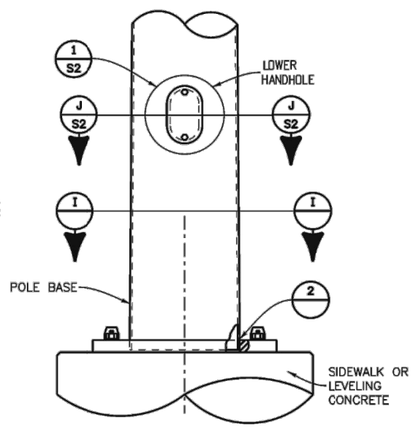
BACKING RING WELD

DETAIL 2 S2 2 S2 2 S3





CONSTRUCTION REQUIREMENTS



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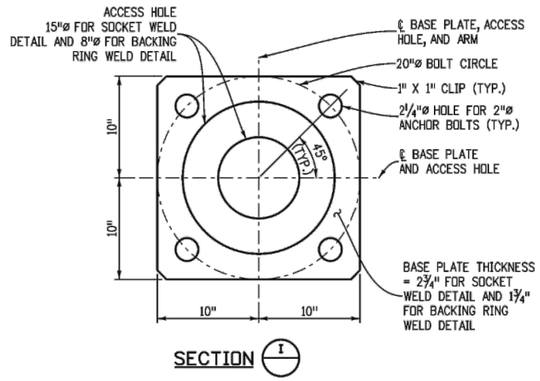
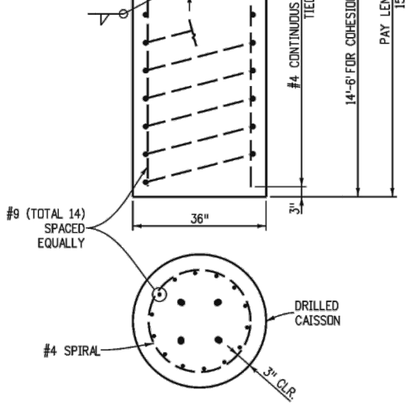


SECTION I



TRAFFIC SIGNAL POLE CAISSON

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: LAW			
Last Modification Date: 09/25/12			
Last Modified By: LAW			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

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Denver, CO 80204
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Traffic & Safety Engineering MKB

ALTERNATE TRAFFIC SIGNAL 25' - 55' SINGLE MAST ARMS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 4 of 4
Project Sheet Number:

APRIL, 2022 - FINAL PLANS - NOT FOR CONSTRUCTION

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PLOTTED BY: DANIEL POHLEN, 5/11/2022 4:15 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

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SHEET REVISIONS			
R-X	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	KING SOOPERS TRAFFIC SIGNAL ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-11 OF 11	SHEET NUMBER 15

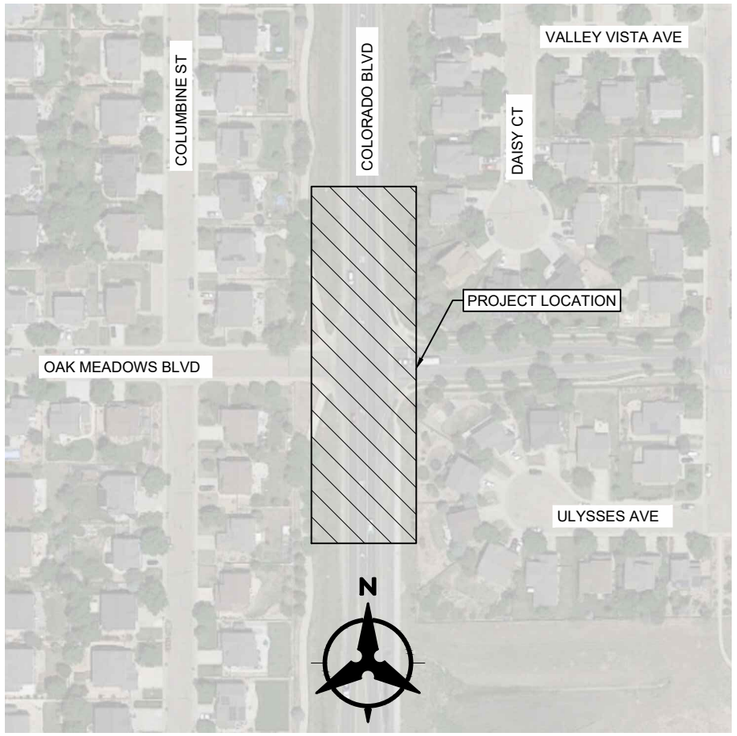
PUBLIC IMPROVEMENT CONSTRUCTION PLANS

TOWN OF FIRESTONE

OAK MEADOWS BLVD PEDESTRIAN CROSSING

WELD COUNTY, COLORADO

SCALE OF ORIGINAL DRAWINGS



PROJECT LOCATION MAP

0' 125' 200' 400'

INDEX OF SHEETS

SHEET NO.	SUBSET SHEETS	DESCRIPTION
01	T-01	TITLE SHEET
02	GEN-01	GENERAL NOTES
03	SIG-01	SIGNAL PLAN
04	SNS-01	SIGNING AND STRIPING PLAN
05-16	DET-01 OF 12	SIGNAL DETAILS

COLORADO LICENSED
KYLE D. MORRIS
58749
6/04/2022
PROFESSIONAL ENGINEER

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

ACCEPTED BY: _____ TOWN ENGINEER _____ DATE

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:42 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

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R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED		PROJECT NO./CODE
NO REVISIONS:	CONTRACTOR:	
	PROJECT MANAGER:	
REVISED:	PROJECT ENGINEER:	
	PROJECT STARTED: ACCEPTED:	
VOID:	COMMENTS:	SHEET NUMBER 01

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST "DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS FOR PUBLIC IMPROVEMENTS" BY THE TOWN OF FIRESTONE. COPIES OF THE STANDARDS AND SPECIFICATIONS MAY BE OBTAINED FROM THE TOWN WEB SITE. CONTRACTOR SHALL HAVE A SET ON SITE AT ALL TIMES.
2. THE OWNER SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN OF FIRESTONE ENGINEERING STAFF PRIOR TO THE START OF CONSTRUCTION. THOSE IN ATTENDANCE SHALL INCLUDE THE OWNER, HIS ENGINEER, THE TOWN ENGINEERING STAFF, REPRESENTATIVES OF THE CONTRACTORS AND OTHER AFFECTED AGENCIES. PLANS SIGNED AND ACCEPTED BY THE TOWN WILL BE DISTRIBUTED AT THE PRECONSTRUCTION MEETING. CONTRACTOR SHALL HAVE (1) COPY OF THE SIGNED PLANS ON SITE AT ALL TIMES.
3. THE TOWN OF FIRESTONE, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. THE OWNER AND DESIGN ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT. REPORT ALL DISCREPANCIES TO THE DESIGN ENGINEER IMMEDIATELY.
4. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY/ALL WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK SITE FROM ADJACENT PRIVATE PROPERTY OWNERS. A COPY OF ALL AGREEMENTS SHALL BE PROVIDED TO THE TOWN. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
5. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE TOWN ENGINEERING STAFF. THE TOWN RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO TOWN STANDARDS AND SPECIFICATIONS. INSPECTIONS AND ONSITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE TOWN ENGINEERING STAFF OF THE CONTRACTORS'' CONTRACTUAL COMMITMENT. REQUESTS FOR INSPECTION BY THE TOWN SHALL BE MADE BY THE CONTRACTOR A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE.
6. CONSTRUCTION WATER IS AVAILABLE TO THE CONTRACTOR AS ESTABLISHED IN THE TOWN STANDARDS AND SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE TOWN REGARDING CURRENT REGULATIONS, FEES AND REQUIRED AGREEMENTS RELATED TO THE PROVISION OF CONSTRUCTION WATER.
7. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE AFFECTED UTILITY COMPANIES AND SHALL NOTIFY THE UTILITY NOTIFICATION CENTER, PHONE NUMBER 811, THREE (3) BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION.
8. UTILITIES IN THE AREA OF CONSTRUCTION ARE APPROXIMATE ONLY. THEY HAVE BEEN LOCATED FROM FIELD INVESTIGATION AND THE BEST AVAILABLE UTILITY RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL CONTACT ALL RESPECTIVE UTILITIES AND HAVE ALL UTILITIES FIELD-LOCATED PRIOR TO CONSTRUCTION. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, IT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TOWN ENGINEERING STAFF AND DESIGN ENGINEER PRIOR TO PROCEEDING.
9. THE CONTRACTOR SHALL NOTIFY TOWN ENGINEERING STAFF OF ANY PROBLEM IMPACTING WATER AND WASTE WATER FACILITIES THAT WOULD POTENTIALLY REQUIRE A VARIANCE FROM THE APPROVED PLANS AND SPECIFICATIONS. ANY VARIANCE FROM THE APPROVED DOCUMENTS SHALL BE AT THE SOLE DISCRETION OF THE TOWN ENGINEERING STAFF.
10. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE SPECIFICATIONS AND PERMITS NECESSARY TO PERFORM THE PROPOSED WORK.
11. AS-BUILT DRAWINGS AS REQUIRED IN THE SPECIFICATIONS, ARE TO BE SUBMITTED BY THE OWNER/DEVELOPER PRIOR TO INITIAL ACCEPTANCE OF THE CONSTRUCTION.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ANY EXISTING SIGNS, STRUCTURES, FENCES, ETC., ENCOUNTERED ON THE JOB AND RESTORING THEM TO THEIR ORIGINAL CONDITION.
13. THE CONTRACTOR IS RESPONSIBLE FOR:
    - 13.A. NOTIFYING THE TOWN UTILITY CUSTOMERS OF POTENTIAL SERVICE OUTAGES, AND COORDINATE WITH THE TOWN FOR DETERMINATION OF MINIMUM TIME REQUIREMENT.
    - 13.B. NOTIFYING THE TOWN ENGINEERING STAFF IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE TOWN FORTY-EIGHT (48) HOURS PRIOR TO RESTART.
    - 13.C. IN THE EVENT OF AN AFTER HOURS EMERGENCY, CALL 720-652-4222.
    - 13.D. NOTIFYING THE FREDERICK FIRESTONE FIRE PROTECTION DISTRICT OF ALL STREET CLOSURES AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.
14. PRIOR TO INSTALLATION OF UTILITY MAINS, ROAD CONSTRUCTION MUST HAVE COMPLETED THE OVER LOT GRADING STAGE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. A CONSTRUCTION DEWATERING PERMIT MUST BE OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE). GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS OR EROSION OF ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. THE USE OF ANY SANITARY SEWER TO DISPOSE OF TRENCH WATER WILL NOT BE PERMITTED. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE TOWN, AND THE DESIGN ENGINEER AT THE TIME OF THE OCCURRENCE
16. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO RESOLVE CONSTRUCTION PROBLEMS WITH THE TOWN DUE TO CHANGED CONDITIONS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE OPINION OF THE TOWN, PROPOSED ALTERATIONS TO THE SIGNED CONSTRUCTION PLANS INVOLVES SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE TOWN FOR REVIEW AND ACCEPTANCE, PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
17. DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. THE TOWN OR THE DESIGN ENGINEER EXERCISE NO CONTROLS OVER THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERINTENDING OF THE SAME. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE DESIGN ENGINEER OR THE TOWN. THE TOWN ENGINEERING STAFF, OR ANY CONTRACTED ENGINEER, ARE NOT RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS RELATING THERETO.
18. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
19. REGULAR WORK HOURS ARE SEVEN (7) A.M. UNTIL SEVEN (7) P.M. OR DUSK (WHICHEVER OCCURS FIRST) OF THE SAME DAY, MONDAY THROUGH FRIDAY THE CONTRACTOR WILL NOT PERMIT OVERTIME WORK OUTSIDE OF REGULAR WORKING HOURS OR THE PERFORMANCE OF WORK ON SATURDAY, SUNDAY OR ANY LEGAL HOLIDAY WITHOUT RECEIVING WRITTEN CONSENT FROM THE TOWN ENGINEER. REQUESTS FOR WEEKEND WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN NO LATER THAN WEDNESDAYS AT 3:30PM FOR SUBSEQUENT WEEKEND AND REQUESTS FOR HOLIDAY WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN NO LATER THAN 7:00AM-2 BUSINESS DAYS PRIOR TO THE HOLIDAY. ALL EXPENSES INCURRED B THE TOWN SHALL BE REIMBURSED AT A RATE TO BE DETERMINED BY DIRECTOR OF FINANCE.
20. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FOR ANY PROJECT DISTURBING OVER ONE ACRE FROM BOTH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND THE TOWN.
21. EACH TYPE OF CONSTRUCTION SHALL BE COMPLETED BY A CONTRACTOR THAT HAS DEMONSTRATED ACCEPTABLE QUALIFICATIONS TO THE TOWN AND IS A LICENSED CONTRACTOR IN THE TOWN.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION. ALL TRAFFIC CONTROLS SHALL CONFORM TO THE TOWN STANDARDS AND SPECIFICATIONS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITIONS. A PLAN SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
23. ALL BACKFILL SHALL CONFORM TO THE TRENCH DETAIL LOCATED IN THE TOWN STANDARDS & SPECIFICATIONS.
24. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS.
25. THE CONTRACTOR SHALL REPAIR ANY EXCAVATION OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.
26. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPING AND/OR PAVEMENT MARKINGS, WHICH HAVE BEEN EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED DURING HIS OPERATION. RENEWAL OF PAVEMENT STRIPING AND MARKING SHALL BE DONE IN CONFORMANCE WITH THE TOWN STANDARD SPECIFICATIONS.
27. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE EVERY MEASURE NECESSARY TO COMPLY WITH ANY STATE, COUNTY OR TOWN DUST CONTROL ORDINANCE.
28. CONSTRUCTION VEHICLES SHALL USE TRUCK ROUTES DESIGNATED BY THE TOWN. OVERSIZE AND/OR OVERWEIGHT VEHICLES REQUIRE AN OVERWIEGHT VEHICLE PERMIT FROM THE TOWN PRIOR TO TRAVELLING ON TOWN STREETS.
29. THE OWNER/DEVELOPER WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF TWO (2) YEARS FROM THE DATE OF INITIAL ACCEPTANCE OF THE IMPROVEMENTS BY THE TOWN ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE OWNER/CONTRACTOR TO THE SATISFACTION OF THE TOWN AT NO EXPENSE TO THE TOWN.
30. THE SOILS ENGINEER SHALL PERFORM SUFFICIENT INSPECTIONS DURING GRADING AND CONSTRUCTION SO THAT AN OPINION CAN BE RENDERED AND VERIFIED IN WRITING AS TO COMPLIANCE WITH THE PLANS AND CODES WITHIN THE SOILS ENGINEER'S PURVIEW.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND COORDINATING STAGING AREAS, CONCRETE WASHOUT LOCATION, AND DISPOSAL OF REMOVED MATERIALS.

COLORADO LICENSED
KYLE D. MORRIS
58710
12/09/2022
PROFESSIONAL ENGINEER

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:42 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

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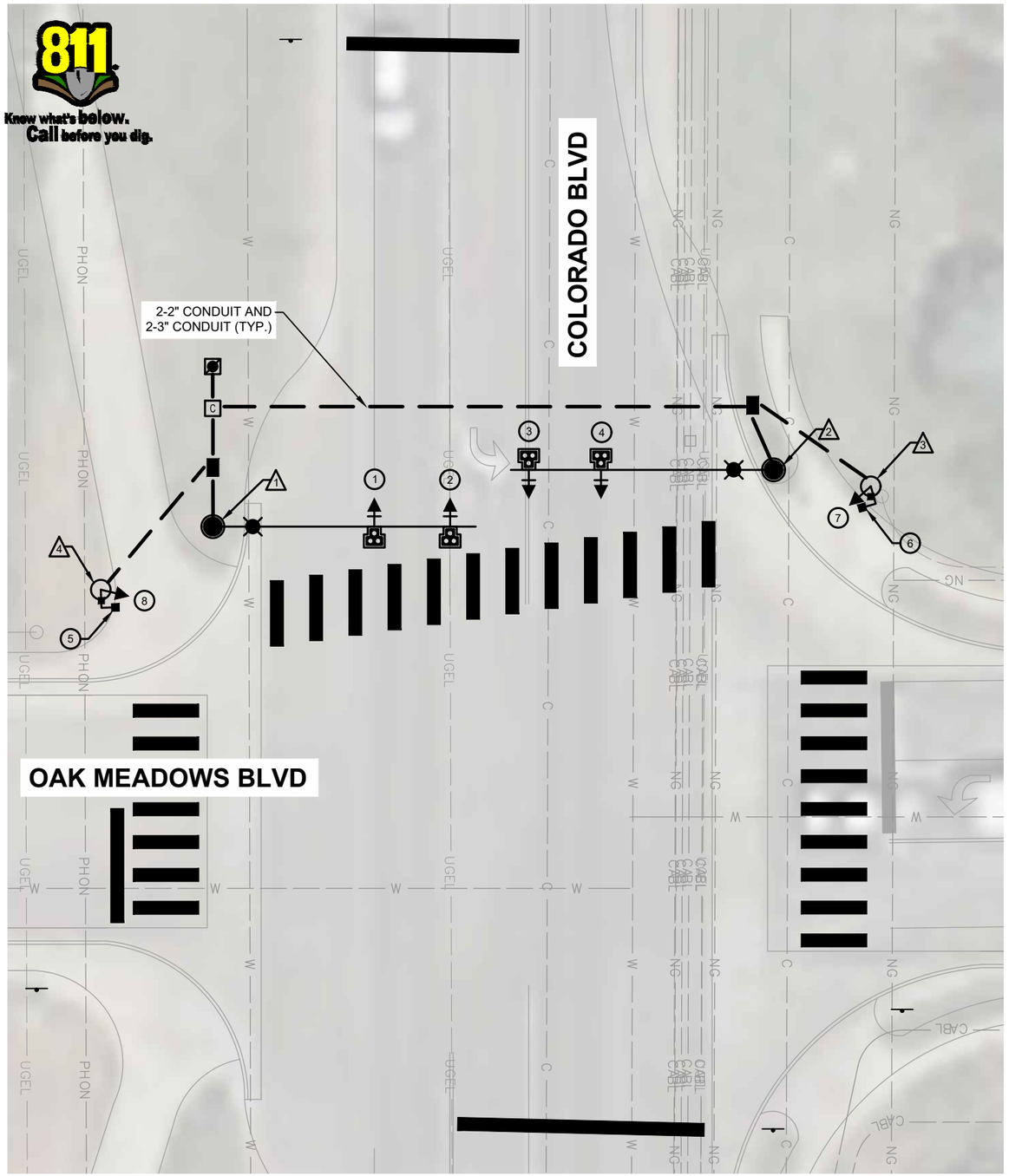
R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

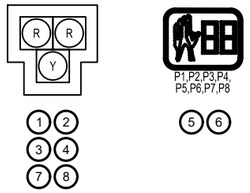
FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING GENERAL NOTES			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
	DETAILER: KDM		N/A	
VOID:	SUBSET: GENERAL	SHEETS:	GEN-01 OF 01	SHEET NUMBER 02



SIGNAL POLE AND MAST ARM SCHEDULE		
ID #	TYPE	LUMINAIRE ARM LENGTH
1	MASTARM - 40'	12'-0"
2	MASTARM - 40'	12'-0"
3	PEDESTAL - 10'	N/A
4	PEDESTAL - 10'	N/A

TYPICAL SIGNAL FACE LENS ARRANGEMENTS

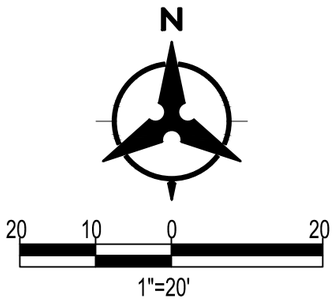


LEGEND

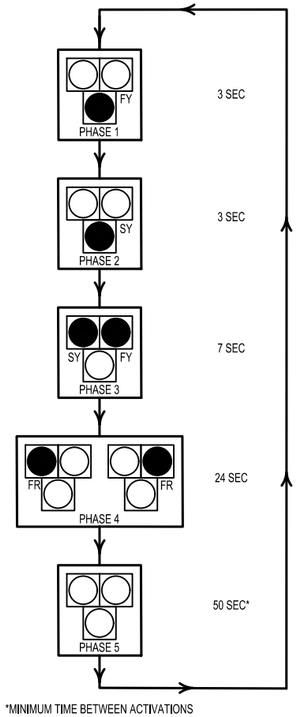
- SIGNAL POLE, FOUNDATION
- PEDESTRIAN PUSH BUTTON
- TRAFFIC SIGNAL FACE WITH RETRO-REFLECTIVE STRIP
- PEDESTRIAN SIGNAL
- CONTROLLER CABINET
- PULL BOX
- VIDEO DETECTION
- ELECTRICAL CONDUIT
- SIGNAL FACE IDENTIFICATION SYMBOL
- SIGNAL POLE IDENTIFICATION SYMBOL
- SERVICE POINT

SIGNAL NOTES

1. EXTEND CONDUIT RUNS AS NECESSARY FOR NEW PULL BOX LOCATIONS.
2. COORDINATE UTILITY SERVICE WITH UNITED POWER AT 1=303-637-1230 IN BRIGHTON.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY APPLICABLE TOWN OF FIRESTONE BUILDING PERMITS FOR ELECTRICAL WORK.
4. ALL CONDUITS WITHOUT CONDUCTORS SHALL BE EQUIPPED WITH A #10 AWG SOLID COPPER CONDUCTOR FOR FUTURE TRACING.
5. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS, NOT INCLUDING THE DAY OF, PRIOR TO EXCAVATING. CONTRACTOR STALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
6. ALL EXISTING STRIPING IS TO REMAIN AND BE PROTECTED UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR SHALL FIELD VERIFY AND COORDINATE FINAL SIGNAL POLE LOCATIONS WITH THE TOWN OF FIRESTONE.



SIGNAL PHASING



*MINIMUM TIME BETWEEN ACTIVATIONS

COLORADO LICENSED
KYLE D. MORRIS
58718
06/09/2022
PROFESSIONAL ENGINEER

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:43 PM
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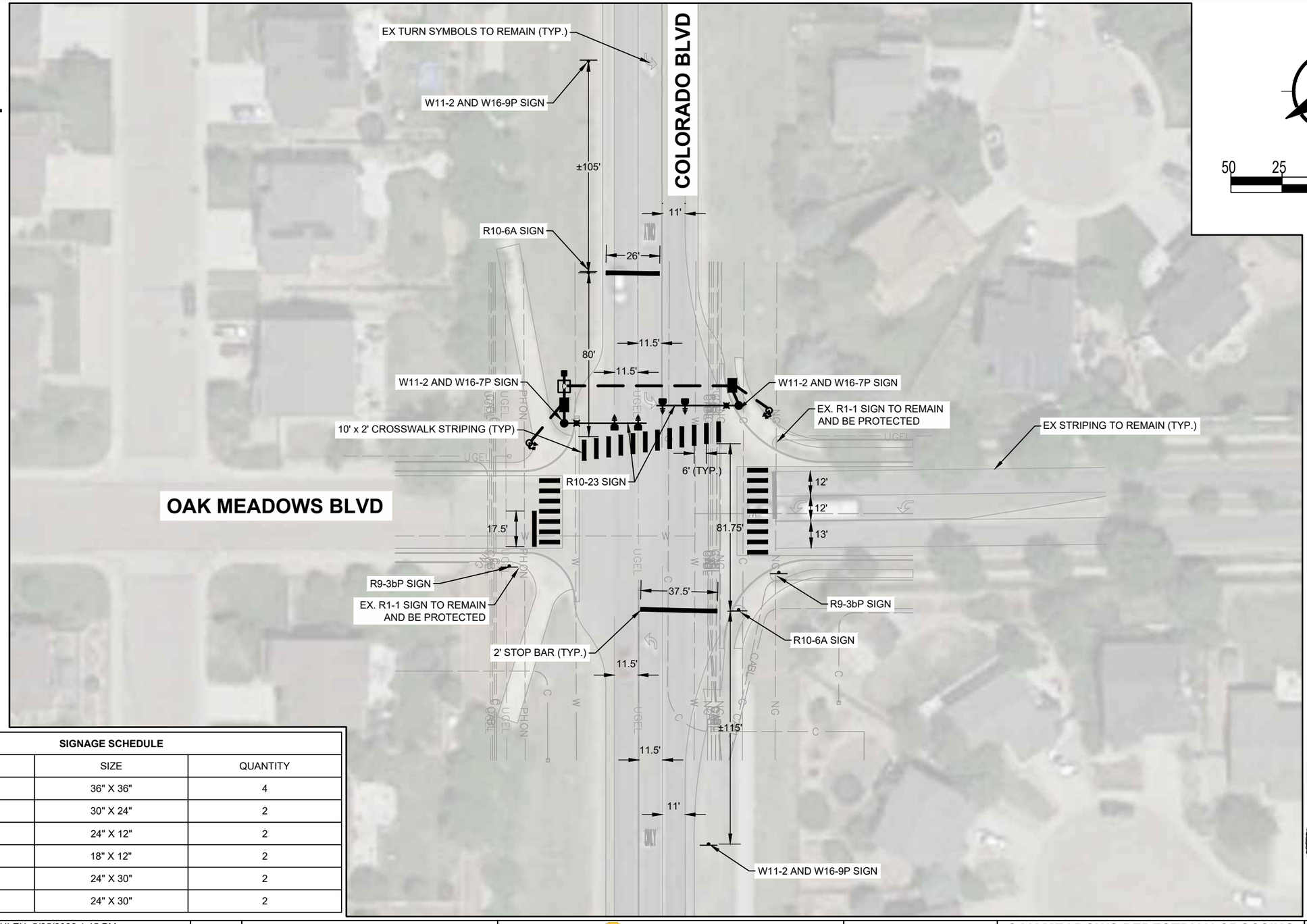
SHEET REVISIONS			
R-X	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING SIGNAL PLAN			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	SIG-01 OF 01	SHEET NUMBER 03

Know what's below. Call before you dig.



SIGNAGE SCHEDULE		
ID	SIZE	QUANTITY
W11-2	36" X 36"	4
W16-7P	30" X 24"	2
W16-9P	24" X 12"	2
R9-3bP	18" X 12"	2
R10-6A	24" X 30"	2
R10-23	24" X 30"	2

COLORADO LICENSED
KYLE D. MORRIS
58719
PROFESSIONAL ENGINEER
06/09/2022

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:45 PM
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9785 Maroon Circle Suite 140 Englewood , CO 80112-5928

SHEET REVISIONS			
R-X	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING SIGNING AND STRIPING PLAN			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
	DETAILER: KDM		N/A	
VOID:	SUBSET: DESIGN	SHEETS:	SNS-01 OF 01	SHEET NUMBER 04

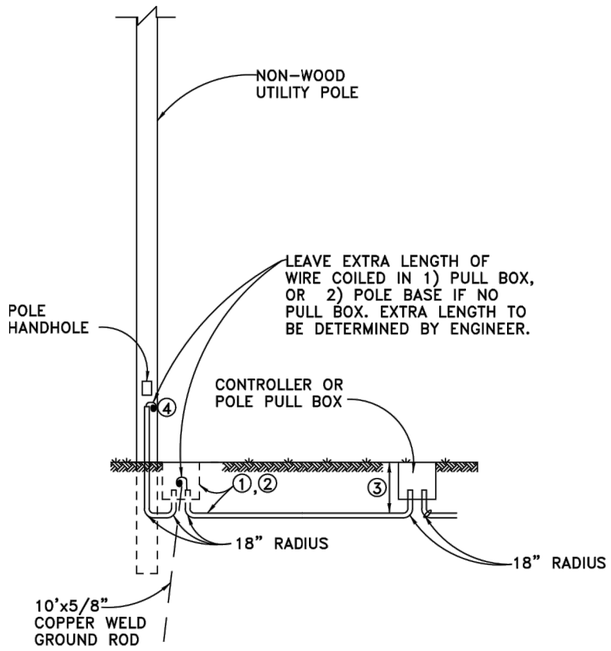
NOTES

① PROVIDE TYPE III PULL BOX/GROUND ROD AND 2" PVC CONDUIT ONLY IF D EXCEEDS 10'

② PROVIDE 2" GRC CONDUIT WITHOUT PULL BOX/GROUND ROD IF D IS LESS THAN 10'

③ MINIMUM CONDUIT DEPTHS:
UNDERGROUND 24"
UNDER PAVEMENT 30"

④ WHERE REQUIRED BY UTILITY COMPANY, CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMIT AND INSPECTION FROM THE STATE ELECTRICAL BOARD.



WITH NON-WOOD UTILITY POLE

TYPICAL UNDERGROUND POWER FEED
FOR TRAFFIC SIGNALS AND SCHOOL FLASHING BEACON ASSEMBLIES

POWER FEED FOR TRAFFIC SIGNALS

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: **TS4**

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:46 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

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R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

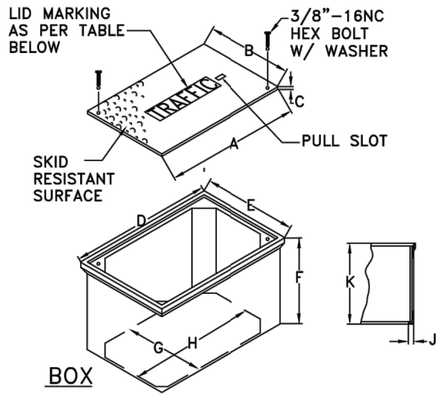
OAK MEADOWS PEDESTRIAN CROSSING
ROADWAY DETAILS

DESIGNER: KDM
DETAILER: KDM
SUBSET: DESIGN
STR. NO'S. N/A N/A
SHEETS: DET-01 OF 12

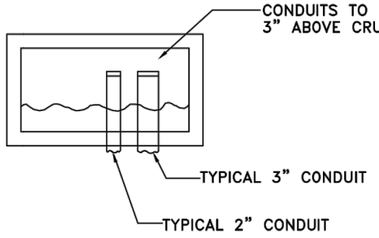
PROJECT NO./CODE

SHEET NUMBER 05

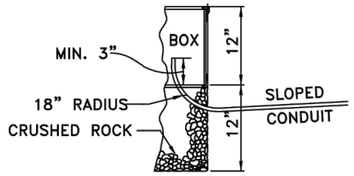
COVER



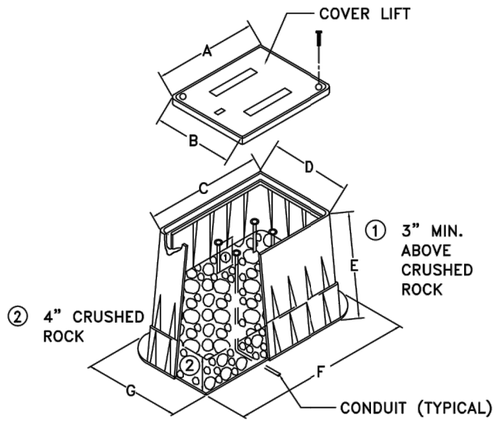
BOX



TYPICAL PULL BOX



TWO BOXES & EXTENSION



FIBERGLASS REINFORCED POLYMER CONCRETE DESIGNED FOR SERVICE LOAD (MINIMUM) OF 15,000 LBS. OVER A 10" SQUARE

PULLBOXES

PULL BOX USAGE	SIZE	PULL BOX LID MARKING
CABINET HOME RUN PULLBOX	24"x36"x18"	TRAFFIC
SIGNAL POLE PULL BOX	17"x30"x12"	TRAFFIC
DETECTOR PULL BOX (SIDE OF ROAD)	12"x12"x12"	TRAFFIC
DETECTOR WATER VALVE	WATER VALVE	TRAFFIC
COMMUNICATION VAULT (T/S CABINET)	30"x48"x18"	TRAFFIC COMM
COMMUNICATION VAULT (INTERMEDIATE LOCATIONS)	24"x36"x18"	TRAFFIC COMM
TELEPHONE DEMARCATION	13"x24"x12"	TRAFFIC COMM
ELECTRICAL DEMARCATION	13"x24"x12"	ELECTRIC

PULL BOX (PLASTIC/PREFAB)

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: **TS5**

PRELIMINARY PLANS

P:\20220472\ENGDEN\PLANS\20220472.DES.DET01.DWG

PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:46 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

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SHEET REVISIONS		
DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

OAK MEADOWS PEDESTRIAN CROSSING
ROADWAY DETAILS

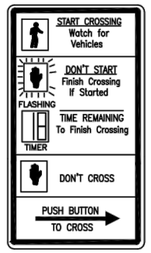
DESIGNER: KDM
DETAILER: KDM
SUBSET: DESIGN
STR. NO'S. N/A N/A
SHEETS: DET-02 OF 12

PROJECT NO./CODE

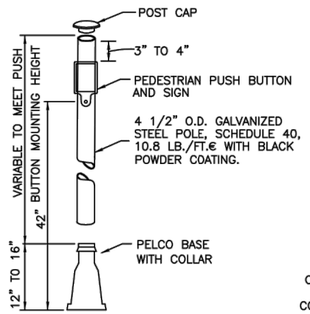
SHEET NUMBER 06

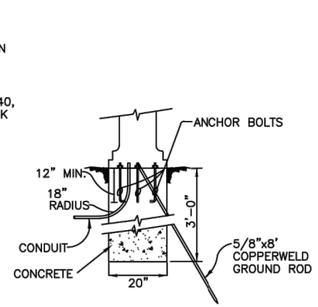
TYPICAL PEDESTRIAN PUSH–BUTTON SIGN

SIGN SHALL BE LABEL (STICK–ON) TYPE



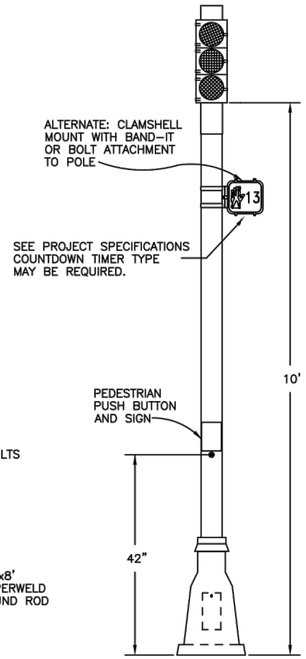
R10–3e
9"x15"
COUNTDOWN

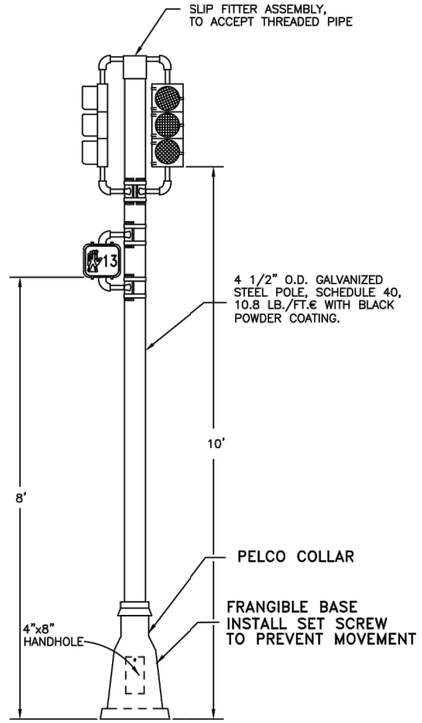




FOUNDATION DETAIL

PEDESTRIAN PUSH BUTTON POLE





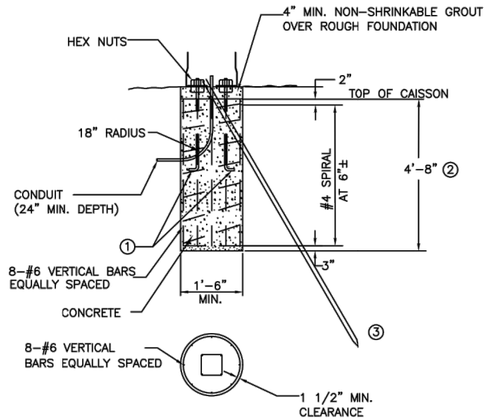
PEDESTAL POLE SHALL BE HOT DIPPED GALVANIZED PER ASTM A123, EQUIVALENT TO 2 OZ. PER SQUARE FOOT, INSIDE AND OUT

TYPICAL PEDESTAL POLE DETAIL

1/4" SPLIT PIN SHALL BE INSTALLED IN THE UPPER PORTION OF THE ALUMINUM BASE AND SHALL COMPLETELY PENETRATE BASE AND POLE TO SECURE POLE TO PREVENT MOVEMENT OR TWISTING. PELCO COLLAR TO BE INSTALLED.

FOOTING NOTES

1. ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE.
2. CAISSON DESIGNS REQUIRE THAT THE CAISSON BE FOUNDED IN COMPACT SAND, CLAY OR SANDY CLAY. IF, BY VISUAL INSPECTION OF THE HOLE' OTHER MATERIAL IS PRESENT, THE CAISSON DESIGN SHALL BE MODIFIED AND APPROVED BY THE CONSTRUCTION MANAGER.
3. 5/8"x8' COPPERWELD GROUND ROD THROUGH FOUNDATION, INTO GROUND.
4. HAND HOLE SHALL BE PROVIDED.



TYPICAL PEDESTAL POLE FOUNDATION
(CAST IN PLACE)

PEDESTRIAN POLE

FIRESTONE COLORADO	TRAFFIC SIGNAL CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: TS7

PRELIMINARY PLANS

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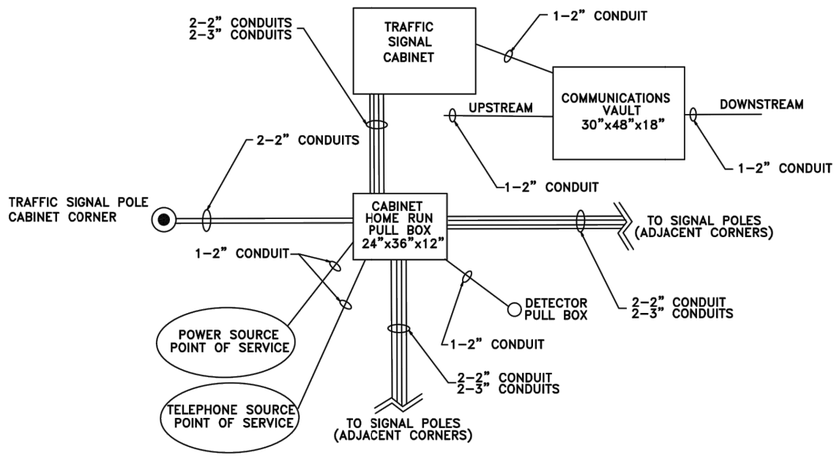
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-03 OF 12	SHEET NUMBER 07

UNDERGROUND POWER SOURCE SCHEMATIC FOR SIGNALS WITH LUMINAIRES

NOT TO SCALE



RECOMMENDED CONDUIT/CABLE RELATIONSHIPS

"CABINET HOME RUN PULL BOX" TO "TRAFFIC SIGNAL CABINET"
- 1 OF 2 – 2" CONDUITS: POWER FROM POINT–OF–SERVICE
- 2 OF 2 – 2" CONDUITS: LOW VOLTAGE & VIDEO
- 1 OF 2 – 3" CONDUITS: FIELD WIRING (120 VAC)
- 2 OF 2 – 3" CONDUITS: SPARE

"CABINET HOME RUN PULL BOX" TO "SIGNAL POLE PULLBOX"/
"SIGNAL POLE PULL BOX" TO "SIGNAL POLE PULL BOX" ON ADJACENT CORNERS
- 1 OF 2 – 2" CONDUIT: LUMINAIRE POWER
- 2 OF 2 – 2" CONDUITS: LOW VOLTAGE & VIDEO
- 1 OF 2 – 3" CONDUITS: FIELD WIRING (120 VAC)
- 2 OF 2 – 3" CONDUITS: SPARE

"SIGNAL POLE PULL BOX" TO "SIGNAL POLE"
- 1 OF 1 – 2" CONDUIT: LUMINAIRE POWER
- 2 OF 2 – 2" CONDUITS: FIELD WIRING

"CABINET HOME RUN PULL BOX" TO "POINTS OF SERVICE"
- 1 OF 2 – 2" CONDUITS: POWER FROM POINT OF SERVICE
- 2 OF 2 – 2" CONDUITS: TELEPHONE FROM POINT OF SERVICE

"COMMUNICATIONS VAULT" TO "TRAFFIC SIGNAL CABINET":
- 1 OF 1 – 2" CONDUIT: INTERCONNECT

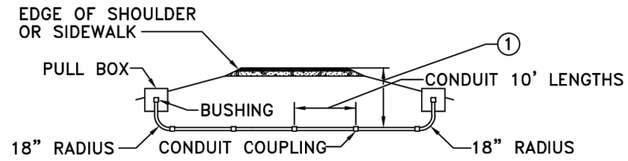
"COMMUNICATIONS VAULT" UPSTREAM/DOWNSTREAM:
- 1 OF 1 – 2" CONDUIT: INTERCONNECT

"SIGNALPOLE PULL BOX" TO "DECTOR PULL BOX"/"DETECTOR WATER VALVE"
- 1 OF 1 – 2" CONDUIT: INDUCTANCE DETECTOR WIRING

NOTE:
THE "TRAFFIC SIGNAL PULL BOX" ON THE CABINET CORNER IS TO BE SIZED AT 24"x36"x12" DUE TO THE NUMBER OF CONDUITS ENTERING IT. TRAFFIC SIGNAL PULL BOXES" ON REMAINING CORNERS ARE TO BE SIZED 17"x30"x12".

POWER SOURCE SCHEMATIC

FIRESTONE COLORADO	TRAFFIC SIGNAL CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: TS8



CONDUIT PLACEMENT UNDER PAVEMENT OR SIDEWALK

NOTES

(1)	MINIMUM CONDUIT DEPTH:	UNDER PAVEMENT 30"	UNDER SIDEWALK 24"

ALL PVC CONDUIT SHALL BE SCHEDULE 80

CONDUIT DETAILS

FIRESTONE COLORADO	TRAFFIC SIGNAL CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: TS11

PRELIMINARY PLANS

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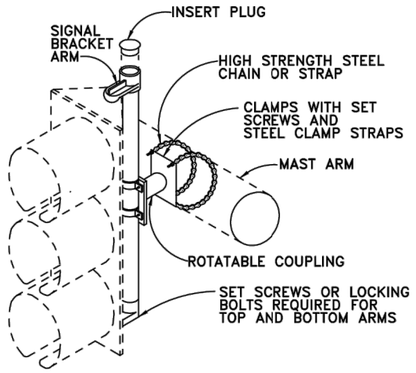
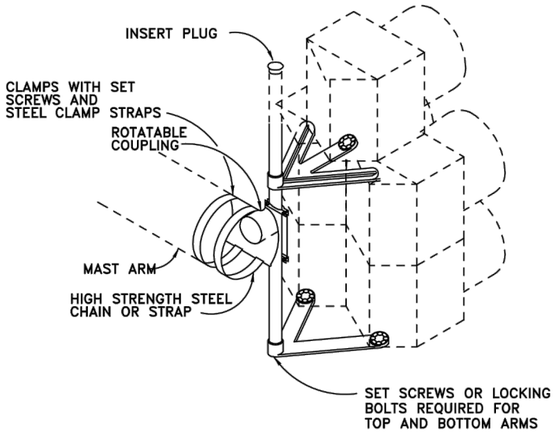
R-X	SHEET REVISIONS DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-04 OF 12	SHEET NUMBER 08



DETAIL OF MAST ARM MOUNTING FOR IN-LINE SIGNAL HEAD (3-SECTION OR 4-SECTION)

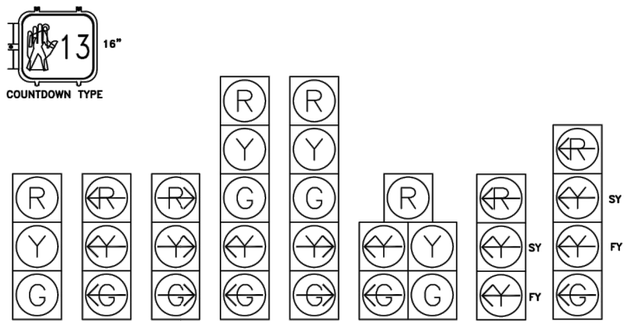


DETAIL OF MAST ARM MOUNTING FOR DOGHOUSE SIGNAL HEAD (5-SECTION)

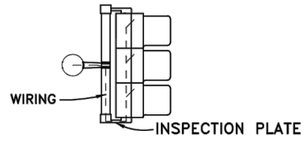
NOTES

ALL VEHICLE SIGNAL HEADS SHALL BE POLYCARBONATE WITH 12" SECTIONS AND TUNNEL VISORS.

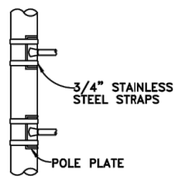
ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE LED TYPE, EXCEPT FOR ONE SIDE OF POLE RED WHICH SHALL BE INCANDESCENT. HEADS SHALL BE BLACK IN COLOR. PEDESTRIAN HEADS SHALL BE COUNTDOWN TYPE.



PEDESTRIAN AND VEHICLE SIGNAL HEADS



WIRING DIAGRAM



TYPICAL SIDE OF POLE SIGNAL MOUNTING

MOUNTING NOTES

1. PIPE COUPLINGS FOR SIGNAL BRACKETS SHALL BE EITHER 1-1/2 OR 2 INCH DEPENDING UPON THE SIGNAL HEAD TO BE INSTALLED. SIGNAL BRACKETS SHALL BE FURNISHED BY THE MANUFACTURER OF THE SIGNAL HEADS.
2. UNLESS OTHERWISE SPECIFIED, ALL TRAFFIC SIGNALS MOUNTED ABOVE THE ROADWAY SHALL HAVE A HEIGHT OF 17' TO 19' ABOVE THE PAVEMENT GRADE AT THE ROADWAY CENTER, ALL SIDE-OF-POLE MOUNTED TRAFFIC SIGNALS SHALL HAVE A HEIGHT OF 10' ABOVE GROUND LINE AND PEDESTRIAN SIGNALS SHALL HAVE A HEIGHT OF 8' ABOVE GROUND LINE AS MEASURED TO THE BOTTOM OF THE SIGNAL HEAD HOUSING OR BRACKET.
3. MAST ARM MOUNTED SIGNAL HEADS SHALL USE ASTRO-BRAC's OR SKY-BRACK. ALL SIGNAL HEADS SHALL BE MOUNTED IN SUCH A MANNER AS TO BE EASILY REMOVED FROM THEIR SUPPORTING STRUCTURE..
4. GASKET SEALING COMPOUND SHALL BE USED IN ADDITION TO ANY LEAD WASHERS REQUIRED FOR CREATING A WATER-TIGHT CONNECTION BETWEEN THE SIGNAL HEAD AND MOUNTING BRACKET.
5. SIGNAL HEADS SHALL BE SECURELY AFFIXED BY USE OF A SERRATED COUPLING OR OTHER ACCESSORIES RECOMMENDED BY THE SIGNAL MANUFACTURER.
6. WIRING FROM INSIDE MAST ARM THROUGH A 1" FIELD DRILLED HOLE IN ARM SHALL BE BROUGHT THROUGH THE MOUNTING SUPPORT TUBE AND LOWER ARM (AS SHOWN). FIELD DRILLED HOLES SHALL HAVE RUBBER GROMMETS INSTALLED.

GENERAL WIRING NOTES

1. TRAFFIC SIGNAL CONDUIT SHALL NOT CARRY WIRING OF OTHER UTILITIES.
2. EXCEPT FOR LOOP DETECTOR LEADS, ALL SPLICES SHALL BE IN HAND HOLES AT POLE BASES AND NOT IN PULL BOXES.
3. PEDESTRIAN AND VEHICLE SIGNAL HEADS SHALL BE INDIVIDUALLY WIRED FROM THE POLE BASE TO THE SIGNAL HEAD.
4. CONTRACTOR SHALL PROVIDE 2 WIRING DIAGRAMS OF THE SIGNAL INSTALLATION TO THE TOWN.
5. UNLESS ALLOWED BY THE TOWN ENGINEER, WIRE SHALL NOT OCCUPY MORE THAN 40% OF THE INSIDE AREA OF CONDUIT.

SIGNAL HEAD MOUNTING

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME | SCALE: NTS | DATE: 1/2020

DRAWING: TS9

PRELIMINARY PLANS

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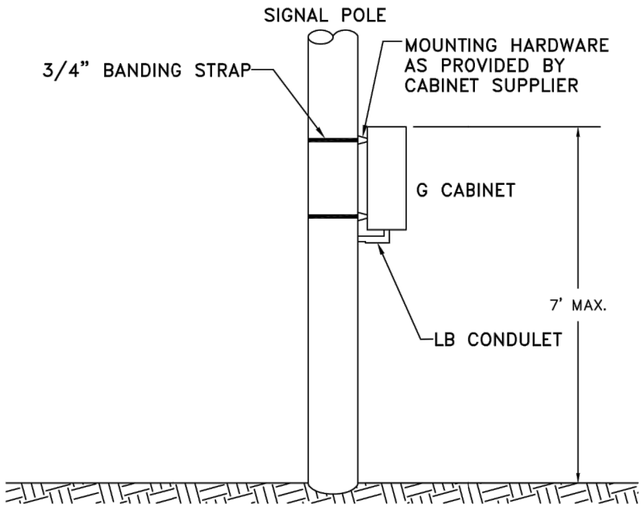
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

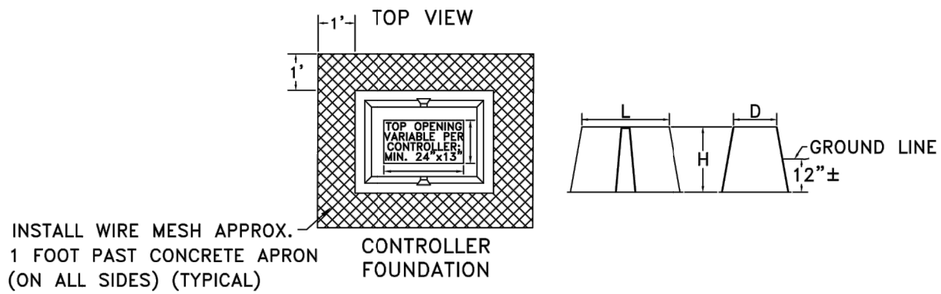
AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-05 OF 12	SHEET NUMBER 09

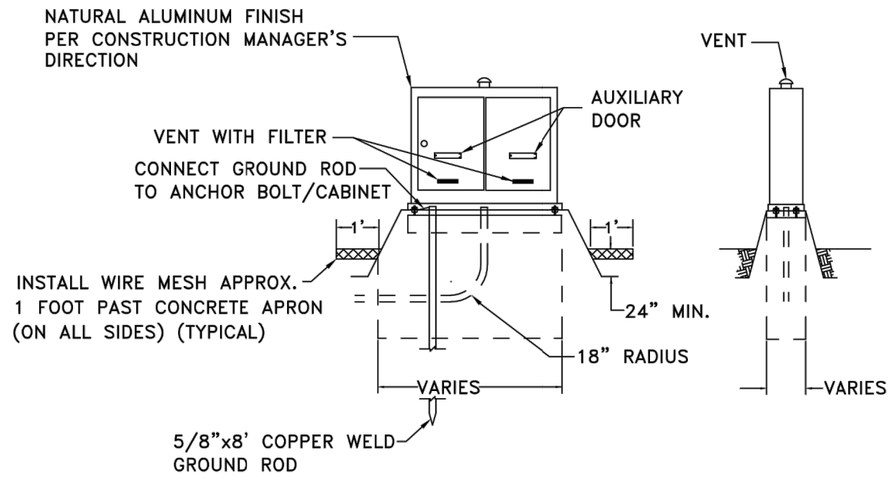


TYPICAL SIDE-OF-POLE MOUNTED CONTROLLER CABINET

CABINET FOUNDATION

	L	D	H
333 SD	44"	29"	24"





TYPICAL BASE MOUNTED CONTROLLER CABINET INSTALLATION AND FIBERGLASS FOUNDATION

CONTROLLER CABINET

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: **TS10**

PRELIMINARY PLANS

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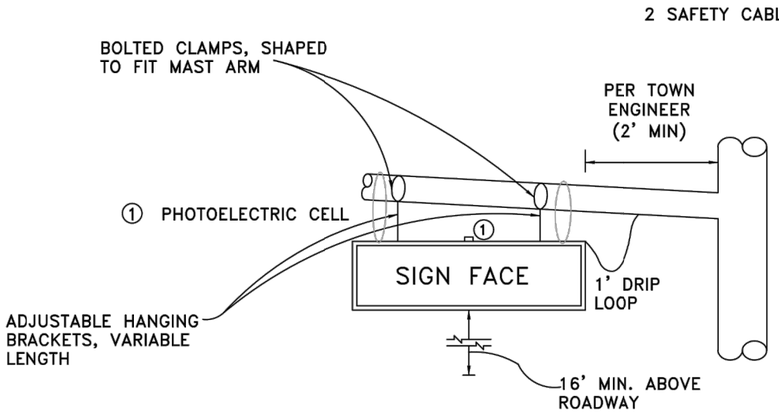
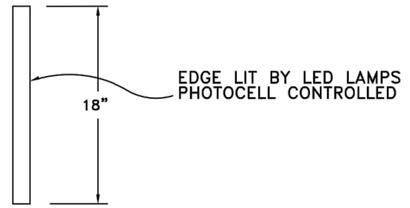
FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
	DETAILER: KDM		N/A	
VOID:	SUBSET: DESIGN	SHEETS:	DET-06 OF 12	SHEET NUMBER 10



STANDARD MOUNT



SIDE VIEW

NOTES

1. FOR DETAILS ON SIGN REFER TO DETAIL NO. 922-01, TYPICAL STREET SIGNS.
2. FINAL SIGN LAYOUT AND LETTERING DETAILS PER TOWN ENGINEER.
3. SIGN TO BE DOUBLE SIDED WITH WHITE PRINT ON GREEN BACKGROUND FOR STREET NAME AND LOGO.



LIGHTED SIGN TYPICAL LAYOUT

GENERAL NOTES

1. STREET NAME SIGN TO BE FREE-SWINGING OR LIMITED-SWINGING. SIGN FIXTURE AND PANELS SHALL WITHSTAND 90 MPH WIND LOADING, WITH STRUCTURAL REQUIREMENTS MEETING AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS," LATEST EDITION.
2. HOUSING TO BE CONSTRUCTED OF ALUMINUM.
3. NEOPRENE GASKETS SHALL BE INSTALLED BETWEEN THE SIGN PANEL FRAME AND FIXTURE HOUSING TO PREVENT WATER ENTRANCE. SCREENED WEEP HOLES SHALL BE PROVIDED ON HOUSING BOTTOM FOR DRAINAGE.
4. SAFETY CABLES (2) CONSISTING OF WIRE CABLE AND 2 CABLE CLAMPS FOR EACH SIDE INSTALLED ON EITHER END OF THE ILLUMINATED STREET NAME SIGN.

ILLUMINATED STREET NAME SIGN

FIRESTONE COLORADO	TRAFFIC SIGNAL CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: TS1

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:46 PM
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R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-07 OF 12	SHEET NUMBER 11

GENERAL NOTES

1. REFER TO THE ROADWAY PLANS FOR THE ACTUAL CONFIGURATION AND LOCATION OF TRAFFIC SIGNAL HEADS AND SIGNS MARKED WITH A ■.
2. ALL POLES SHALL BE FABRICATED WITH ASTM A572 GRADE 65 STEEL.
3. ALL ARMS SHALL BE FABRICATED WITH ASTM A572 GRADE 65 STEEL OR ASTM A595 GRADE A STEEL WITH A MINIMUM YIELD POINT OF 55 KSI.
4. ALL POLES AND ARMS SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A500, A501, OR A595.
5. ALL POLES AND ARMS SHALL BE ROUND OR DODECAGONAL (12 SIDES) TUBES WITH A 0.14 IN/FT TAPER.
6. HARDENED WASHERS SHALL CONFORM TO ASTM F436.
7. ALL POLES AND ARMS SHALL BE GALVANIZED INSIDE AND OUTSIDE AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, UNLESS PAINTING IS CALLED FOR ON THE PLANS. PAINTING SHALL CONFORM TO SECTION 522, DUPLEX COATING SYSTEM.
8. POLE AND MAST ARM SPLICES SHALL BE MECHANICALLY FORCED TOGETHER FOR A SNUG FIT.
9. ALL MAST ARMS MORE THAN 35 FT IN LENGTH SHALL BE TWO PIECE CONSTRUCTION TO LIMIT ARM WEIGHTS.
10. GALVANIZED ASTM A325 H.S. BOLTS SHALL BE USED FOR ATTACHING MAST ARMS. A LUBRICATED TIGHTENING TORQUE OF 178 FT-LBS FOR ¾" DIAMETER BOLTS, AND 1300 FT-LBS FOR 1½" INCH DIAMETER BOLTS SHALL BE USED TO TIGHTEN ALL H.S. BOLTS. MAST ARMS SHALL BE TEMPORARILY SUPPORTED TO TAKE LOAD OFF OF FIELD CONNECTIONS WHILE BOLTS ARE TIGHTENED IN ORDER TO FIRMLY SEAT THE FLANGE PLATE. BOLTS SHALL BE SEQUENTIALLY TIGHTENED.
11. CAST POLE END CAP TO BE SECURED IN PLACE WITH 3 SET SCREWS.
12. ALL SIGNAL HEADS, SIGNS, AND HARDWARE SHALL BE FIELD POSITIONED.
13. ACCESSORIES TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
14. ALL PLATES SHALL BE FABRICATED WITH AASHTO M270 (ASTM A709) GRADE 36 STEEL AND SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A6. ALL HANDHOLES SHALL BE FABRICATED WITH ASTM A572 GRADE 42 STEEL.
15. LEVELING CONCRETE SHALL BE 3000 PSI AIR ENTRAINED CONCRETE VIBRATED IN PLACE BELOW THE POLE BASE PLATE.
16. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH. WET OR CAVING HOLES SHALL BE BACKFILLED WITH FLOW-FILL AND REDRILLED AFTER A THREE DAY CURING PERIOD WITHOUT THE USE OF A CASING.
17. CAISSONS SHALL BE CONSTRUCTED WITH AIR ENTRAINED CLASS BZ CONCRETE IN ACCORDANCE WITH SECTION 503 OF THE STANDARD SPECIFICATIONS. REINFORCING STEEL SHALL BE GRADE 60.
18. CAISSON CONCRETE MUST HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,700 FSI BEFORE INSTALLING THE SIGNAL STRUCTURE; VERIFY CONCRETE STRENGTH WITH MATURITY METER.
19. U-BOLTS AND ANCHOR BOLTS SHALL BE FABRICATED WITH AASHTO M314-90 GRADE 55 STEEL.
20. ANCHOR BOLTS SHALL BE FABRICATED WITH HEAVY HEX NUTS AND FLAT WASHERS, AND EXTENDED A MINIMUM OF ¾" ABOVE THE NUT AFTER COMPLETING THE TIGHTENING PROCESS. THREAD UPPER 12 INCHES AND GALVANIZE UPPER 13 INCHES OF THE ANCHOR BOLTS. FIELD WELDING OF ANCHOR BOLTS TO REBAR DURING ERECTION WILL NOT BE ALLOWED. ANCHOR BOLTS SHALL BE SET WITH A STEEL TEMPLATE UNTIL THE CONCRETE HAS CURED AT LEAST TWO DAYS. THEY SHALL BE TIGHTENED USING THE TURN-OF-NUT METHOD BY FIRST TIGHTENING THEM TO SNUG TIGHT, WHICH IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE UPPER AND LOWER NUTS ARE IN FIRM CONTACT WITH THE BASE PLATE. WITH MAST ARMS FREE TO DEFLECT, THE UPPER AND LOWER NUTS SHALL THEN EACH BE ROTATED AN ADDITIONAL 1/12 TURN (30° ± 5°) WITH A SLUGGING, HYDRAULIC OR AIR IMPACT WRENCH.
21. WELDING OF STEEL SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.1. ALL AREAS TO BE WELDED SHALL BE GROUND TO BRIGHT METAL. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED. ALL CIRCUMFERENTIAL WELDS SHALL BE NON-DESTRUCTIVELY TESTED USING THE ENHANCED MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH SUBSECTION 509.18 (d) OF THE STANDARD SPECIFICATIONS. THE ACCEPTANCE CRITERIA IS STATED IN TABLE 6.1 OF ANSI/AWS D1.1. ALL LONGITUDINAL WELDS WITHIN 6 INCHES OF FULL PENETRATION CIRCUMFERENTIAL GROOVE WELDS AND FULL PENETRATION GROOVE WELDS SHALL BE INSPECTED AS SPECIFIED ABOVE. MAXIMUM WELD UNDERCUT SHALL BE 0.01 INCHES.
22. ALL ELECTRICAL CONNECTIONS TO THE SIGNALS SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
23. CERTIFIED MILL TEST REPORTS INCLUDING CHARPY V-NOTCH (CVN) TEST RESULTS, WELD INSPECTION REPORTS AND ENHANCED MAGNETIC PARTICLE TEST REPORTS SHALL BE SUBMITTED TO CDOT STAFF BRIDGE, 4201 E. ARKANSAS AVE., DENVER COLORADO 80222 AS SOON AS THEY BECOME AVAILABLE. CVN TEST RESULTS FOR ASTM A572 GRADES 42, 55 AND 65 STEEL SHALL HAVE A MINIMUM VALUE OF 15 FT-LBS AT 40°F AS PER THE H FREQUENCY TEST REQUIREMENTS IN AASHTO T243 (ASTM A673).
24. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SUBSECTION 105.02 OF THE STANDARD SPECIFICATIONS.
25. TRAFFIC SIGNALS MOUNTED ON MAST ARMS SHALL BE FURNISHED WITH ASTRO TYPE MOUNTING BRACKETS.
26. END SECTION DIAMETERS MUST BE INCREASED TO ACCOMMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES TO PROVIDE THE MINIMUM REQUIRED ARM SLIP SPLICE LENGTHS AND POLE MEMBER OVERLAPS.
27. SECURE ARM FLANGE PLATE, POLE BASE PLATE, AND CONNECTION FACE PLATE DURING WELDING TO PREVENT DISTORTION.
28. IF THE VERTICAL DEFLECTIONS DURING A 10 TO 20 MPH WIND EXCEED THE GALLOPING DEFLECTION LIMITS LISTED IN THE TABLE ON SHEET 2 OF 4, THE OWNER SHALL INSTALL AN ALUMINUM SIGN BLANK (16" X 66" OR LARGER) NEAR THE FREE END OF THE TRAFFIC SIGNAL MAST ARM. SAID SIGN BLANK SHALL BE ROTATED ABOUT THE LONGITUDINAL AXIS OF THE ARM WHILE THE WIND BLOWS TO MINIMIZE THE GALLOPING DEFLECTIONS. CONTACT STAFF BRIDGE FOR MORE INFORMATION.
29. ONE DRILLED HOLE WITH A MAXIMUM DIAMETER OF ¾" IS ALLOWED AT LOCATIONS MARKED WITH A ▲ TO ACCOMMODATE ELECTRICAL WIRING.
30. SEE S-614-42 AND S-614-43 FOR "CABINET FOUNDATION DETAILS" AND "TRAFFIC LOOP AND MISC. SIGNAL DETAILS" RESPECTIVELY.

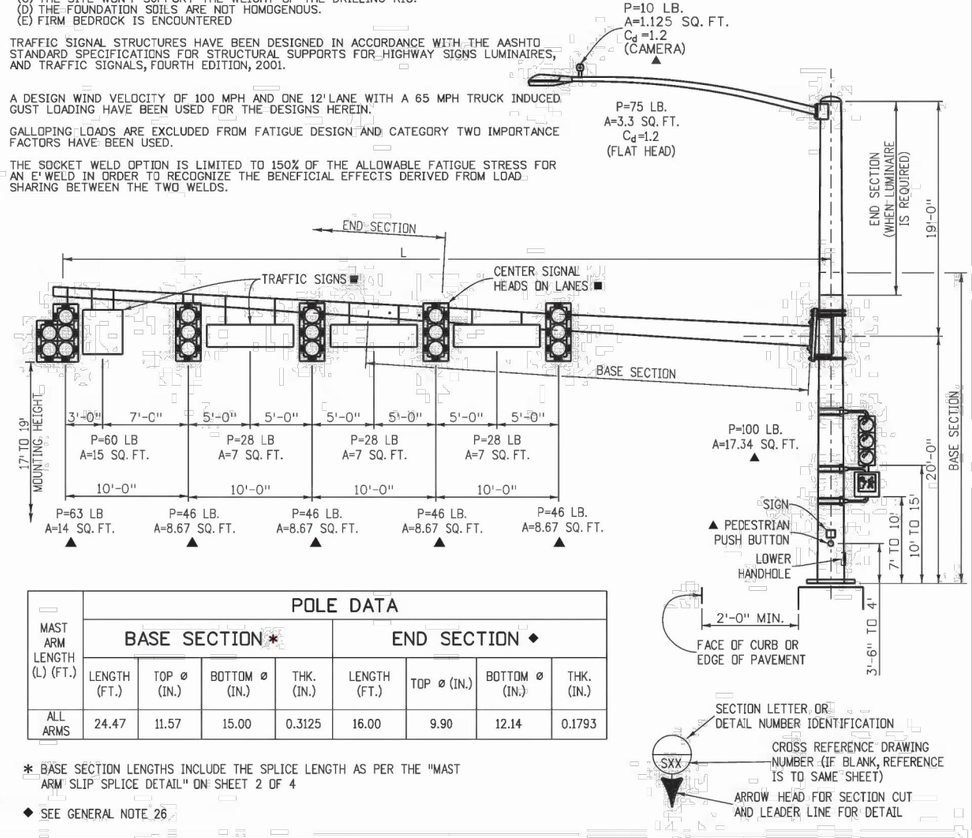
DESIGN DATA

1. DRAWING SHOWN HAS 5 SIGNAL HEADS, SHORTER ARM LENGTHS MAY HAVE FEWER HEADS. THIS CONFIGURATION IS INTENDED TO REPRESENT A WORST CASE LOADING SITUATION.

(55'), 50'	(45'), 40'	(35'), 30'	(25')
5 SIGNAL HEADS	4 SIGNAL HEADS	3 SIGNAL HEADS	2 SIGNAL HEADS

THE DESIGN LENGTH "L" FOR EACH SERIES IS SHOWN IN PARENTHESIS.

2. THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM WITH THE FOLLOWING SOIL PARAMETERS:
   SOIL DENSITY γ = 110 LB./CU.FT.
   SOIL COHESION = 750 LB./SQ.FT. FOR MEDIUM STIFF COHESIVE SOIL
   SOIL ø ANGLE = 30° FOR MEDIUM DENSE COHESIONLESS SOIL
   SF = 1.25 FOR TORSIONAL RESISTANCE AND 3.0 FOR FLEXURAL RESISTANCE
3. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:
   (A) SIGNALS WILL NOT BE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM.
   (B) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.
   (C) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.
   (D) THE FOUNDATION SOILS ARE NOT HOMOGENOUS.
   (E) FIRM BEDROCK IS ENCOUNTERED
4. TRAFFIC SIGNAL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES, AND TRAFFIC SIGNALS, FOURTH EDITION, 2001.
5. A DESIGN WIND VELOCITY OF 100 MPH AND ONE 12' LANE WITH A 65 MPH TRUCK INDUCED GUST LOADING HAVE BEEN USED FOR THE DESIGNS HEREIN.
6. GALLOPING LOADS ARE EXCLUDED FROM FATIGUE DESIGN AND CATEGORY TWO IMPORTANCE FACTORS HAVE BEEN USED.
7. THE SOCKET WELD OPTION IS LIMITED TO 150% OF THE ALLOWABLE FATIGUE STRESS FOR AN E'WELD IN ORDER TO RECOGNIZE THE BENEFICIAL EFFECTS DERIVED FROM LOAD SHARING BETWEEN THE TWO WELDS.



MAST ARM LENGTH (L) (FT.)	POLE DATA							
	BASE SECTION *				END SECTION ◆			
	LENGTH (FT.)	TOP ø (IN.)	BOTTOM ø (IN.)	THK. (IN.)	LENGTH (FT.)	TOP ø (IN.)	BOTTOM ø (IN.)	THK. (IN.)
ALL ARMS	24.47	11.57	15.00	0.3125	16.00	9.90	12.14	0.1793

* BASE SECTION LENGTHS INCLUDE THE SPLICE LENGTH AS PER THE "MAST ARM SLIP SPLICE DETAIL" ON SHEET 2 OF 4

◆ SEE GENERAL NOTE 26

Computer File Information	Sheet Revisions		
Creation Date: 07/04/12	Date:	Comments	
Created By: LAW			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

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ALTERNATE TRAFFIC SIGNAL 25' - 55' SINGLE MAST ARMS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 1 of 4
Project Sheet Number:

PRELIMINARY

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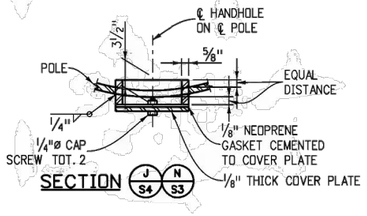
R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

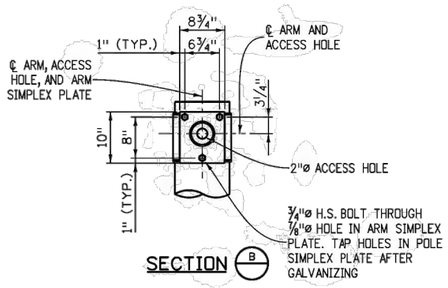
FIRESTONE COLORADO

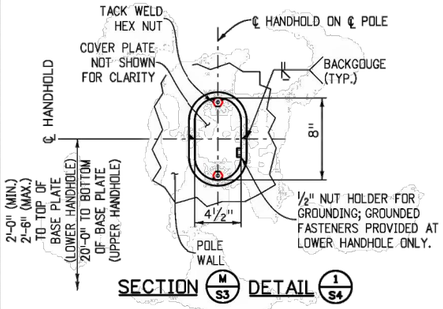
AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
	DETAILER: KDM		N/A	
VOID:	SUBSET: DESIGN	SHEETS:	DET-08 OF 12	SHEET NUMBER 12

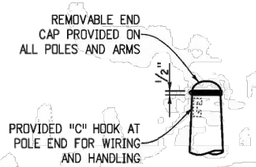
MAST ARM LENGTH (L) (FT.)	MAST ARM DATA								GALLOPING DEFLECTION LIMITS (Δ) (IN) ●
	BASE SECTION ✱				END SECTION ◆				
	LENGTH (FT.)	TIP ø (IN.)	TRUNK ø (IN.)	THK (IN.)	LENGTH (FT.)	TIP ø (IN.)	TRUNK ø (IN.)	THK. (IN.)	
25	23.92	6.65	10.00	0.2391	N.A.	N.A.	N.A.	N.A.	✦
35	33.92	7.50	12.25	0.2391	N.A.	N.A.	N.A.	N.A.	✦
45	25.16	9.73	13.25	0.3125	20.00	7.46	10.26	0.1793	6"
55	25.34	11.20	14.75	0.3125	30.00	7.56	11.76	0.1793	11"

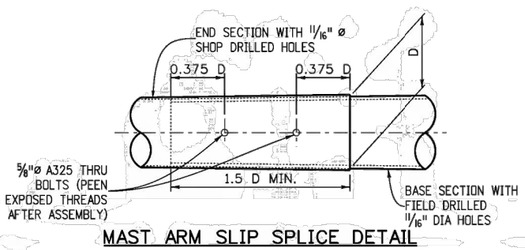
✱ BASE SECTION LENGTH INCLUDES THE SPLICE LENGTH AS PER THE "MAST ARM SLIP SPLICE DETAIL" BELOW.
◆ SEE GENERAL NOTE 26 ON SHEET 1 OF 4.
● SEE GENERAL NOTE 28 ON SHEET 1 OF 4.
✦ DEFLECTION TOO SMALL TO MEASURE.
■ STOP ALL WELDS ½" SHORT OF PLATE EDGES AND BOLT HOLES.

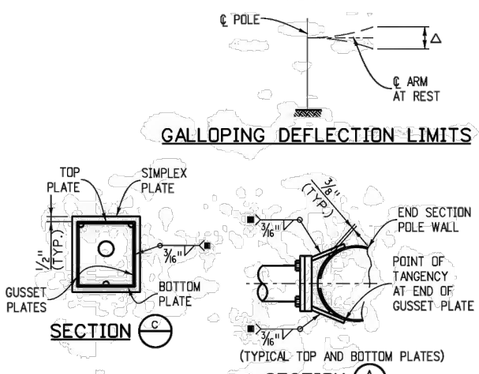


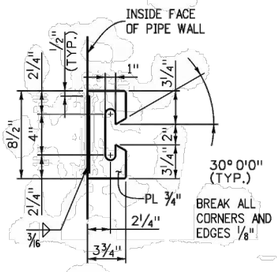


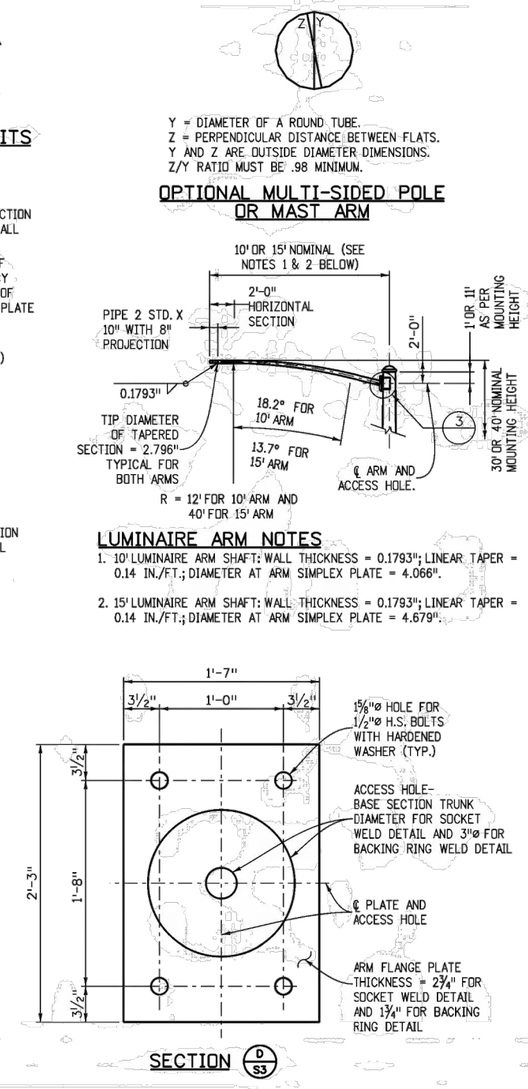












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Creation Date: 07/04/12		Date:	Comments
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Last Modification Date:			
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CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

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ALTERNATE TRAFFIC SIGNAL 25' - 55' SINGLE MAST ARMS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 2 of 4
Project Sheet Number:

PRELIMINARY PLANS

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R-X	SHEET REVISIONS		
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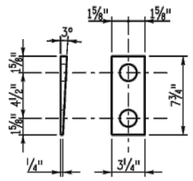
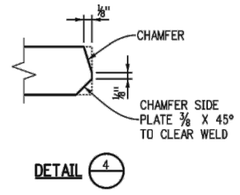
FIRESTONE COLORADO

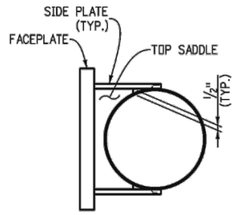
AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-09 OF 12	SHEET NUMBER 13

- BEND RADIUS MEASURED TO THE ℄ OF EACH U-BOLT. INCREASE RADII AS NEEDED TO ACCOMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES. U-BOLTS SHALL BE TIGHTENED 1/12 TURN (30° ± 5°) PAST SNUG TIGHT; PEEN THREADS AFTER TIGHTENING. U-BOLTS AND FACEPLATE SHALL BE MOUNTED ON BASE SECTION PRIOR TO SHIPMENT.
- ✚ MATCH FIT STOP BAR TO SIDE PLATE USING TACK WELDS TO ENSURE UNIFORM REARING.
- ■ STOP ALL WELDS 1/2" SHORT OF PLATE EDGES AND BOLT HOLES.
- * BEND STOP BAR TO MATCH POLE CURVATURE.

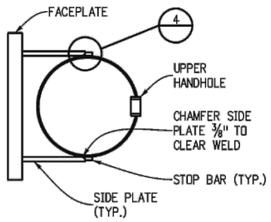




DETAIL 4



SECTION P



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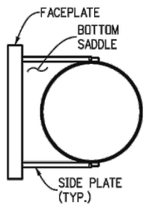

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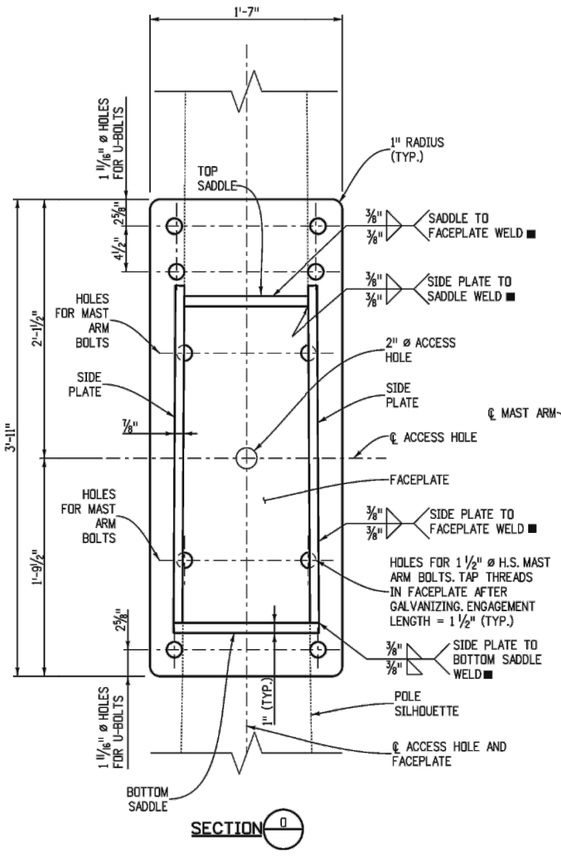
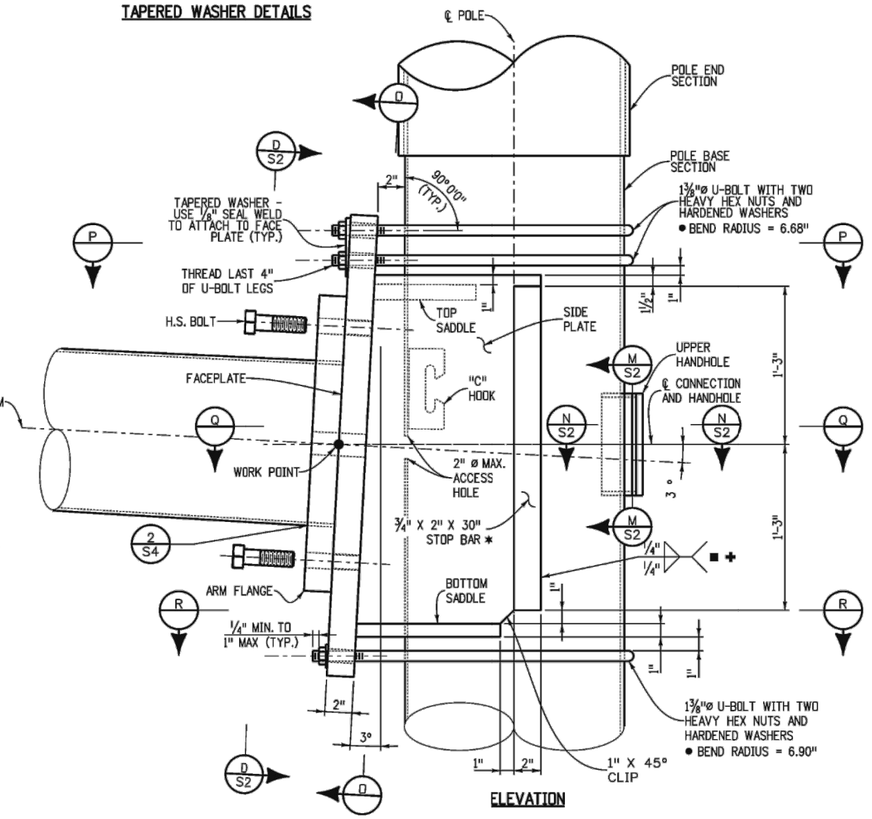


SECTION O

TAPERED WASHER DETAILS



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Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
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Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO. S-614-40A
Standard Sheet No. 3 of 4
Project Sheet Number:

PRELIMINARY PLANS

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SHEET REVISIONS		
DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

OAK MEADOWS PEDESTRIAN CROSSING
ROADWAY DETAILS

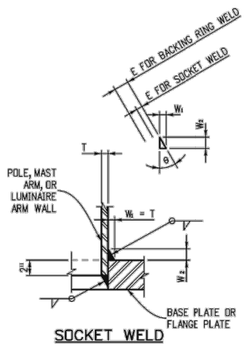
DESIGNER: KDM
DETAILER: KDM
SUBSET: DESIGN
STR. NO'S. N/A N/A
SHEETS: DET-10 OF 12

PROJECT NO./CODE

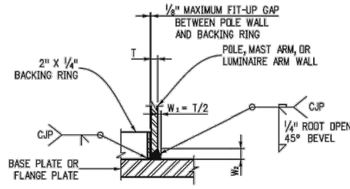
SHEET NUMBER 14

SOCKET WELD DATA					
	ARM LENGTH (FT.)	W_1 (IN.)	W_2 (IN.)	E (IN.)	θ (DEG.)
MAST ARMS	25	0.2391	0.285	0.183	40
	35	0.2391	0.285	0.183	40
	45	0.3125	0.372	0.239	40
	55	0.3125	0.372	0.239	40
POLE	ALL	0.3125	0.372	0.239	40
LUMINAIRE ARMS	ALL	0.1793	0.214	0.138	40

BACKING RING WELD DATA					
	ARM LENGTH (FT.)	W_1 (IN.)	W_2 (IN.)	E (IN.)	θ (DEG.)
MAST ARMS	25	0.1196	0.489	0.289	14
	35	0.1196	0.489	0.289	14
	45	0.1566	0.563	0.385	16
	55	0.1566	0.563	0.385	16
POLE	ALL	0.1566	0.563	0.385	16
LUMINAIRE ARMS	ALL	0.0897	0.429	0.212	12

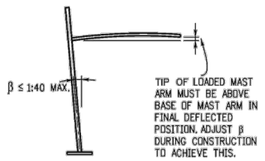


SOCKET WELD

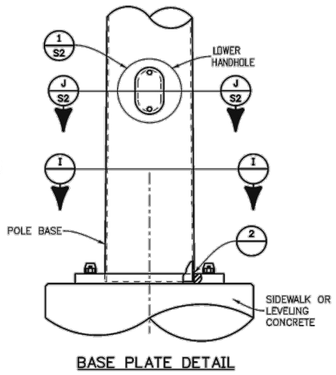


BACKING RING WELD

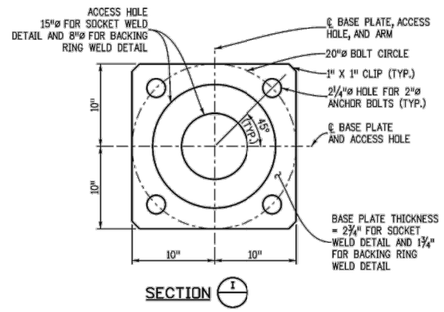
DETAIL 2 S2 2 S3



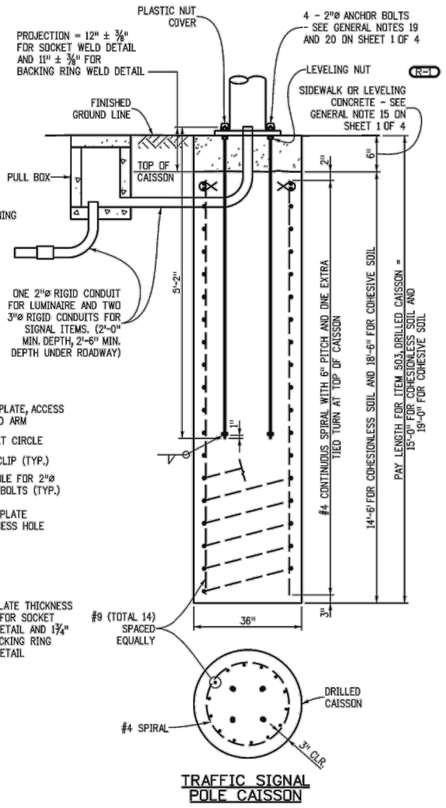
CONSTRUCTION REQUIREMENTS



BASE PLATE DETAIL



SECTION 1



TRAFFIC SIGNAL POLE CAISSON

Computer File Information	Sheet Revisions		
Creation Date: 07/04/12	Date:	Comments	
Created By: LAW			
Last Modification Date: 09/25/12			
Last Modified By: LAW			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

ALTERNATE TRAFFIC SIGNAL
25' - 55' SINGLE MAST ARMS
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-40A
Standard Sheet No. 4 of 4
Project Sheet Number:

MASTARM POLES (MAX 55')

FIRESTONE COLORADO

TRAFFIC SIGNAL CONSTRUCTION DRAWINGS

BY: JME
SCALE: NTS
DATE: 1/2020

DRAWING: TS13D

PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:46 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

Bohannan Huston
www.bhinc.com 800.877.5332
9785 Maroon Circle Suite 140 Englewood , CO 80112-5928

SHEET REVISIONS			
R-X	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

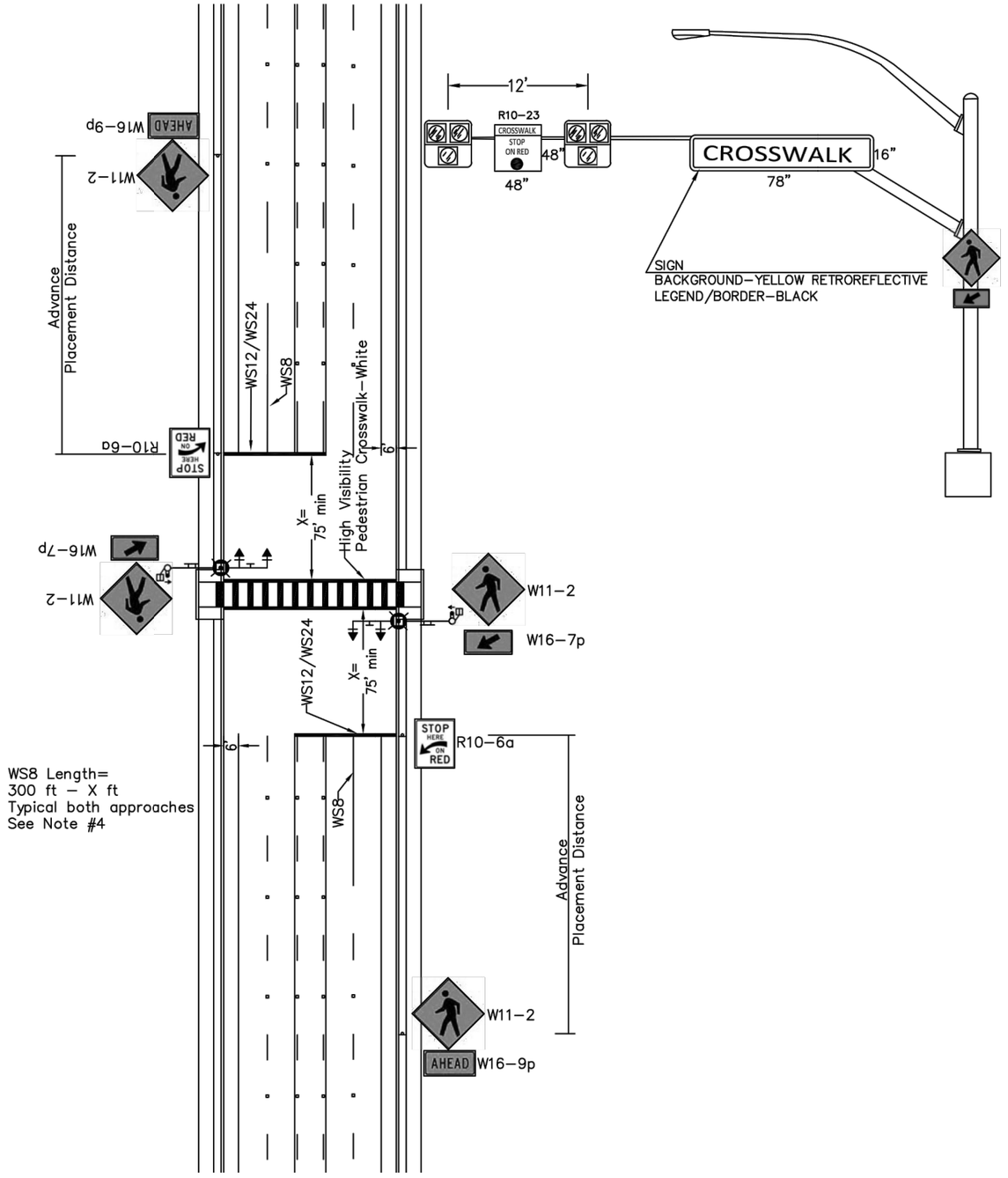
AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

OAK MEADOWS PEDESTRIAN CROSSING
ROADWAY DETAILS

DESIGNER: KDM
DETAILER: KDM
SUBSET: DESIGN
STR. NO'S. N/A N/A
SHEETS: DET-11 OF 12

PROJECT NO./CODE

SHEET NUMBER 15



PRELIMINARY PLANS

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PLOTTED BY: DANIEL POHLEN, 5/25/2022 1:46 PM
HORIZ. SCALE: N/A VERT. SCALE: N/A

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R-X	SHEET REVISIONS		
	DATE	DESIGNER:	INITIALS

FIRESTONE COLORADO

AS CONSTRUCTED	OAK MEADOWS PEDESTRIAN CROSSING ROADWAY DETAILS			PROJECT NO./CODE
NO REVISIONS:				
REVISED:	DESIGNER: KDM	STR. NO'S.	N/A	
VOID:	DETAILER: KDM		N/A	
	SUBSET: DESIGN	SHEETS:	DET-11 OF 12	SHEET NUMBER 16

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 8.f

Discussion/Action

Meeting Date: July 27, 2022

Initiated By: Nate Haasis

Dept: Engineering - Town

AGENDA TITLE

Resolution 22-94: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND NORTHERN COLORADO CONSTRUCTORS FOR CONSTRUCTION WORK PERTAINING TO THE HISTORIC FIRESTONE WATERLINES REPLACEMENT PROJECT NO. 1

SUMMARY

On February 9th, 2022, the Board entered into a professional services agreement with Ditesco to design water and street surface infrastructure improvements in Historic Firestone for an amount of $399,970. Those plans were advertised in a Request for Bids that was issued on June 21, 2022. Due to uncertainty in construction pricing, the project was broken out into a Base Bid, and four (4) alternates. Bids were received and opened on July 15, 2022. The Town received three bids with the total (Base + Alternates) amounts shown below:

1. Northern Colorado Constructors (NCC) - $1,440,643.50
2. RCD Construction (RCD) - $1,933,443,88
3. WT Excavating (WT) - $1,823,443.88

The Base Bid includes Wooster Drive and Jackson Drive water line replacement and full street reconstruction. Wooster Drive and Jackson Drive were selected for Project #1 as these are two of the worst-rated roads in the Town and have shallow and undersized water mains of only 4 inches in diameter (Typical water mains are 8 inches). Alternate #1 includes the water line replacement in the alley north of Wooster Drive. Alternate #4 includes replacing all service lines serving residences along Wooster Drive and Jackson Drive.

After reviewing the bids, staff determined Northern Colorado Constructors to be the lowest responsible bidder and to accept Base Bid, Alternate #1, and Alternate #4 for a total not to exceed the amount of $1,337,158.50. Northern Colorado Constructors has recent experience with similar types of projects and is a local company based nearby in Fort Lupton.

HISTORY AND PREVIOUS BOARD ACTION

On February 9th, 2022, the Board Approved Resolution 22-22, approving an agreement with Ditesco for the design of water line and surface replacement in Historic Firestone. On July 15, bids were received for the construction of the project.

RECOMMENDATION

Staff recommends that the Board approve Resolution 22-94, a resolution approving the construction contract agreement between the Town of Firestone and Northern Colorado Constructors for the construction of the Historic Waterline Replacement project.

ALTERNATIVES

The Board may choose not to approve Resolution 22-94 and provide staff with additional direction.

ATTACHMENTS

1. Res No 22-94 Northern Colorado Constructors Construction Contract
2. Contract_W2021-9540.01_Full

FINANCIAL CONSIDERATIONS

This contract includes an amount not to exceed $1,337,158.50 for construction. Sufficient funds have been budgeted and appropriated from the Capital Projects Fund and Water Fund. The 2022 Budget included $780,006 for Historic Firestone Water Line Replacement and $621,500 for Historic Firestone Street Replacements, for a total of $1,401,506 for construction.

RESOLUTION NO. 22-94

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING A CONSTRUCTION CONTRACT BETWEEN THE TOWN OF FIRESTONE AND NORTHERN COLORADO CONSTRUCTORS FOR CONSTRUCTION WORK PERTAINING TO THE HISTORIC FIRESTONE WATERLINES REPLACEMENT PROJECT NO. 1

WHEREAS, the Town of Firestone ("Town") is in need of construction services for the Historic Firestone Waterlines Replacement Project No. 1 (the "Project"); and

WHEREAS, the Town issued an invitation for bids for the work and upon review of those submitted selected Northern Colorado Constructors as the lowest responsive and responsible bidder.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

The Construction Contract between the Town of Firestone and Northern Colorado Constructors for the Historic Firestone Water Lines Replacement Project No. 1 is approved in substantially the same form as the copy attached hereto and made a part of this resolution. The Mayor is authorized to execute the Contract on behalf of the Town.

INTRODUCED, READ AND ADOPTED this 27th day of July, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

CONSTRUCTION CONTRACT

THIS CONSTRUCTION CONTRACT (the "Construction Contract" or "Agreement") is made and entered into this _____ day of _____, 2022 (the "Effective Date"), by and between the **TOWN OF FIRESTONE**, a Colorado municipal corporation with an address of 9950 Park Avenue, Firestone, Colorado 80504 (the "Town" or the "Owner"), and **Northern Colorado Constructors**, an independent contractor with a principal place of business at 9075 CR 10, Fort Lupton, Colorado 80621 ("Contractor") (each a "Party" and collectively the "Parties").

WHEREAS, the Town requires services; and

WHEREAS, Contractor has been found by the Town as having the expertise and experience to perform the required services.

NOW THEREFORE, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. SCOPE OF WORK

A. Contractor shall complete all Work and perform all Services which are described or reasonably implied from the Scope of Work set forth in Exhibit A and the Contract Documents, attached hereto and incorporated herein by this reference and known as: **Project #1 Historic Firestone Waterline Replacement (W2021-9540.01)**

B. A change in the Scope of Work shall not be effective unless authorized as a written amendment to this Agreement or change order in accordance with the Contract Documents. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum merit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

C. Within 10 days of the Effective Contract Date, Contractor shall provide the performance bond and labor & material payment bond and certificate of insurance required by the contract Documents.

II. DESIGN PROFESSIONAL

This Project has been designed by: Ditesco LLC,

who is hereinafter called DESIGN PROFESSIONAL and who is to act as FIRESTONE's representative, assume all duties and responsibilities and have the rights and authority assigned to DESIGN PROFESSIONAL in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

III. CONTRACT TIMES; COMMENCEMENT AND COMPLETION OF WORK

A. The Work shall be substantially completed within 90 days of the Effective Date of this contract, and shall continue until Contractor completes the Scope of Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

C. Should a delay in completion constitute a compensable inconvenience to the Town and its residents, the liquidated damages established in this Section shall be enforced. Such damages are not a penalty, the parties recognize the delays, expense and difficulties involved in proving the actual loss suffered by the Town if the Work is not completed on time. For each day that all or a portion of the Work is delayed beyond the deadlines set forth in Section III hereof, plus any extensions thereof allowed, the Contractor shall be assessed the amount of one-thousand two-hundred dollars ($1200) each day until the Work is complete.

IV. COMPENSATION

In consideration for the completion of the Work by Contractor, the Town shall pay Contractor, subject to all of the terms and conditions of the Contract Documents, an amount not to exceed **$1,337,158.50** (the "Contract Price"). The Contract Price shall include all fees, costs and expenses incurred by Contractor, and no additional amounts shall be paid by the Town for such fees, costs and expenses.

V. PAYMENT PROCEDURES

Contractor may submit Applications for Payment for completed work per the UNIT-PRICE BID FORM. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

VI. RESPONSIBILITY

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and licenses in good standing, required by law.

B. The Work performed by Contractor shall be in accordance with generally accepted practices and the level of competency presently maintained by other practicing contractors in the same or similar type of work in the applicable community.

C. The Work performed by Contractor hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations, including the Keep Jobs in Colorado Act, C.R.S. 8-17-101, et seq. (the "Act") and the rules adopted by the Division of Labor of the Colorado Department of Labor and Employment implementing the Act (the "Rules").

D. The Town's review, approval or acceptance of, or payment for any completed Work shall not be construed to operate as a waiver of any rights under this Construction Contract or of any cause of action arising out of the performance of this Construction Contract.

E. Contractor hereby warrants to the Town that all materials and equipment used in the Work, and made a part of the Work, or placed permanently in the Work, shall be new unless otherwise specified in the Contract Documents. Contractor further warrants that all equipment and materials shall be of good quality, conform to the requirements of the Contract Documents and will be free from defects. All Work, materials, or equipment not conforming to the Contract Documents shall be considered defective.

F. The Contractor shall warrant and guarantee all materials and equipment furnished under the Contract and all Work performed for two years after the date of Substantial Completion. Under this warranty, Contractor agrees to repair or replace, at its own expense, any Work that is found to be defective. The expiration of the warranty period shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

VII. OWNERSHIP

Any materials, items, and work specified in the Scope of Work, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Work constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change such work without providing notice to or receiving consent from Contractor.

VIII. INDEPENDENT CONTRACTOR

Contractor is an independent contractor. Notwithstanding any other provision of this Construction Contract, all personnel assigned by Contractor to perform work under the terms of this Construction Contract shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

IX. INSURANCE

A. 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 Contractor pursuant to this Construction Contract. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees, or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Construction Contract.

X. INDEMNIFICATION

Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, 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 Construction Contract if such injury, loss, or damage is caused in whole or in part by, the act, omission, error, professional error, mistake, negligence, or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor.

XI. WORKERS WITHOUT AUTHORIZATION

A. Certification. By entering into this Construction Contract, Contractor hereby certifies that, at the time of this certification, it does not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who will perform work under this Construction Contract and that Contractor will participate in either the E-Verify Program administered by the U.S. Department of Homeland Security and Social Security Administration or the Department Program

administered by the Colorado Department of Labor and Employment to confirm the employment eligibility of all employees who are newly hired to perform work under this Construction Contract.

B. Prohibited Acts. Contractor shall not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, to perform work under this Construction Contract, or enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, to perform work under this Construction Contract.

C. Verification.

1. If Contractor has employees, Contractor has confirmed the employment eligibility of all employees who are newly hired to perform work under this Construction Contract through participation in either the E-Verify Program or the Department Program.

2. Contractor shall not use the E-Verify Program or Department Program procedures to undertake pre-employment screening of job applicants while this Construction Contract is being performed.

3. If Contractor obtains actual knowledge that a subcontractor performing work under this Construction Contract knowingly employs or contracts with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Construction Contract, Contractor shall: notify the subcontractor and the Town within 3 days that Contractor has actual knowledge that the subcontractor is employing or contracting with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Construction Contract; and terminate the subcontract with the subcontractor if within 3 days of receiving the notice required pursuant to subsection 3 hereof, the subcontractor does not stop employing or contracting with the worker without authorization who is performing work under this Construction Contract; except that Contractor shall not terminate the subcontract if during such 3 days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Construction Contract.

D. Duty to Comply with Investigations. Contractor shall comply with any reasonable request by the Colorado Department of Labor and Employment made in the course of an investigation conducted pursuant to C.R.S. § 8-17.5-102(5)(a) to ensure that Contractor is complying with the terms of this Section XI.

E. Affidavits. If Contractor does not have employees, Contractor shall sign the "No Employee Affidavit" attached hereto. If Contractor wishes to verify the lawful presence of newly hired employees who

perform work under the Construction Contract via the Department Program, Contractor shall sign the "Department Program Affidavit" attached hereto.

XII. CONTRACT DOCUMENTS

The Contract Documents, which comprise the entire agreement between the Town and Contractor concerning the Scope of Services, consist of the following:

A. Exhibit to this Construction Contract:
   1. Exhibit A: Scope of Work Summary
   2. Exhibit B: Minimum Qualifications Form

B. Performance Bond and Labor & Material Payment Bond.

C. Notice of Award.

D. Notice to Proceed.

E. EJCDC General Conditions of the Construction Contract.

F. EJCDC Supplementary Conditions of the Construction Contract.

G. Project "Specifications" bearing the title: Project #1 Historic Waterline Replacement

H. "Drawings" consisting of 35 Sheets, dated, June 07, 2022, and titled: Town of Firestone Colorado, Project #1- Historic Waterline Replacement.

I. Addendum numbers:
   1. Addendum #1: _____.
   2. Addendum #2: _____.

J. The following which may be delivered or issued after the Effective Date of the Construction Contract and are attached hereto: All written amendments and other documents amending, modifying, or supplementing of the Contract Documents.

There are no Contract Documents other than those listed above in this Section XII.

XIII. MISCELLANEOUS

A. Governing Law and Venue. This Construction Contract shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Weld County, Colorado.

B. No Waiver. Delays in enforcement or the waiver of any one or more defaults or breaches of this Construction Contract by the Town shall not constitute a waiver of any of the other terms or obligation of this Construction Contract.

C. Integration. This Construction Contract and any attached exhibits constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. Third Parties. There are no intended third-party beneficiaries to this Construction Contract.

E. Notice. Any notice under this Construction Contract shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

F. Severability. If any provision of this Construction Contract is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. Modification. This Construction Contract may only be modified upon written agreement of the Parties.

H. Assignment. Neither this Construction Contract nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. Governmental Immunity. The Town and its officers, attorneys and employees, are relying on, and do 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, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. Rights and Remedies. The rights and remedies of the Town under this Construction Contract are in addition to any other rights and remedies provided by law. The expiration of this Construction Contract shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. Subject to Annual Appropriation. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

IN WITNESS WHEREOF, the Parties have executed this Construction Contract as of the Effective Date.

TOWN OF FIRESTRONE, COLORADO

_____
Drew Peterson, Mayor

ATTEST:

_____
Jessica Koenig CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

CONTRACTOR

By: Northern Colorado Constructors
Chris Zadel

STATE OF COLORADO)
) ss.
COUNTY OF Weld)

The foregoing instrument was subscribed, sworn to and acknowledged before me this 21 day of July, 2022 by Chris Zadel as Treasurer of Northern Colorado Constructors.

My commission expires: 10/14/2023

(S E A L)

Melisa A Hansford
Notary Public

Melisa A Hansford
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20074038662
MY COMMISSION EXPIRES 10/14/2023

FIRESTONE
COLORADO

NO EMPLOYEE AFFIDAVIT

*To be completed only if Contractor has **no** employees*

1. Check and complete one:

☐ I, _____, am a sole proprietor doing business as _____. I do not currently employ any individuals. Should I employ any employees during the term of my Agreement with the Town of Firestone (the "Town"), I certify that I will comply with the lawful presence verification requirements outlined in that Agreement.

OR

☒ I, Chris Zadel, am the sole owner/member/shareholder of Northern Colorado Constructors, a Corporation [specify type of entity – *i.e.*, corporation, limited liability company], that does not currently employ any individuals. Should I employ any individuals during the term of my Agreement with the Town, I certify that I will comply with the lawful presence verification requirements outlined in that Agreement.

2. Check one.

☒ I am a United States citizen or legal permanent resident.

The Town must verify this statement by reviewing one of the following items:

- *A valid Colorado driver's license or a Colorado identification card;*
- *A United States military card or a military dependent's identification card;*
- *A United States Coast Guard Merchant Mariner card;*
- *A Native American tribal document;*
- *In the case of a resident of another state, the driver's license or state-issued identification card from the state of residence, if that state requires the applicant to prove lawful presence prior to the issuance of the identification card; or*
- *Any other documents or combination of documents listed in the Town's "Acceptable Documents for Lawful Presence Verification" chart that prove both Contractor's citizenship/lawful presence and identity.*

OR

☐ I am otherwise lawfully present in the United States pursuant to federal law.

Contractor must verify this statement through the federal Systematic Alien Verification of Entitlement ("SAVE") program, and provide such verification to the Town.

Chris Zadel _____ 7/21/22 _____

Signature Date

FIRESTONE COLORADO

DEPARTMENT PROGRAM AFFIDAVIT

To be completed only if Contractor participates in the Department of Labor Lawful Presence Verification Program

I, Chris Zadel, as a public contractor under contract with the Town of Firestone (the "Town"), hereby affirm that:

1. I have examined or will examine the legal work status of all employees who are newly hired for employment to perform work under this public contract for services ("Agreement") with the Town within 20 days after such hiring date;

2. I have retained or will retain file copies of all documents required by 8 U.S.C. § 1324a, which verify the employment eligibility and identity of newly hired employees who perform work under this Agreement; and

3. I have not and will not alter or falsify the identification documents for my newly hired employees who perform work under this Agreement.

Chris Zadel
Signature

7/21/22
Date

STATE OF COLORADO)

) ss.

COUNTY OF Weld)

The foregoing instrument was subscribed, sworn to and acknowledged before me this 21 day of July, 2020, by Chris Zadel as Treasurer of Northern Colorado Constructors.

My commission expires: 10/14/2023

(SEAL)
Melisa A Hansford
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20074038662
MY COMMISSION EXPIRES 10/14/2023

Notary Public Melisa A Hansford

FIRESTONE
COLORADO

EXHIBIT A
SCOPE OF WORK

The base bid utility work is comprised of traditional “open cut” methodology to install roughly 1,700 LF of 8-inch C900 PVC DR18 waterline. Work includes connections to existing services, hydrant installation/replacement; installation of fittings, valves, and other pipeline appurtenances as more specifically defined herein.

The base bid surface improvements are comprised of full depth asphalt removal and replacement, ribbon curb, concrete pan, grading modifications, and modifications to existing landscaping and plantings, as impacted by utility installations. Contractor shall furnish all materials, equipment, supplies, and appurtenances; provide all construction equipment and tools; and perform all necessary labor and supervision to complete the Work.

Add alternates include additional 445LF of 8-inch C900 PVC DR18 waterline installation, surface restoration, and removal and disposal of existing asbestos cement pipe per CDPHE and OSHA regulations, for the segments shown on the contract drawings.

Contractor's Duties

During the term of this Construction Contract, Contractor shall perform the following duties, as directed by the Town outlined in the following documents:

- Contract Drawings June 07, 2022
- Project Manual Dated June 2022
- Town of Firestone Construction Standards for Public Improvements 2022 Edition
- Geotechnical Investigation Report Dated 05/09/2022

Contractor shall meet or exceed all requirements outlined within the documents listed above.

UNIT-PRICE BID FORM-BASE BID

Project #1 Historic Firestone Waterline Replacement

Base Bid – Wooster and Jackson Drive Waterline Installation and Surface Improvements

Item Description	Quantity	Unit of Measurement	Unit Price	Extended Cost
Mobilization	1	LS	$22,500.00	$22,500.00
Traffic Control	1	LS	$83,690.00	$83,690.00
Surveying	1	LS	$29,000.00	$29,000.00
Erosion Control Management	1	LS	$6,665.00	$6,665.00
8-inch Waterline Installation	1825	LF	$125.50	$229,037.50
Asphalt Milling	6850	SY	$2.22	$15,207.00
Excavation	2130	CY	$26.60	$56,658.00
Curb Removal	3280	LF	$26.60	$87,248.00
Pan Removal	1050	LF	$26.60	$27,930.00
Reconditioning	8135	SY	$2.75	$22,371.25
Aggregate Base Course	3295	TON	$33.45	$110,217.75
Concrete Ribbon Curb Installation	3440	LF	$37.10	$127,624.00
Concrete Pan Installation	1610	LF	$69.50	$111,895.00
HMA Grading S-75 64-22	650	TON	$128.50	$83,525.00
HMA Grading SX-75 64-28	650	TON	$130.60	$84,890.00
			TOTAL	**$1,098,458.50**

UNIT-PRICE BID FORM- ALTERNATE 1

Add Alternate #1– North Alley Waterline Replacement

Item Description	Quantity	Unit of Measurement	Unit Price	Extended Cost
Mobilization	1	LS	$6,000.00	$6,000.00
Temporary Waterline	1	LS	$26,065.00	$26,065.00
4-inch Asbestos Cement Waterline Removal	480	LF	$36.00	$17,280.00

8-inch Waterline Installation	480	LF	$162.00	$77,760.00
Service Line Replacement	12	EA	$1,840.00	$22,080.00
Aggregate Base Course (Recycled Asphalt Pavement)	110	TON	$38.00	$4,180.00
Concrete Pavement Removal	15	SY	$64.00	$960.00
Concrete Pavement Installation	15	SY	$217.00	$3,255.00
			TOTAL	**$157,580.00**

UNIT-PRICE BID FORM- ALTERNATE 2

Add Alternate #2– Wooster Drive Existing Waterline Full Removal

Item Description	Quantity	Unit of Measurement	Unit Price	Extended Cost
Temporary Waterline	1	LS	$28,295.00	$28,295.00
4-inch Asbestos Cement Waterline Removal	650	LF	$21.00	$13,650.00
			TOTAL	**$41,945.00**

UNIT-PRICE BID FORM- ALTERNATE 3

Add Alternate #3 – Jackson Drive Existing Waterline Full Removal

Item Description	Quantity	Unit of Measurement	Unit Price	Extended Cost
Temporary Waterline	1	LS	$37,215.00	$37,215.00
4-inch Asbestos Cement Waterline Removal	565	LF	$21.00	$11,865.00
6-inch Asbestos Cement Waterline Removal	560	LF	$22.25	$12,460.00
			TOTAL	**$61,540.00**

UNIT-PRICE BID FORM- ALTERNATE 4

Add Alternate #4 – Wooster and Jackson Drive Service Line Replacement

Item Description	Quantity	Unit of Measurement	Unit Price	Extended Cost
Service Line Replacement	52	EA	$1,560.00	$81,120.00
			TOTAL	**$81,120.00**

one million four hundred fourty Thousand Six hundred fourty three and 50/100

TOTAL CONSTRUCTION COST: BASE+A1+A2+A3+A4	$ 1,440,643.50

All quantities listed in the bid tabs are approximate and subject to field verification.

Please note any exceptions you take to this bid, *e.g.*, minimum quantity requirements:

N/A

BIDDER'S INFORMATION:

Company Name: Northern Colorado Constructors

Mailing Address: 9075 CR 10, Fort Lupton, CO 80621

Telephone Number: (303) 857-1754 Email: chrisz@ncconstructors.com

The bidder hereby acknowledges receipt of Addendum Nos. 1, 2, ___, ___, ___, ___, to these specifications. (Insert number of each addendum received.)

Name and Title of Authorized Company Representative:

Chris Zadel — Name (Please print)

Treasurer — Title

Chris Zadel — Signature

Dated this 15 day of July, 2022.

FIRESTONE COLORADO

EXHIBIT B

MINIMUM QUALIFICATIONS CERTIFICATION FORM

Project Name:	Bid Number:
Project #1 Historic Firestone Waterline Replacement	W2021-9540.01

CONTRACTOR SHALL CONFIRM:	YES	NO
Contractor has identifiable waterline experience, completing a minimum of three (3) projects of similar scope and scale, completed within the last five (5) years.	☒	☐
Contractor has $2,000,000.00 single project bonding capacity and $10,000,000.00 aggregate bonding capacity.	☒	☐
Contractor has submitted letter from Surety confirming bonding capacities.	☒	☐
Contractor certifies 20% of the Work will be self-performed by Contractor.	☒	☐

Flood & Peterson

March 15, 2022

Town of Firestone
Firestone, Colorado

RE: Northern Colorado Constructors, Inc.
Project #1 Historic Firestone Waterline Replacement W2021-9540.01 Firestone, Colorado

To Whom it May Concern,

Northern Colorado Constructors, Inc. is a premier Contractor and they maintain a fine relationship with owners, architects, suppliers and subcontractors. They are a valued client and we recommend them to you without reservation.

Northern Colorado Constructors, Inc. has a surety credit line with North American Specialty Insurance Company which authorizes them to bid contracts with performance and payment bond obligations. Their current bonding capacity is in the range of $10,000,000 single job and $20,000,000 aggregate.

Our willingness to provide surety credit is subject to standard underwriting including a review of acceptable bond forms, contract terms, and other underwriting considerations at the time of the request. It is understood, of course, that any arrangements for bonds is a matter between Northern Colorado Constructors, Inc. and North American Specialty Insurance Company and we assume no liability to third parties or to you if for any reason we do not execute said bonds.

If you have any questions or need additional information regarding the surety program for Northern Colorado Constructors, Inc., please feel free to contact me at (970) 506-3274 or dhuggins@floodpeterson.com.

Sincerely,

Dulce R. Huggins

Dulce R. Huggins
Attorney-in-Fact

PERFORMANCE BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name: **Town of Firestone, Colorado**	Description *(name and location)*:
Mailing address *(principal place of business)*:	**Project #1 Historic Firestone Waterline Replacement W2021-9540, Firestone Colorado**
9950 Park Avenue	
Firestone, CO 80504	Contract Price:
	Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____	_____
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature)(Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

EJCDC® C-610, Performance Bond.
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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.1, below. Otherwise, the Surety and Contractor shall have the following obligations.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

    3.1. The Owner first provides notice to the Contractor and the Surety that the Owner intends to declare a Contractor Default and terminate the services of Contractor. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;

    3.2. The Owner declares a Contractor Default, terminates the Construction Contract, and notifies the Surety; and

    3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

    5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

    5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

    5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

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5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

   7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

   7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

   7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the State of Colorado will be applicable.

12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

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statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows: **None**

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PAYMENT BOND

Contractor	**Surety**
Name:	Name:
Address *(principal place of business)*:	Address *(principal place of business)*:
Owner	**Contract**
Name: **Town of Firestone, Colorado**	Description *(name and location)*:
Mailing address *(principal place of business)*:	**Project #1 Historic Firestone Waterline Replacement W2021-9540, Firestone Colorado**
9950 Park Avenue	
Firestone, CO 80504	Contract Price:
	Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____	_____
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature)(Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the Contractor

        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2. Pay or arrange for payment of any undisputed amounts.

    7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

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8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the State of Colorado will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

    16.1. *Claim*—A written statement by the Claimant including at a minimum:

        16.1.1. The name of the Claimant;

        16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

        16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

        16.1.4. A brief description of the labor, materials, or equipment furnished;

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16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

18. Modifications to this Bond are as follows: **None**

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NOTICE OF AWARD

TO: _____

_____

_____

PROJECT NAME: _____

PROJECT NUMBER: _____ PROJECT MANAGER: NATHAN HAASIS, PE

The **Town of Firestone (TOWN)** has considered the BID submitted by you for the above described work in response to its Request for Bids dated_____and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of_____, and two executed agreements were presented to the TOWN Board.

You are required by the Contract Documents to furnish the required performance bond and labor & material payment bond and certificate of insurance within 10 days of the Effective Contract Date.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the TOWN at the attention of the Engineering Department.

Dated this_____day of_____, 20____.

Town of Firestone, Colorado

By: _____

Name: NATHAN HAASIS, PE

Title: SENIOR ENGINEER

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged:

CONTRACTOR:

_____

(Name of Firm/Consultant)

By: _____

Name: _____

(Please Type or Print)

Title: _____

Contractor:

Return one signed copy to:

NATHAN HAASIS, PE

NHAASIS@FIRESTONECO.GOV

NOTICE TO PROCEED

TO: _____ DATE: _____

_____

_____

PROJECT NAME: _____

PROJECT NUMBER: _____ PROJECT MANAGER: NATHAN HAASIS, PE

You are herby notified to commence WORK in accordance with the Agreement dated_____, 20___, on or before_____, 20_____.

Town of Firestone, Colorado

By: _____

Name: NATHAN HAASIS, PE

Title: SENIOR ENGINEER

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged this_____day of_____, 20_____.

CONTRACTOR:

_____

(Name of Firm/Consultant)

By: _____

Name: _____

(Please Type or Print)

Title: _____

Contractor:

Return one signed copy to:

NATHAN HAASIS, PE

NHAASIS@FIRESTONECO.GOV

SECTION 00 70 00

GENERAL CONDITIONS
OF THE
CONSTRUCTION CONTRACT

EJCDC® C-700, Standard General Conditions of the Construction Contract.
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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

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

2. *Agreement or Construction Contract*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

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requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

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recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as DESIGN PROFESSIONAL in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

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33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

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

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

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43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

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1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the 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 is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. 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 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

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F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

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 Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

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into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, 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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. A. ~~At least 10 days before submission of the first Application for Payment,~~ Before any work at the site begins, a conference attended by Contractor, Engineer, and others as ~~appropriate~~ designated by Owner, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A and Division 1 – General Requirements. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the

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recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. 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.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

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

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective

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to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. 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 had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

   a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

   b. the provisions of any 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).

2. The Specifications shall supersede any conflicts or ambiguities within the Drawings, and addenda shall supersede any conflicting or ambiguous provisions within the Specifications and Drawings, except the provisions of the Construction Contract shall supersede any conflicting provisions of any other Contract Document. Notwithstanding the foregoing, the more specific provision will take precedence over the less specific; the more stringent will take precedence over the less stringent; the more expensive

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item will take precedence over the less expensive. On all drawings, figures take precedence over scaled dimensions. Scaling of dimensions, if done, is done at the Contractor's own risk.

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. 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 its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A

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Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points 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 property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument 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 or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption,

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or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
2. Abnormal weather conditions;
3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;
2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with

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reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. ~~Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.~~

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

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resolution costs) arising out of or relating to 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

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;

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2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, ~~promptly~~ immediately after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question

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has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor ~~shall~~ may be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

    c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

    a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

    b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

    c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

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5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, ~~promptly~~ immediately 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating

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whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor ~~shall~~ may be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

   b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

   c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

~~A. *Reports and Drawings*: The Supplementary Conditions identify:~~

~~1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;~~

~~2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and~~

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3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

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;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly 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 condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition

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~~and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.~~

~~G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.~~

~~H. If, after receipt of such 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 the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.~~

~~I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.~~

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

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ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the

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required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

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I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed

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by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

~~Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.~~

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will

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provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

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C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

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7.02 *Supervision and Superintendence*

A. 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.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. 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 stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday 7am to 7pm. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld. . Contractor shall submit requests to the Engineer no less than 48 hours in advance of any Work to be performed on Saturday, Sunday, Holidays, or outside the working hours.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, 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 performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more

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proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
    a. in the exercise of reasonable judgment Engineer determines that the proposed item:
        1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
        2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
        3) has a proven record of performance and availability of responsive service; and
        4) is not objectionable to Owner.
    b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
        1) there will be no increase in cost to the Owner or increase in Contract Times; and
        2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

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7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

   a. will certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design;

      2) be similar in substance to the item specified; and

      3) be suited to the same use as the item specified.

   b. will state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

      2) whether use of the proposed substitute item 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 other work on the Project) to adapt the design to the proposed substitute item; and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

   c. will identify:

      1) all variations of the proposed substitute item from the item specified; and

      2) available engineering, sales, maintenance, repair, and replacement services.

   d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner.

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Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Contractor shall perform not less than 20 percent of the Work with its own forces (that is, without subcontracting). The 20 percent requirement shall be understood to refer to the Work the value of which totals not less than 20 percent of the Contract Price.

E. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

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F. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

G. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

H. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

I. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

K. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

L. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

M. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

N. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. 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 an 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 will be disclosed in the Contract Documents.

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B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to 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.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. 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.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the

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Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, and prior to release of final payment, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or

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indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

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7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may

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require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, 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.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. 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.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent

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resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

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C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

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B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will 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 individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

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ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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 to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

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2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve

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the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, ~~provided Contractor makes no reasonable objection to the replacement engineer~~. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. ~~Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.~~

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. 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

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10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as ~~provided in in the Supplementary Conditions and~~ in paragraph 10.03.A of these General Conditions, and limitations on the responsibilities thereof will be as ~~provided in the Supplementary Conditions and~~ in paragraph 10.07 of these General Conditions. If the Engineer furnishes a Resident Project Representative (RPR) or other assistants, or if the Owner designates a Owner's Site Representative or agent, these Representatives shall have the limitations as provided in paragraph 10.07 of the General Conditions and shall have the following authority:

3. The Representative's dealings in matters pertaining to the on-site work will, in general, be with the Engineer and Contractor. But, the Representative will keep the Owner properly advised about such matters. The Representative's dealings with subcontractors will only be through or with the full knowledge and approval of the Contractor.

4. Duties and Responsibilities. Representative will:

   a. Schedules – Review the progress schedule and other schedules prepared by the Contractor and consult with the Engineer concerning acceptability.

   b. Conferences and Meeting – Attend meeting with the Contractor such as preconstruction conferences, progress meetings and other job conferences and prepare and circulate copies of minutes of meetings.

   c. Liaison

      1) Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent to assist the Contractor in understanding the Contract Documents.

      2) Assist in obtaining from Owner additional details or information, when required, for proper execution of the work.

      3) Advise the Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by the Engineer.

   d. Review of Work, Rejection of Defective Work, Inspection, and Tests

      1) Conduct on-site observations of the Work in progress to assist the Engineer in determining that the work is proceeding in accordance with the Contract Documents.

      2) Report to the Engineer whenever the Representative believes that the 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 the Engineer when the Representative believes work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

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

e. 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 the Engineer.

f. Modifications – Consider and evaluate Contractors suggestions for modification in Drawings or Specifications and report these recommendations to the Engineer. Accurately transmit to Contractor decisions issued by the Engineer.

g. Records

1) Maintain at the Representative's office orderly files concerning 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 documents.

2) 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 the job site visitors, daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures; send copies to the Engineer.

3) Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of equipment and materials.

h. Reports

1) Furnish Engineer periodic reports, as required, of the progress of the Work and of the Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

2) Consult with Engineer in advance of scheduling major tests, inspections or start of important phases of the Work.

3) Draft proposed Change Orders and Work Directive Changes, obtaining backup material from the Contractor and recommend to Engineer Change Orders, Work Directive Changes and field orders.

4) Report immediately to Engineer and Owner the occurrence of any accident.

i. Payment Requests – Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendation 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.

j. Completion

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1) Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring correction or completion.

2) Conduct final inspection in the company of the Engineer, Owner, and Contractor and prepare a final list of items to be corrected or completed.

3) Observe that all items on the final list have been corrected or completed and make recommendations to Engineer concerning acceptance.

5. Limitation of Authority: The Representative shall not:

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

b. Exceed limitations of Engineer's authority as set forth in the contract documents.

c. Undertake any of the responsibilities of the Contractor, Subcontractor, or Contractor's superintendent.

d. 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.

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

f. Accept Shop Drawings or sample submittals from anyone other than the Contractor.

g. Authorize Owner to occupy the work in whole or in part.

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

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. 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 performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, 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.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

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C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

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11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. 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, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

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3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or

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:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

c. 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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

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B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

    The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

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5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

Execution of Change Orders

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

B. By the execution of a Change Order, a Work Change Directive or Written Agreement, Owner and Contractor expressly acknowledge and agree that said Change Order, Work Change Directive or Written Agreement provides for a fair and equitable adjustment in the Contract Price and/or Contract Times for the additions, deletions, or revisions in the Work as authorized by said Change Order, Work Change Directive or Written Agreement. Owner and Contractor further expressly acknowledge and agree that **additional** claims for adjustments to the Contract Price and/or Contract Times covered by **an executed** Change Order, Work Change Directive or Written Agreement are not valid.

C. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.11 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety 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), the giving of any such notice will be Contractor's

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responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

11.12 *Limitations on Change Orders, Generally:* Notwithstanding the foregoing, no change in the Contract Price requiring additional compensable Work to be performed, which Work causes the aggregate amount payable under the Contract Documents to exceed the amount appropriated for the original Contract Documents, shall be valid, unless the Town gives Contractor written assurance that lawful appropriations to cover the costs of the additional Work have been made and that the appropriations are available prior to performance of the additional Work, or unless such Work is covered under a remedy-granting provision in the Contract Documents.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

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2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation,

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superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, ~~sick leave, and vacation and holiday pay~~ applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. 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. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed 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, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

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

5. Other costs consisting of the following:

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

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, 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.

        1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

    c. *Construction Equipment Rental*

        1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading,

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assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. 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, and royalty payments and fees for permits and licenses.

f. 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 of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, 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 branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered

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by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

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

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.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

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13.02 *Allowances*

A. 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 performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash 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

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

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. 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 unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. 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. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. 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.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

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b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

c. Changes in Character of the Work. The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the Surety, and the Contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the Contract, whether such alterations or changes are in themselves significant changes to the character of the work, or by affecting other work cause such other work to become significantly different in character, and adjustment, excluding the loss of anticipated profit, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in amount as the Engineer may determine to be fair and equitable.

If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided in the Bid and Contract documents . The term "significant change" shall be construed to apply to only the following circumstances.

1) When a major item of work is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity supply shall apply only to that portion in excess of 125 percent of the original contact item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed. A major item is defined to be any item having an original contract value in excess of 10 percent of the original contract amount.

Contractor acknowledges that the Engineer has the right to change quantities at sole discretion without affecting the Contract Unit Price of any remaining item so long as the deletion or addition does not exceed 125 percent of the original contract quantity or decreased below 75 percent of the original contract quantity.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

~~3. Adjusted unit prices will apply to all units of that item.~~

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's

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safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. 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.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. 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, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

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B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay 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), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require,

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that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then 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 will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or 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, 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.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement 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.

2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

1. 3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment. Any funds that are withheld by the Owner shall not be subject to substitution by the Contractor with securities or any arrangements involving an escrow or custodianship. By executing the application for payment form the Contractor expressly waives his right to the benefits of Colorado Revised Statutes, Section 24-91-101, et seq.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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.

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2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's 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:

    a. the Work has progressed to the point indicated;

    b. 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, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

    c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

    a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

    b. 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.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. 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 stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

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b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

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l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. 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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, 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.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial

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Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which 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, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. 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 Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly 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, or

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agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all duly pending Change Proposals and Claims; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers. Releases or waivers of liens and the consent of the surety to finalize payment are to be submitted on forms conforming to the format of the Owner's standard forms bound in the Project manual.

B. *Engineer's Review of Final Application and Recommendation of Payment*: 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in

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which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor subject to paragraph 18.07.A.2 of these General Conditions ~~within 30 days of Owner's receipt of the final Application for Payment from Engineer.~~

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within ~~one~~ two years after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;

2. correct such defective Work;

3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

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C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. 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.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure 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);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

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B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. 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;

2. 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

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connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

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ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto 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. 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.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall 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.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

A. A. This Contract is to be governed by the law of the state in which the Project is located. The laws of the State of Colorado apply to this agreement. Reference to two pertinent Colorado statutes are as follows:

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1. Colorado Revised Statutes (CRS 8-7-101) require that Colorado labor be employed to perform the Work to the extent of not less than 80 percent (80%) of each type or class of labor in the several classifications of skilled and common labor employed on the project. Colorado labor means any person who is a bona fide resident of the State of Colorado at the time of employment, without discrimination as to race, color, creed, age, religion, or sex.

2. If a claim is filed, Owner is required by law (CRS 38-26-107) to withhold from all payments to Contractor sufficient funds to insure the payment of all claims for labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by Contractor or his subcontractors in or about the performance of the Work. Such funds must be withheld until said claims have been paid or such claims as filed have been withdrawn, such payment or withdrawal to be evidenced by filing with Owner a receipt in full or an order for withdrawal in writing and signed by the person filing such a claim or his duly authorized agents or assigns. Such funds shall not be withheld longer than ninety (90) says following the date fixed for final settlement, as published in a public newspaper in accordance with the law, unless action is commenced within that time to enforce such unpaid claim and a notice of lis pendens is filed with the Owner. At the expiration of such ninety (90) day period, Owner shall pay to Contractor such moneys and funds as are not the subject of suit and lis pendens notices, and shall retain only sufficient funds to insure the payment of judgments which may result from the suit.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is 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 the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 00 80 00

SUPPLEMENTARY CONDITIONS
OF THE
CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, “Paragraph SC-4.05.”

ARTICLE 6—BONDS AND INSURANCE

6.03 *Contractor’s Insurance*

SC-6.03 Add the following new paragraph immediately after Paragraph 6.03C:

D. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers’ Compensation, and related coverages under Paragraphs 6.03A and of the General Conditions:

State:	Statutory
Federal, if applicable (e.g., Longshoreman’s):	Statutory
Employer’s Liability:	
Bodily injury, each accident	$ 1,000,000
Bodily injury by disease, each employee	$ 1,000,000
Bodily injury/disease aggregate	$ 1,000,000
Foreign voluntary worker compensation	Statutory

2. Contractor’s Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	$ 2,000,000
Products - Completed Operations Aggregate	$ 2,000,000
Personal and Advertising Injury-Per Person/Organization	$ 1,000,000

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Each Occurrence (Bodily Injury and Property Damage)	$ 1,000,000
Other - Fire	$ 300,000
Other - Medical	$ 10,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:	
Each person	$ 1,000,000
Each accident	$ 1,000,000
Property Damage:	
Each accident	$
[or]	
Combined Single Limit of	$ 1,000,000

4. Excess or Umbrella Liability:

Per Occurrence	$ 2,000,000
General Aggregate	$ 2,000,000

5. Contractor's Pollution Liability:

Each Occurrence	$ 1,000,000
General Aggregate	$ 1,000,000

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: Town of Firestone, and Ditesco.

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ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

Regular working hours will be 7am to 7pm as described in the Firestone Municipal Code.

Owner's legal holidays are;

- New Year's Day
- Easter
- Memorial Day
- Independence Day (July 4th or Observed)
- Labor Day
- Thanksgiving Gay
- Friday after Thanksgiving
- Christmas DaySC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "…all Work at the Site must be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a **Saturday**, **Sunday**, or any legal holiday."

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

D. **Contractor** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

7.10 *Taxes*

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

A. Owner is exempt from payment of sales and compensating use taxes of the State of Colorado and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

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ARTICLE 9 OWNER'S RESPONSIBILITIES

9.13 *Owner's Site Representative*

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 *Owner's Site Representative*

A. Owner will furnish an "Owner's Site Representative" to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner's Site Representative is not Engineer's consultant, agent, or employee. Owner's Site Representative will be a designated Town of Firestone Employee. The authority and responsibilities of Owner's Site Representative follow: The Owner's Site Representative shall have Authorities and Responsibilities of the Resident Project Representative outlined in section 10.03 of the General Conditions.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:

1. On this Project, by agreement with the Owner, the Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work. Instead, the Owner's site representative shall serve as the Resident Project Representative.

ARTICLE 15-PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.08 *Correction Period*

SC-15.08 Add the following new Paragraph 15.08.G:

G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be **two** years after Substantial Completion.

ARTICLE 17 FINAL RESOLUTIONS OF DISPUTES

17.03 *Attorneys' Fees*

SC-17.03 Add the following new Paragraph immediately after Paragraph 17.01

17.02 *Attorneys' Fees*

A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

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SET NO. 01

PROJECT MANUAL

PROJECT #1
HISTORIC WATERLINE REPLACEMENT

FOR
TOWN OF FIRESTONE

FIRESTONE
COLORADO

JUNE 2022

ditesco
Project & Construction Services

PROJECT MANUAL
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TOWN OF FIRESTONE
WATERLINE REPLACEMENT PROJECT #1

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SECTION 01 11 00 - SUMMARY OF WORK

PART 1 GENERAL

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N. Cutting and patching

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P. Coordination

1.2 WORK COVERED BY CONTRACT DOCUMENTS

The base bid utility work is comprised of traditional “open cut” methodology to install roughly 1,800 LF of 8” C900 PVC DR18 waterline. Work includes connections to existing services, hydrant installation/replacement; installation of fittings, valves, and other pipeline appurtenances as more specifically defined herein.

The base bid surface improvements are comprised of full depth asphalt removal and replacement, curb and gutter replacement, grading modifications as well as modifications to existing landscaping and plantings, as impacted by utility installations. Furnish all materials, equipment, supplies, and

appurtenances; provide all construction equipment and tools; and perform all necessary labor and supervision.

Add alternates include additional 480LF of 8" C900 PVC DR18 waterline installation, surface restoration, and removal and disposal of existing asbestos cement pipe per CDPHE and OSHA regulations for the segments shown on the contract drawings.

A. Coordinate the progress of the Work including coordination between trades, subcontractors, suppliers, public utilities, and Owner to ensure the progress of Work.

B. It is the intent of this contract that Work proceed in the most expeditious manner possible.

C. The Work shall be paid for on unit price basis as defined in the bid schedule and shall include all work to be completed by the CONTRACTOR to construct the Town of Firestone Project #1 Historic Waterline Replacement. The project includes tasks described herein and as outlined on the project plans.

D. The specifications provided shall serve as the requirements for all portions of The Work. In addition, The **Town of Firestone Construction Specifications for Public Improvements** shall also serve as contractual requirements for all portions of the work. Wherever a discrepancy may exist between these contract specifications and the Town of Firestone Construction Specifications for Public Improvements, the more stringent of the two shall apply.

1.3 WORK BY OWNER

A. The Owner shall provide trucking and hauling services for specific portions of the Work. This shall include and shall be limited to trucking, hauling, and disposal of all asphalt millings generated from removal of the existing asphalt surfaces along Wooster and Jackson Drive.

B. The Contractor shall notify the Owner a minimum of three (3) days prior to performing asphalt milling work to allow for proper allocation of resources. The Owner is not responsible for Contractor's downtime associated with failure to notify of asphalt milling schedule.

1.4 WORK BY OTHERS

A. None.

1.5 CONTRACTOR USE OF SITE AND PREMISES

A. Contractor shall limit his use of the premises for Work and storage where possible.

B. Contractor shall allow safe pedestrian access to all homeowner properties.

C. Coordinate use of premises under direction of Engineer and Project Manager.

D. Assume full responsibility for the protection and safekeeping of products stored on site under this Contract.

E. Move any stored products, under Contractor's control that interfere with operations of the Owner.

F. Staging areas are anticipated to be within the work zone. Contractor is responsible for protection of any on-site materials staging.

1.6 WORK SEQUENCE

1. Construct Work in stages to minimize impact to adjacent residents. The Owner anticipates the work is completed in multiple phases allowing continuous pedestrian access for customers to their properties, unless specifically coordinated. Provide a "Detailed Work Plan" for each Phase of the project and for every item of Work on the project as required in Section 01 32 16. Coordinate construction schedule and operations with the Engineer and Owner's Project Manager. Work shall be completed at times acceptable to the Owner. Work shall be limited to working hours designated by the Town of Firestone Municipal Code regular working hours, Monday through Friday 7:00 A.M. to 7:00 P.M. No work shall be done between the hours of 7:00 P.M. and 7:00 A.M., or at any time on Saturday, Sunday or holidays, except with written permission of the Town or in case of an emergency.

A. The CONTRACTOR shall minimize all outages to occupied spaces and shall coordinate all outages with the Town of Firestone Public Works Department a minimum of seventy-two (72) hours prior to the interruption of such service. Contractor shall notify all affected residences in writing with a hand delivered notification to plan for necessary storage provisions a minimum of twenty-four (24) hours prior to interruption of service. No line in service will be shut down for a duration extending longer that four (4) hours. Written approval from the Town Engineer is required for all shutdowns.

B. All work sequences shall afford continuity of service which includes water, pedestrian, bicycle, and vehicular access. If sidewalks, bikeways, or vehicular lanes are to be closed for construction purposes, the Contractor shall provide a suitable alternate route, all weather surface, as a temporary detour until the work area can be permanently restored. All pedestrian detour routes shall provide suitable access as deemed appropriate by the Town of Firestone. Temporary detours shall be provided as part of the Contractor's separate Work Plan submittals to the Engineer. Detour elements can also be shown in the Contractor's Method of Handling Traffic (MHT) or Traffic Control Plan (TCP).

C. Construction services performed in accordance with the Agreement and specifications include the following:
   1. **Waterline Replacement Base Bid**
      a. The base bid includes the installation of 8-inch C900 DR18 PVC waterline, fittings, valves, hydrants, appurtenances as indicated in the drawings including, Wooster Drive from STA 10+00 to STA 16+54 and Jackson Drive from 10+00 to 20+19. The base bid includes installation of pipeline, fittings, valves, connections to existing services, as identified on the plans. Fittings and valves shall be installed per sizes indicated on the drawings.
      b. This work will commence immediately upon issuance of Notice to Proceed. Funds for this phase have been appropriated.
   2. **Roadway Improvements Base Bid**
      a. The base bid includes full depth asphalt removal and replacement for the areas indicated on the drawings including Wooster and Jackson Drive. The work also includes removal and replacement of concrete curb, concrete drain pan, as indicated on the drawings. Removal depth shall be determined by the grading plan and required replacement section thicknesses shown on the contract drawings.
      b. This work shall commence immediately upon completion of new waterline installation to minimize access disruption. Funds for this phase have been appropriated.
   3. **Waterline Replacement Alternate 1**
      a. Alternate 1 includes full removal and disposal of the existing 4-inch asbestos cement waterline located within the north alleyway. Alternate 1 also includes

installation of a new 8-inch waterline in place of the existing 4-inch waterline from 10+00 to 14+70 as shown on the contract drawings. Alternate 1 includes construction and disinfection of a temporary waterline to maintain service to residences while removal and installation is occurring.

b. Alternate 1 includes placement of a 4-inch recycled asphalt road pavement section within the north alley way once waterline installation has been completed.

4. **Waterline Replacement Alternate 2**
   a. Alternate 2 includes full removal and disposal of the existing 4-inch asbestos cement waterline along Wooster Drive while installation of the new 8-inch waterline is occurring. Alternate 2 includes construction and disinfection of a temporary waterline to maintain service to residences while removal and installation is occurring. If awarded, Alternate 2 is intended to be completed concurrently with the Waterline Base Bid scope of work.
5. **Waterline Replacement Alternate 3**
   a. Alternate 3 includes full removal and disposal of the existing 4" and 6" asbestos cement waterline along Jackson Drive while installation of the new 8" waterline is occurring. Alternate 3 includes construction and disinfection of a temporary waterline to maintain service to residences while removal and installation is occurring If awarded, Alternate 3 is intended to be completed concurrently with the Waterline Base Bid scope of work.
6. The work shall be sequenced according to the contract documents.
   1) Contractor shall install all new waterlines according to the contract documents, while keeping existing waterlines in service. All waterline outages associated with connections or tie-ins shall be limited to four (4) hours and scheduled with the Town of Firestone Public Works Department a minimum of seventy-two (72) hours in advance. Contractor shall be required to notify all impacted residents of service outage, in writing, no less than twenty-four (24) hours prior to performing the outage work.
      a) The Contractor will be required to provide each residence with a sufficient potable water source in advance of the outage should the outage duration require longer than four (4) hours. At no point may a service outage extend beyond ten (10) hours.
   2) Contractor shall install a temporary water service line to keep residents in service if the designated waterline installation includes removal of the existing water main.
   3) Contractor shall demolish, remove, cut, cap and abandon existing waterlines after the new lines are put into service according to the details provided in the drawings.
   4) Contractor shall install and backfill new waterline such that no more than 100LF of trench is open at any given time. Contractor shall provide installation phasing plan to be reviewed with Owner and Engineer to minimize disruptions of service and access to homes.
   5) The contractor shall phase work such that a waterline is installed in its entirety along Jackson Drive or Wooster Drive prior to conducting work in a subsequent area. At no point may the Contractor start waterline work on an additional roadway until the prior area has been completely installed, tested, backfilled, and placed in operation. The Contractor may proceed to additional work areas only under written approval from the Owner.
   6) Surface restoration work must begin no later than 14 calendar days after completion of waterline installation for the respective waterline section. Contractor shall be responsible for maintaining all subgrade and affected drainage for areas left open during waterline installation and road surface

restoration. Complete any surface restoration as needed in all demolition locations per Division 31 and 32 and as indicated on the drawings.

7. Sequences other than those specified will be considered by Engineer, provided they afford equivalent continuity of operations and service.
8. Work shall include all items incidental to completion of the project whether directly or indirectly called for including but not limited to, project coordination, traffic control, existing utility protection, potholing, de-watering, landscape & irrigation restoration, site repair, asphalt patching, curb, gutter, sidewalk replacement, cleaning, and service connections.

D. Contract times and completion dates. Construction services performed in accordance with the Agreement and specifications are based on the following schedules:
1. Construction Period:
   a. Notice of Award is anticipated around July 27th, 2022.
   b. Notice-to-Proceed is anticipated around August 11th, 2022, with mobilization to the jobsite within 10 calendar days. The Contractor shall be substantially complete within 90 calendar days from the Notice to Proceed Date.
   c. Substantial Completion Milestones are defined as the following:
      1) **Project #1 Historic Waterline Replacement- Substantial Completion**
         a) Substantial completion shall be defined as: Completion of new 8-inch waterline installation as shown on the contract drawings including all connections to existing waterlines, disinfection, pressure testing, backfill, complete road and surface improvements, cleaning, road closure and traffic control removal, complete in place.
         b) The Contractor shall be substantially complete within 90 calendar days of the issuance of the notice to proceed. Substantial completion is anticipated around November 9th, 2022.
         c) If only Alternate 2, Alternate 3, or combination of thereof is awarded, then the work shall be completed concurrently with the base bid and shall be completed within the construction duration noted above.
         d) If Alternate 1 is awarded, then substantial completion timeline shall extend an additional 10 calendar days to a total duration of 100 calendar days from the notice to proceed date.
      2) **Project #1 Historic Waterline Replacement- Final Completion**
         a) Final completion shall be executed once substantial completion criteria have been met and all punch list items have been remediated at the discretion of the Owner.
         b) The Contractor shall be finally complete within 30 calendar days of substantial completion. Final completion is expected near December 9th, 2022.
   d. The contractor must meet or exceed the deadlines established within the schedule outlined above.
2. The Contractor is directed to Article III of the Construction Contract which outline Time of Completion requirements and Liquidated Damages. Substantial and final completion are further defined in Section 01 77 00.

1.7 EASEMENTS AND RIGHT-OF-WAY

A. In general, the Owner will provide full use of premises for construction of improvements. Exceptions shall be identified within the contract documents. Owner reserves the right to limit site access as required for changes in operations.

1.8 PROTECTION OF PROPERTY

A. Protect, shore, brace, support, and maintain underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by construction operations. **Active, live water, electric, gas, telecommunications and irrigation lines exist adjacent to, and within, the property. Contractor shall coordinate all abandonments as necessary to execute the Work. The Contractor shall reference the drawings and construction details.**

B. Restore to their original condition, pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences sod and other surface structures affected by construction operations.

C. Use new materials for replacement.

D. Contractor shall be responsible for all damage to streets, roads, shoulders, ditches, embankments, culverts, location or character, which may be caused by transporting equipment, materials, or personnel to or from the Work or any or site thereof, whether by him or his subcontractors.

E. Make satisfactory and acceptable arrangements with the Owner of, or the agency or authority having jurisdiction over, any damaged property concerning its repair or replacement, or payment of costs incurred in connection with the damage.

F. Always keep fire hydrants and water control valves free from obstruction and available for use. The Contractor shall notify the Fredrick Firestone Fire Protection District of all existing fire hydrants to be taken out of service a minimum of forty-eight (48) hours prior to the start of outage work.

1.9 MAINTENANCE OF TRAFFIC

A. Conduct Work to interfere as little as possible with public and school travel, whether vehicular or pedestrian. **Prepare detailed traffic control plans for each part of the project as required in Section 01 32 16 – Construction Project Schedules**. Traffic control plans shall be prepared by a Certified Traffic Control Supervisor and submitted to the Owner for approval.
   1. Whenever it is necessary to cross, close, or obstruct roads, driveways and walks, provide and maintain suitable and safe bridges, detours, or other temporary devices for accommodation of private travel.
      a. Provide Engineer and Owner a minimum of 72 working hours' notice
      b. Provide Fredrick Firestone Fire Protection District of all street closures a minimum of 48 working hours' notice for all road closures.
      c. Owner is not responsible for Contractor's downtime associated with failure to identify closures and compliance with these requirements.

B. Detour
   1. Provide, as required, bridges across trenches, barricades, guardrail approaches, lights, signals, signs, and other devices necessary for protection of the Work and public safety. Provide all weather surfaces that provide suitable access for each residence.
   2. Provide highly visible pedestrian detours whenever any pedestrian sidewalk or cross walk is impacted by construction activities.

1.10 BARRICADES AND LIGHTS

A. Protect streets, sidewalks, parking lots and other public thoroughfares which are closed to traffic by effective barricades with acceptable warning signs

B. Locate barricades at the street intersecting public thoroughfare on each side of the blocked section.

C. Provide suitable barriers, signs, and lights to the extent required to adequately protect the public.

D. Provide similar warning signs and lights at obstructions such as material piles and equipment.

E. Illuminate barricades and obstructions with warning lights from sunset to sunrise.

F. Store materials and conduct work to cause the minimum obstruction to the Owner.

G. Install and maintain barricades, signs, lights, and other protective devices in conformity with applicable statutory requirements, MUTCD and, as required by the Town of Firestone Engineering Department.

H. Provide construction fencing to protect any open hole remaining at the end of a work day. Fencing must be minimum 42-inches in height and secured daily. Open trenches are limited to 100-ft in length at any time and must be protected overnight and on weekends.

1.11 FIELD ENGINEERING

A. Employ a Land Surveyor registered in the State of Colorado and acceptable to the Engineer and Owner.

B. Contractor to locate and protect survey control and reference points.

C. Control datum for survey is that shown on Drawings.

D. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.12 LINES AND GRADES

A. Construct all Work to the lines, grades, and elevations indicated on the drawings.
   1. Remove and reconstruct improperly located Work.

B. Provide all additional survey, layout, and measurement work required.
   1. Work performed by a qualified professional engineer or registered land surveyor acceptable to Engineer and Owner.
   2. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.
      a. Make no changes or relocations without prior written notice to Engineer.
      b. Report to Engineer when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.
      c. Require surveyor to replace Project control points which may be lost or destroyed.
         1) Establish replacements based on original survey control
   3. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means.
      a. Site improvements
         1) Stakes for grading, fill and topsoil placement
         2) Utility slopes and invert elevations
   4. From time to time, verify layouts by the same methods.
   5. Maintain a complete, accurate log of all control and survey work as it progresses.

6. On request of Engineer, submit documentation to verify accuracy of field engineering work.

1.13 REGULATORY REQUIREMENTS

A. Comply with all federal, state, and local laws, regulations, codes, and ordinances applicable to the Work.

B. Contractor shall be responsible for acquisition and compliance with Colorado Discharge Permit System (CDPS) requirements including a Stormwater Management Plan (SWMP).

C. Contractor shall be responsible for removing any groundwater encountered during construction of any portion of the project. A construction groundwater de-watering permit must be obtained from the Colorado department of public health and environment (CDPHE).

D. Other standards and codes which apply to the Work are designated in the Town of Firestone General Construction Standards and Specifications.

1.14 COORDINATION

A. Coordinate scheduling, submissions, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate completion and clean-up of Work of separate Sections.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 25 00 – MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Format and Data Required

B. Preparation of Application for each Progress Payment

C. Substantiating Data for Progress Payments

D. Preparation of Application for Final Payment

E. Submittal Procedure

F. Basis of Payment

1.2 RELATED SECTIONS

A. Section SC 6.21—Agreement

B. Section SBP 7.2 – Certificate of Contractor's Payment

1.3 FORMAT AND DATA REQUIRED

A. Submit applications typed on Application for Payment and Certificate for Payment using Owner's application for payment template, with itemized data typed on 8 1/2" by 11" white paper continuation sheets. Copies of forms are available from Engineer.

B. Utilize Owner-provided cover sheet.

C. Provide Itemized Data on Continuation Sheet:

1. Format, schedules, line items and values: The schedule of values established as part of the Agreement.

D. **The Contractor is required to provide Schedule of Values that meet the requirements of the Owner to allocate costs to multiple funding sources for this project. It is anticipated the Contractor will provide a detailed Schedule of Values with multiple cost-codes or sorted funding allocations, in order to meet the designated requirements. Schedule of Values shall match the units identified on the Bid Forms.**

1.4 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

A. Submit Applications for Payment to Engineer in accordance with the schedule of values established by Conditions of the Contract and Agreement between Owner and Contractor.

B. Application Form:

1. Fill in required information, including that for Change Orders executed prior to the date of submittal application.

2. Fill in summary of dollar values to agree with the respective totals indicated on the continuation sheets.

3. Execute certification with the signature of authorized officer of the Contractor's firm.

4. Notarize signature where required on Certificate for Payment.

C. Continuation Sheets:

1. Fill in total list of all scheduled component items of Work, with time, number, and the scheduled dollar value for each item.

2. Fill in the dollar value in each column for each scheduled line item when work has been performed or products stored.

3. List each Change Order executed prior to the date of submission at the end of the continuation sheets:

a. List by Change Order number, dollar amount, and description as for an original component item of work.

4. Use data from approved Schedule of Values: Provide dollar value in each column for each line item for portion of work performed and for stored products.

1.5 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

A. When Owner or Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
1. Project
2. Application number and date
3. Detailed list of enclosures
4. For stored products/materials:
a. Item number and identification as shown on application
b. Description of specific material
c. Vendor or supplier invoices substantiating stored costs as required by Owner.

B. Submit one copy of data and cover letter for each copy of application

C. Submit an updated construction schedule with each application for payment

D. Submit evidence of payment and release of liens within 60 days of payment to Contractor for Work performed by subcontractors or for equipment and materials delivered to the site during construction.

1.6 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in Application form as specified for progress payments

B. Use continuation sheets for presenting the final statement of accounting as specified in Section 01 77 00—Close Out Procedures.

1.7 SUBMITTAL PROCEDURE

A. Submit Applications for Payment to Engineer at the times stipulated in the Agreement

B. Number: One single electronic copy.

C. When Engineer finds the Application properly completed and correct, he will transmit Certificates for Payment to Owner. Upon approval by Owner, Owner will transmit payment to Contractor.

1.8 BASIS OF PAYMENT

A. Payment will be made on a unit price basis relative to field-verified quantities, complete of each item, contained within the schedule of values for each phase of work. The schedule of values shall be correlated to line items in the Contractor's schedule and other required administrative schedules and forms including:
1. Contractors Construction Schedule
2. Application for Payment Form
3. List of subcontractors
4. Schedule of allowances
5. Schedule of alternates
6. List of products
7. List of principal suppliers and fabricators
8. Schedule of submittals

B. Submit the Schedule of Values to the Engineer and Owner at the earliest feasible date, but in no case later than 7-days before the date scheduled for submittal of the initial Application for Payment.

C. The Contract sum prices shall include all costs whatsoever required to accomplish the work as designated in these contract documents and as shown on the plans.

D. The Contract unit prices shall be verified daily with the Owner and costs shall be included in the Pay Application for each area of work.

1.9 DESCRIPTION AND PAYMENT

A. Payment will be made only for those items listed in the Bid Form(s). All other items required for the work shall be considered incidental to the construction and shall not be paid for separately. Bid Item descriptions contained within Section 1.10 through 1.13 apply to all Bid Forms or Schedules.

1.10 **BID ITEM DESCRIPTION- Base Bid**

a. Mobilization: This work consists of the mobilization of personnel, equipment, and supplies at the project site in preparation for work on the project. This item shall also include the establishment of the Contractor's offices, restroom facilities, and all other costs incurred which must be performed prior to beginning the Work. Mobilization shall be measured and paid for as a **lump sum**.

b. Traffic Control: This work consists of development of all traffic control plans (TCPs), Method of Handling Traffic (MHTs), all traffic control devices, including but not limited to, signs, cones, barrels, arrow boards, variable message boards, barricades, and other devices necessary to safely manage traffic in accordance with these plans and specifications and the MUTCD, complete in place. Traffic Control shall be measured and paid for as a **lump sum**.

c. Surveying: This work consists of the construction surveying, calculating, and staking necessary for the construction of all elements of the project. The work shall be completed under the supervision of a Professional Land Surveyor (PLS) who is experienced and competent in surveying and staking. This shall include all personnel, survey equipment, safety equipment, materials necessary to perform the

required surveying and staking. Surveying will be measured and paid for as a **lump sum**.

d. Erosion Control Management: This work consists of installation and maintenance of erosion control measures called for on the contract drawings throughout the duration of the project. This shall include all acquisition and compliance with Colorado Discharge Permit System (CDPS) requirements including a Stormwater Management Plan (SWMP). All equipment and labor will not be paid for separately but included in the work. This shall include all dust control and maintenance required throughout the duration of the project. Erosion Control Management shall be measured and paid for as a **lump sum**.

e. 8-inch Waterline Installation: This work consists of required surface demolition, excavation, and installation of 8-inch DR18 C900 PVC waterline and all associated appurtenances. Including but not limited to valves, fittings, hydrants, service re-connections, etc. This work includes backfilling, and or flow filling the excavations up to the bottom elevation of aggregate base course located within paved areas. This work shall include all other items included in contract drawings not explicitly defined herein or with the subsequent bid items, complete in place. Waterline installation shall be measured and paid for per **lineal foot**.

f. Asphalt Milling: Asphalt milling shall be measured by the **square yard** of 1” to 3” paved surface milled in place. All milling equipment and labor will not be measured and paid for separately but shall be included in the work. Hauling and disposal of milled asphalt surface shall be provided by the Owner and should not be included in the cost of work.

g. Excavation: Shall consist of removing the existing aggregate base course and subgrade material to the specified depth shown on the contract drawings. All associated trucking, hauling, disposal, equipment, and labor will not be paid for separately but included in the work. Excavation shall be measured and paid for by the in-place quantity of material removed per **cubic yard**.

h. Removal of Curb: Shall consist of removing the existing concrete perimeter ribbon curb along Wooster Drive and Jackson Drive. All associated trucking, hauling, disposal, equipment, and labor will not be paid for separately but included in the work. Any protective measures used to protect adjacent private property will not be paid for separately but shall be included in the work. Removal of curb shall be paid for per **linear foot**.

i. Removal of Concrete Pan: Shall consist of removing the existing concrete pan located in the centerline of Wooster Drive and Jackson Drive. All associated trucking, hauling, disposal, equipment, and labor will not be paid for separately but included in the work. Any protective measures used to protect adjacent private property will not be paid for separately but included in the work. Removal of curb shall be paid for per **linear foot**.

j. Reconditioning: This work consists of blading, shaping, wetting, compacting, and fine grading the existing subgrade to achieve the design grades specified on the plans. This shall include scarifying and recompacting the existing subgrade to a depth 12” below the bottom of aggregate base course as shown on the contract drawings. This shall include all labor, equipment, and trucking necessary to perform the work, complete in place. Water will not be paid for separately but shall be included in the work. Reconditioning shall be measured and paid for by the **square yard**.

k. Aggregate Base Course: Aggregate Base Course (ABC) shall be paid for per **TON** of installation, at the depth indicated on the Contract Drawings. This shall include furnishing material, all trucking, hauling, compaction equipment, preparation for testing of compacted base course. Water required for compacting efforts shall not

be measured and paid for separately but shall be included in the cost of the work.

l. Ribbon Curb Installation: This work will be measured per **lineal foot** of installation. This shall include all, excavation, compaction, formwork, equipment, labor and materials required to place the curb, complete in place. Any incidental damage to driveways, fencing, landscaping, irrigation or other private property damage requiring repair shall not be measured and paid for separately but shall be included in the cost of the work.

m. Concrete Pan Replacement: This work will be measured per **lineal foot** of installation. This shall include all excavation, compaction, formwork, equipment, labor and materials required to place the gutter complete in place. Any incidental damage to driveways, fencing, landscaping, irrigation or other private property damage requiring repair shall not be measured and paid for separately but shall be included in the cost of the work.

n. Hot Mix Asphalt (Grading S) (75)(PG64-22) (Bottom Mat): This work consists of placement and compaction of the specified HMA in a single 2 inch lift. This shall include all labor, equipment, materials, and trucking necessary to perform the work. Asphalt Paving Bottom Mat shall be measured as determined from HMA material supplier tickets provided by the Contractor to the Owner/Engineer and material placed and compacted to specification requirements at the Engineer's judgement and paid for by the **TON**.

o. Hot Mix Asphalt (Grading SX) (75)(PG64-28) (Top Mat): This work consists of placement and compaction of the specified HMA in a single 2 inch lift. This shall include all labor, equipment, materials, and trucking necessary to perform the work. Adjustment of all valve boxes, manholes, and other utility boxes inside the roadway shall be performed by the contractor and incidental to the work. Asphalt Paving Top Mat shall be measured as determined from HMA material supplier tickets provided by the Contractor to the Owner/Engineer and material placed and compacted to specification requirements at the Engineer's judgement and paid for by the **TON**.

1.11 **BID ITEM DESCRIPTION- Alternate 1**

a. Mobilization: This work consists of the mobilization of personnel, equipment, and supplies at the project site in preparation for work on the project. This item shall also include all other costs incurred which must be performed prior to beginning the Work. Mobilization shall be measured and paid for as a **lump sum**.

b. Temporary Waterline: This work consists of installing a temporary above ground waterline to service residence while removal of the existing water main is taking place and until the new 8" waterline is installed, tested and operable. Temporary waterline installation shall be measured and paid for on a lump sum basis.

c. Existing 4-inch Asbestos Cement Pipe Removal: This work consists of all demolition, removal, and disposal of asbestos cement pipe and appurtenances as shown on the contract drawings. Existing asbestos cement pipe removal shall be measured and paid for per **lineal foot**

d. 8-inch Waterline Installation: This work consists of required surface demolition, excavation, and installation of 8-inch DR18 C900 PVC waterline and all associated appurtenances. Including but not limited to valves, fittings, hydrants, service re-connections, etc. This work includes backfilling, and or flow filling the excavations up to the bottom elevation of aggregate base course located within paved areas. This work shall include all other items included in contract drawings not explicitly defined herein or with the subsequent bid items, complete in place. Waterline installation shall be measured and paid for per **lineal foot**.

e. Aggregate Base Course (Recycled Asphalt Pavement): This work consists of placement of recycled asphalt pavement within the north Alleyway once waterline installation is complete. Work shall include all hauling, placement, and grading to install a minimum recycled asphalt section of 4". Installation shall be measured and paid for by the **Ton**.

f. Concrete Pavement Removal This work consists of removal of the monolithic integral curb walk concrete pavement required for installation of new waterlines and appurtenances. This shall include all labor, equipment, material, and trucking necessary to perform the work. This shall include saw cutting to form straight and refined edges for areas subject to replacement. Concrete pavement removal shall be measured and paid for by the **square yard**.

g. Concrete Pavement Installation This work consists of replacement of the monolithic integral curb walk concrete pavement removed during waterline installation. This shall include all labor, equipment, material, and trucking necessary to perform the work. This shall include saw cutting to form straight and refined edges for areas subject to replacement. Adjustment of all valve boxes, manholes, and other utility boxes inside the replacement area shall be performed by the contractor and incidental to the work. Concrete pavement installation shall be measured and paid for by the **square yard**.

1.12 **BID ITEM DESCRIPTION- Alternate 2**

a. Temporary Waterline: This work consists of installing a temporary above-ground waterline to service residence while removal of the existing water main is taking place and until the new 8-inch waterline is installed, tested and operable. Work shall include pressure testing, chlorination, disinfection, testing, and connection of temporary water main to each exterior meter pit necessary to provide temporary water service to residents. Temporary waterline installation shall be measured and paid for on a lump sum basis.

b. Existing 4-inch Asbestos Cement Pipe Removal: This work consists of all demolition, removal, and disposal of asbestos cement pipe and appurtenances as shown on the contract drawings along Wooster Drive according to CDPHE and OSHA requirements. Existing asbestos cement pipe removal shall be measured and paid for per **lineal foot**.

1.13 **BID ITEM DESCRIPTION- Alternate 3**

a. Temporary Waterline: This work consists of installing a temporary above-ground waterline to service residence while removal of the existing water main is taking place and until the new 8-inch waterline is installed, tested and operable. Work shall include pressure testing, chlorination, disinfection, testing, and connection of temporary water main to each exterior meter pit necessary to provide temporary water service to residents. Temporary waterline installation shall be measured and paid fo**r** on a **lump sum** basis.

b. Existing 4-inch Asbestos Cement Pipe Removal: This work consists of all demolition, removal, and disposal of asbestos cement pipe and appurtenances as shown on the contract drawings along N. Jackson Drive according to CDPHE and OSHA requirements. Existing asbestos cement pipe removal shall be measured and paid for per **lineal foot**.

c. Existing 6-inch Asbestos Cement Pipe Removal: This work consists of all demolition, removal, and disposal of asbestos cement pipe and appurtenances as shown on the contract drawings along S. Jackson Drive according to CDPHE and OSHA requirements. Existing asbestos cement pipe removal shall be measured and paid for per **lineal foot**.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 29 00 - SCHEDULE OF VALUES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Form and content

B. Sub-schedule of unit material values.

1.2 REQUIREMENTS

A. Submit to Engineer schedule of values allocated to various portions of Work, within 10 days after Notice of Award.

B. The Contractor is required to provide Schedule of Values that meet the requirements of the Owner to allocate costs to multiple funding sources for this project. It is anticipated the Contractor will provide a detailed Schedule of Values with multiple cost-codes or sorted funding allocations, in order to meet the designated requirements.

C. Upon request of ENGINEER, support values with data which substantiate their correctness.

D. Schedule of values, unless objected to by ENGINEER, shall be used only as basis for CONTRACTOR's Applications for Payment.

E. Submit initial schedule of values in duplicate. After review by ENGINEER, revise and resubmit as required. Submit schedule of Values with each Application for Payment, reflecting any changes.

F. Submit applications typed on Application for Payment and Certificate for Payment using Owner's application for payment template, with itemized data typed on 8 1/2" by 11" white paper continuation sheets. Copies of forms are available from Engineer.

G. Format:
   1. As formatted on Owner's application for Payment template.
   2. Include in each line item a directly proportional amount of the CONTRACTOR's overhead and profit.

1.3 FORM AND CONTENT

A. Type schedule on 8-1/2"x11 white paper; CONTRACTOR's standard forms and automated printout will be considered for approval by ENGINEER upon CONTRACTOR's request. Identify schedule with:
   1. Title of project and location.
   2. Project number.
   3. Name and Address of CONTRACTOR.
   4. Agreement designation.
   5. Date of submission.

B. Schedule shall list installed value of component parts of Work in sufficient detail to serve as basis for computing values for progress payments during construction.

C. Follow table of contents of this Construction Project Manual as format for listing component items. Identify each line item with number and title of respective major section of Specifications.

D. For each major line item list sub-values of major products or operations under item.

E. For various portions of Work:
   1. Each item shall include directly proportional amount of CONTRACTOR's overhead and profit.
   2. For items on which progress payment will be requested for stored materials, break down value into:
      a. Cost of materials, delivered and unloaded at site, with taxes paid.
      b. Total installed value.

F. Sum of all values listed in schedule shall equal total Contract Price.

1.4 SUBSCHEDULE OF UNIT MATERIAL VALUES

A. Form of submittal shall parallel that of schedule of values, with each item identified same as line item in schedule of values.

B. Unit quantity for bulk materials shall include allowance for normal waste.

C. Unit values for materials shall be broken down into:
   1. Cost of materials delivered and unloaded at Site, with taxes paid.
   2. Installation costs, including CONTRACTOR's overhead and profit.

D. Installed unit value multiplied by quantity listed shall equal cost of that item in schedule of values.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 31 00 – PROJECT COORDINATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Utility locates

B. Utility outages

C. Building keys

1.2 UTILITY LOCATES

A. Utility locations can be requested using One Call by dialing 811. Specific site information regarding Town utilities and the presence and general location (if known) of utilities belonging to non-Town entities in the excavation area will be provided to the contractor. The Contractor shall also contact Utility Notification Center of Colorado (UNCC) at (800) 922-1987 or 811.

B. Maintaining utility locate markings is the responsibility of the Contractor.

C. Regulations regarding the accuracy of utility location marks are the applicable current laws of the State of Colorado.

1.3 UTILITY OUTAGES

A. All utility outages, street closures, equipment shutdown or pedestrian traffic interruption shall be scheduled a minimum of 7 days in advance in advance with the Owner.

B. The Contractor shall be required to notify affected residents in writing of a utility outage no less than 48hours prior to performing the outage work. The Contractor shall provide a flyer to each residence detailing outage dates and durations. Information on outage flyers shall be subject to review by the Owner to ensure adequate information is included.

1. All water service outages associated with connections or tie ins shall be limited to 4 hours and scheduled with the Owner.

2. The Contractor shall provide a potable water source to each effected residence in advance of outage should the duration require longer than 4 hours.

C. Contractor is responsible for adequate advance notice of outages. Delay of work due to late or lack of notice shall be at the cost of the Contractor.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 31 19 – PROJECT MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General requirements

B. Preconstruction conference

C. Detailed Work Plan meetings

D. Schedule finalization meeting

E. Progress meetings

1.2 RELATED SECTIONS

A. Section 01 10 00—Summary of Work

B. Section 01 32 16—Construction Project Schedules

C. Section 01 33 00—Submittal Procedures

D. Section 01 77 00—Close Out Procedures

1.3 GENERAL REQUIREMENTS

A. Engineer will schedule and administer pre-construction meeting, schedule punchlist walk through, regularly scheduled progress meetings, and specially called meetings throughout the progress of the Work
   1. Prepare agenda for meetings including items requested by Owner and Contractor.
   2. Distribute written notice of each meeting to Owner and Contractor 4 days in advance of regularly scheduled meeting dates.
   3. Contractor shall be required to attend specially called meetings as work progresses based on field observations, obtaining additional video footage or for other currently unidentified conditions/concerns of Engineer or Owner.
   4. Preside at meetings
   5. Record the minutes; include all significant proceedings and decisions
   6. Reproduce and distribute copies of minutes within 3 days after each meeting
      a. To all participants in the meetings
      b. To Owner
      c. Furnish copies of minutes to Contractor

B. Owner may attend meetings.

C. Representatives of contractors, subcontractors, and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents

1.4 PRECONSTRUCTION CONFERENCE

A. Engineer will schedule a conference within 10 days after Effective Date of Agreement.

B. Location: Firestone Town Hall. Alternatively, Meetings may be held virtually at the discretion of the Owner and Engineer.

C. Attendance
1. Owner's Representative
2. Engineer and his professional consultants
3. Resident Project Representative
4. Contractor's Superintendent
5. Major Subcontractors
6. Major Suppliers
7. Others as appropriate

D. Agenda:
1. Execution of Owner - Contractor Agreement.
2. Submission of executed bonds and insurance certificates
3. Distribution of Contract Documents
4. Submission of list of subcontractors and suppliers, list of products, and progress schedule
5. Designation of personnel representing the parties in Contract and the Engineer
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, cost proposal requests, Change Orders and Contract closeout procedures.
7. Construction scheduling and updates.
8. Scheduling activities of other consultants.
9. Critical work sequencing.
10. Major material deliveries and priorities.
11. Procedures for maintaining Record Documents.
12. Use of premises
    a. Work and storage areas
    b. Owner's requirements
13. Construction facilities, controls and construction aids.
14. Temporary utilities provided by Owner.
15. All safety and first-aid procedures are responsibility of the Contractor.
16. Security and housekeeping procedures as required by the Owner.
17. Procedures for testing.
18. Requirements for bypass pumping equipment and pre-project testing.

1.5 DETAILED WORK PLAN MEETINGS

A. Contractor shall request review of detailed work plans at least 10 days prior to beginning any work on items defined within detailed work plan.

B. Location: Firestone Town Hall. Alternatively, Meetings may be held virtually at the discretion of the Owner and Engineer.

C. Attendance
1. Owner's Representative
2. Engineer and his professional consultants
3. Resident Project Representative
4. Contractor's Superintendent
5. Major Subcontractors
6. Major Suppliers
7. Others as appropriate

D. Agenda:
1. Delivery or proposed Detailed Work Plan by Contractor to Owner.
2. Use of premises

a. Work and storage areas
b. Owner's requirements
3. Construction facilities, controls and construction aids
4. Temporary utilities provided by Owner
5. All safety and first-aid procedures are responsibility of the Contractor
6. Security and housekeeping procedures as required by the Owner
7. Procedures for testing

1.6 SCHEDULE PUNCH LIST WALK THROUGH

A. Engineer will schedule at least 10 days before submission of the last Application for Payment

B. Location: Field

C. Attendance
1. Owner's representative
2. Engineer
3. Contractor
4. Others, as appropriate

D. Suggested Agenda
1. Review of items remaining to be repaired or replaced prior to final acceptance and payment.

1.7 PROGRESS MEETINGS

A. Engineer will schedule and administer meetings throughout progress of the Work at weekly intervals or other agreed upon timeframes.

B. Location of the Meetings: Onsite when weather permits, Firestone Town Hall. Alternatively, Meetings may be held virtually at the discretion of the Owner and Engineer.

C. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within three days to Contractor, Owner, participants, and those affected by decisions made.

D. Attendance
1. Owner's Representative
2. Engineer, and his professional consultants as needed
3. Resident Project Representative
4. Contractor's Superintendent
5. Subcontractors as appropriate to the agenda
6. Suppliers as appropriate to the agenda
7. Others, as appropriate

E. Agenda:
1. Review minutes of previous meetings
2. Review unresolved issues from last meeting
3. Review of Work progress; three week look-ahead schedule prepared by contractor
4. Field observations, problems, conflicts and decisions
5. Identification of problems which impede planned progress
6. Review of submittals schedule and status of submittals
7. Review of off-site fabrication and delivery schedules
8. Maintenance of progress schedule
9. Corrective measures to regain projected schedules

10. Planned progress during succeeding work period
11. Coordination of projected progress
12. Maintenance of quality and work standards
13. Effect of proposed changes on progress schedule and coordination
14. Other business relating to Work

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 32 16 – CONSTRUCTION PROJECT SCHEDULES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements

B. Format

C. Content

D. Progress Revisions

E. Submittals

F. Distribution

1.2 RELATED SECTION

A. Section 01 10 00—Summary of Work

B. Section 01 25 00—Measurement and Payment

C. Section 01 31 19—Project Meetings

D. Section 01 33 00—Submittal Procedures

E. Section 01 77 00—Close Out Procedures

1.3 REQUIREMENTS

A. Within 10 days after Effective Date of Agreement, Contractor shall prepare and submit to Engineer estimated construction progress schedules for the Work, with sub schedules of related activities which are essential to its progress.

B. Submit to Owner not less than 10 days prior to beginning Work, a “Detailed Work Plan” for each phase of the project. Detailed Work Plans shall include a Traffic Control Plan, Work Phasing plan, Barricade Plan and miscellaneous other improvements affecting the Town’s interests. Schedule review meeting with Owner.

C. Submit revised progress schedules with each pay application.

D. Owner may require Contractor to add to his equipment, or construction forces, as well as increase the working hours, if operations fall behind schedule at any time during construction period.

1.4 FORMAT

A. General schedule format: Conform to ©Primavera P6, critical path method (CPM) scheduling format or approved equal:

1. Base schedule on work days and regular working hours, Monday through Friday 7:00 A.M. to 7:00 P.M. No work shall be done between the hours of 7:00 p.m. and 7:00 a.m.,

or at any time on Saturday, Sunday or holidays, except with written permission of the Town or in case of emergency.

2. Minimum sheet size: 8 1/2" by 11"

3. Color format

B. Row (Listings)—Show:

1. Project Title

2. Major areas of construction

3. Construction activities within major areas of construction

4. Provide a separate bar for each construction activity. Bars to be annotated with activity description

5. Critical path activities to be clearly identified by color and lines

6. List in chronological order by start date each major area of construction and then by each construction activity within its respective area of construction

7. Show project start date, finish date, data date, run date, and revision table

8. Contract milestone dates

9. Legend

C. Column (Headings)—Show:

1. Activity ID: Define by number corresponding to major specification sections

2. Activity Description

3. Percent Complete

4. Original Duration

5. Remaining Duration

6. Total Float

7. Early Start

8. Early Finish

9. Time Scale: Identify first day of each week. Allow space for notations.

10. Data date line

1.5 CONTENT

A. Construction progress schedule—Show:

1. Complete sequence of construction by activity for full length of Contract time.

2. Major areas of construction to include, at a minimum, each separate stage of Work

B. Submittals schedule for shop drawings and product data—Show:

1. The dates for Contractor's submittals

2. The dates accepted submittals will be required from Engineer. Extensions of time for delays in submittal approval shall only be allowed as provided in Section 01 33 00.

C. Products delivery schedule—Show delivery dates for:

1. All major material deliveries

1.6 PROGRESS REVISIONS

A. Progress schedules are to be representative of actual construction progress and sequencing of activities. Schedules that do not accurately represent construction progress will be rejected.

B. Indicate progress of each activity as of data date.

C. Show changes occurring since previous submission of schedule:

1. Major changes in scope

2. Activities modified since previous submission

3. Revised projections of progress and completion

4. Other identifiable changes

D. Provide narrative report as needed to define:

1. Problem areas, anticipated delays, and impact on schedule

2. Corrective action recommended, and its effect

3. Effect on changes on schedules of other prime contractors

1.7 SUBMITTALS

A. Submit initial schedules within 10 days after award of Contract:

1. Engineer will review schedules and return review copy within 10 days after receipt

2. If required, resubmit within 7 days after return of review copy

B. Submit revised progress schedules with each Application for Payment.

C. At each submission submit the number of opaque reproductions which the Contractor requires, plus 3 copies which will be distributed by Engineer. Do not submit fewer than 5 copies

1.8 DISTRIBUTION

A. Engineer will distribute copies of accepted schedules to:

1. One copy to Owner

2. One copy to Resident Project Representative

3. One copy to be retained in Engineer's file

4. One copy to Contractor to be kept on file at job site

5. Remainder to Contractor for his distribution

B. Schedule recipients will report promptly to Engineer and Contractor, in writing, any problems anticipated by projections shown in schedules

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submission of all shop drawings and product data as required by the Contract Documents for all equipment and materials to be furnished under this contract unless specifically indicated otherwise

1.2 RELATED SECTIONS

A. Section 01 32 16—Construction Project Schedules

B. Section 01 45 00—Quality Control

C. Section 01 77 00—Close Out Procedures

D. Sections for Divisions 1 through 33—Required Submittals

1.3 SUBMITTALS

A. Shop Drawings—Drawings shall be presented in a clear and thorough manner:

1. Identify details by reference to sheet and detail, schedule or room numbers shown on Contract Drawings

2. Identify equipment by reference to equipment name and tag number shown on Contract Drawings

3. Scale and Measurements: Make drawings accurate to a scale with sufficient detail to show the kind, size, arrangement and function of component materials and devices

4. Minimum sheet size: 8-1/2" by 11"

5. Fabrication drawing size: 11" by 17" or 22" by 34"

B. Product Data—Preparation:

1. Clearly mark each copy to identify pertinent products or models submitted for review

2. Identify equipment by reference to equipment name and tag number

3. Catalog cut sheets: Cross-out or delete irrelevant data

4. Show performance characteristics and capacities

5. Show dimensions and clearances required for installation and maintenance

6. Show wiring or piping diagrams and controls

7. Show external connections, anchorages, and supports required

C. "Certificate of Compliance":

1. Provided by manufacturer or supplier in lieu of submittal data required

2. Certifies that product data or item identified in certificate is in total compliance with Contract Document requirements

3. Specifically identifies project name and that there is no deviation from Contract Documents

4. Identify equipment by reference to equipment name and tag number

5. Identify limits of equipment, materials or work provided

6. Provide for specific product data or item only as indicated herein

D. Construction Schedule: Designate in the construction schedule, or in a separate coordinated shop drawing schedule, the dates for submission and the dates that reviewed Shop Drawings and Product Data will be needed.

1.4 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings and product data prior to submission for accuracy and completeness of each submission.

B. Approve and stamp each submission before submitting.

C. Determine and verify:

1. Field measurements

2. Field construction criteria

3. Catalog numbers and similar data

4. Conformance with specifications

D. Prior to each submission, carefully review and coordinate all aspects of each item being submitted

E. Verify that each item and the submittal for it conform in all respects with specified requirements of the Work and of the Contract Documents with respect to means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto.

F. Make submissions promptly in accordance with Construction Schedule, and in such sequence as to cause no delay in the Work or in the work of any other Contractor.

G. Notify Engineer in writing, at time of submission, of any deviations in the submittals from Contract Document requirements:

1. Identify and tabulate all deviations in transmittal letter

2. Indicate essential details of all changes proposed, including modifications to other facilities that may be a result of the deviation

1.5 SUBMISSION REQUIREMENTS

A. Make submissions far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmissions, and for placing orders and securing delivery

B. In scheduling, allow a minimum of 14 calendar days for review by Engineer following receipt of submission in Engineer's office:

1. Time required to electronically submit not considered a part of the review period.

C. Consecutively number all submissions:

1. Assign a unique number to include all shop drawings, product data and other information required for individual specification sections

2. Each specification section may still have more than one submittal number for later submissions (i.e., Preliminary O&M Manuals, Final O&M Manuals, etc.)

D. Number of Submittals Required:

1. Shop Drawings and Product Data: All submittal documentation will be provided, reviewed, and tracked electronically. The Contractor shall furnish PDF documents for Engineer’s review.

E. Accompany each submission with a letter of transmittal showing all information required for identification and checking. Submittals shall contain:

1. Submittal number

2. Date of submission and dates of any previous submissions

3. Project title and number

4. Owner Contract identification number if applicable

5. The names of

a. Contractor

b. Supplier

c. Manufacturer

6. Identification of the product, with the specification section number

7. Field dimensions, clearly identified as such

8. Relation to adjacent or critical features of the Work or materials

9. Applicable standards, such as ASTM or Federal Specification numbers

10. Identification of deviations from Contract Documents

11. Identification of revisions on resubmissions

12. An 8" by 4" blank space for Contractor's and Engineer's stamps

13. Stamp cover sheet of each submittal as identified in letter of transmittal

14. Contractor's stamp: Initialed or signed, certifying review and approval of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents. Use stamp to include wording similar to the following:

This submittal has been reviewed by [*name of contractor*] and approved with respect to the means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incidental thereto. [*Name of contractor*] also warrants that this submittal complies with contract documents and comprises no deviations thereto: Section No: _____ Submittal No: _____ Date: _____ by: _____

F. Submittal Log:

1. Maintain an accurate submittal log for duration of the Work showing current status of all submissions

2. Show submittal number, section number, section title, submittal description dates and disposition of submittal

3. Engineer to create and track submittals using submittal log.

G. Unless specified otherwise, make submissions in groups to facilitate efficient review and approval:

1. Include all associated items from individual specification sections to assure that all information is available for checking each item when it is received

2. Submit a complete initial submittal including all components when an item consists of components from several sources

3. Partial submittals may be rejected as not complying with provisions of the Contract

4. Do not include items from more than one specification section for any one submittal number

H. Contractor may require subcontractors to provide drawings, setting diagrams and similar information to help coordinate the Work, but such data shall remain between Contractor and his subcontractors and will not be reviewed by Engineer unless specifically called for within the Contract Documents.

1.6 DISPOSITION OF SHOP DRAWINGS AND PRODUCT DATA

A. All submittal documentation will be provided, reviewed, and tracked electronically. The Contractor shall furnish PDF documents for Engineer’s review. A final annotated electronic copy of the submittal will be returned to the Contractor and noted with review comments as stated in this Section.

B. "Approved As Submitted": Approved with No Exceptions Noted

1. One copy to Owner
2. One copy to Resident Project Representative
3. One copy retained in Engineer's file
4. Remaining copies returned to Contractor for his use
    a. One copy to be kept on file at Contractor's office at job site
5. No corrections or comments noted on submittal or in transmittal letter
6. Issues or miscellaneous comments pertaining to other related items of the Work may be included in transmittal letter
7. Resubmission not required

C. "Exceptions Noted": Approved with Corrections Noted

1. One copy to Owner
2. One copy to Resident Project Representative
3. One copy retained in Engineer's file
4. Remaining copies returned to Contractor for his use
    a. One copy to be kept on file at Contractor's office at job site
    b. Copies of submittal data in operation and maintenance manuals to be revised according to corrections
5. Comply with corrections or comments as noted on submittal and in transmittal letter
6. Resubmission not required

D. "Revise And Resubmit": Incorrect or Specific Information Still Required

1. One copy to Resident Project Representative
2. One copy in Engineer's file
3. Copy returned to Contractor for revision and re-submittal
4. Copy of transmittal letter sent to Owner. An "Approved As Submitted" or "Exceptions Noted" submittal will be forwarded to Owner upon resubmission and review per above disposition requirements.
5. Submittal is either: incorrectly annotated; specific comments need to be addressed and incorporated in re-submittal; and/or additional information may be required as noted in transmittal letter.

6. Submitted information may not include or address specific item required per the specification as identified in transmittal letter.

7. Specific information related to identified item may be required for final approval of submittal.

8. Resubmission of entire submittal may be required or resubmission of specific item may be required as identified in transmittal letter.

E. "Rejected": Returned for Correction

1. One copy to Resident Project Representative

2. One copy in Engineer's file

3. Final annotated copy returned to Contractor

4. Copy of transmittal letter sent to Owner

5. Contractor required to resubmit complete submittal package in accordance with Contract Documents

6. Submittal does not comply with provisions of Contract Documents as noted in transmittal letter

7. Resubmission required

F. "Receipt Acknowledged": For Reference Purposes Only or for Record Copy

1. One copy to Resident Project Representative

2. One copy in Engineer's file

3. One copy to Contractor

4. Detailed review and comment by Engineer not required

5. Resubmission not required

1.7 DISPOSITION OF SAMPLES

A. "Approved As Submitted": Approved with No Exceptions Noted

1. One sample sent to Owner

2. One sample sent to Resident Project Representative

3. One sample retained in Engineer's file

4. Acknowledgment: Copy of transmittal letter sent to Contractor

5. Resubmission not required

B. "Exceptions Noted": Approved with Corrections Noted

1. One sample sent to Owner

2. One sample sent to Resident Project Representative

3. One sample retained in Engineer's file

4. Acknowledgment: Copy of transmittal letter sent to Contractor

5. Work performed or products furnished to comply with exceptions noted in acknowledgment

6. Resubmission not required

C. "Rejected": Returned for Correction

1. One sample retained in Engineer's file

2. Remaining samples sent to Contractor for re-submittal and compliance with the Contract Documents as noted in transmittal letter

3. Copy of transmittal letter sent to Owner

4. Resubmission required

1.8 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in submittals required by Engineer and resubmit until approved

B. Transmit each resubmission under new letter of transmittal. Use number of original submittal followed directly by “rev” and a number corresponding to the number of times a submittal is resubmitted (i.e., rev1, rev2, rev3, etc.)

C. Shop Drawings and Product Data:

1. Revise initial drawings or data and resubmit as specified for the initial submittal

2. Indicate any changes which have been made other than those requested by Engineer

1.9 ENGINEER'S DUTIES

A. Review submittals with reasonable promptness and in accord with approved submission schedule provided that each submittal has been called for by the Contract Documents and is stamped by Contractor as indicated above:

1. In the event that Engineer will require more than 7 calendar days to perform a submittal review as requested by Contractor, Engineer shall so notify Contractor or indicate so on the submission schedule.

2. No extensions of time are allowed due to Engineer’s delay in reviewing submittals unless all the following criteria are met:

a. Engineer has failed to return submittal within 7 days of receipt of the submittal or receipt of said notice, whichever is later

b. Contractor demonstrates that delay in progress of the Work was directly attributable to Engineer's failure to return submittal within 7 days.

3. No extensions of time are allowed due to delays in progress of the Work caused by rejection and subsequent resubmission of data, including multiple resubmissions.

B. Review drawings and data submitted only for general conformity with Contract Documents:

1. Engineer's review of drawings and data returned marked "Approved As Submitted" or "Exceptions Noted" does not indicate a thorough review of all dimensions, quantities, and details of material, equipment device or items shown

C. Assume that no shop drawing or related submittal comprises a deviation to the Contract Documents unless Contractor advises Engineer otherwise in writing which is acknowledged by Engineer in writing:

1. Consider and review only those deviations from the Contract Documents clearly identified as such in submittal and tabulated in the Letter of Transmittal.

D. Return submittals to Contractor for distribution or for resubmission

E. Transmit, unreviewed, to Contractor all copies of submittals received directly from suppliers, manufacturers and subcontractors

F. Transmit, unreviewed, to Contractor all copies of submittals not called for by the Contract Documents or which have not been approved by Contractor

G. Affix stamp and indicate approval for submittal or resubmission requirements with the following stamp:

☐ Approved As Submitted	☐ Exceptions Noted
☐ Revise And Resubmit	☐ Rejected

This review was performed only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Modifications or comments made on the shop drawings and product data during this review do not relieve contractor from responsibility for compliance with the requirements of the plans and specifications. Approval of a specific item does not include approval of the assembly of which the item is a component. Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences, and procedures of construction; coordination of the work of all trades; and for performing all work in a safe and satisfactory manner.

Ditesco, LLC

Date _____By _____

1.10 SUBMITTAL SCHEDULE

A. Unless indicated otherwise, provide all submittals required by individual sections of the Contract Documents to establish compliance with the specified requirements

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 45 00 – QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality assurance and control of installation

B. Quality Management

C. Inspection and testing laboratory services and qualifications

D. Laboratory duties and limitations of authority of testing laboratory

E. Contractor's responsibilities

F. Field testing

G. Testing and services schedule

1.2 RELATED SECTIONS

A. Section 01 10 00—Summary of Work

B. Section 01 33 00—Submittal Procedures

C. Section 03 30 00 – Concrete Paving and Flatwork

D. Section 31 23 13 – Earthwork and Trenching

E. Section 32 12 16 – Asphalt Paving

1.3 REFERENCES

A. Conform to reference standard by date of issue current on date of Contract Documents

B. Obtain copies of standards when required by Contract Documents

C. Where specified reference standards conflict with Contract Documents, request clarification for Engineer before proceeding

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Provide copies of written reports for materials as scheduled at the end of this section. Reference each report by respective section number

C. Laboratory test reports—Provide written reports of each test and inspection to Engineer. Each report shall include:

1. Date issued
2. Project title and number
3. Testing laboratory name, address and telephone number
4. Name and signature of laboratory inspector
5. Date and time of sampling or inspection
6. Record of temperature and weather conditions
7. Date of test
8. Identification of product and specification section
9. Location of sample or test in the Project
10. Type of inspection or test
11. Results of tests and compliance with Contract Documents
12. Interpretation of test results when requested by Engineer

D. Field test reports: Provide reports detailing results of the tests. Indicate compliance or non-compliance with Contract Documents. Identify corrective action for materials which fail to pass field tests

1.5 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.

B. Comply fully with manufacturer's instructions, including each step in sequence

C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship

E. Certification of products: Respective sections of specifications

F. Laboratory tests required and standards for testing: Respective sections of specifications

1.6 INSPECTION AND TESTING LABORATORY SERVICES

A. Owner will employ and pay for the services of an independent testing laboratory to perform specified laboratory testing of materials where the technical specifications specifically obligate the Owner to provide the services:

1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services

2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract

B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all specified services and testing not specifically identified in the technical specifications to be provided by Owner related to the design of mixes, products and equipment, to Engineer's review of proposed materials and equipment before, during and after incorporation in the Work and to retest materials and equipment which fail original tests:

1. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract

C. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer.

1.7 QUALIFICATION OF LABORATORY

A. Perform all tests to determine compliance with Contract Documents by an independent commercial testing firm acceptable to Owner and Engineer.

B. Testing firm’s laboratory: Staffed with experienced technicians, properly equipped and fully qualified to perform tests in accordance with specified standards

1.8 LABORATORY DUTIES

A. Cooperate with Engineer and Contractor; provide qualified personnel after due notice

B. Perform specified inspections, sampling, and testing of materials and methods of construction:

1. Comply with specified standards

2. Ascertain compliance of materials with requirements of Contract Documents

C. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work or products

1.9 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Contract Documents

2. Approve or accept any portion of the Work

3. Owner employed laboratory shall not perform any duties of the Contractor

1.10 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel and provide access to Work

B. Secure and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used and which require testing

C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, asphalt and other material mixes which require control by the testing laboratory

D. Furnish copies of product test reports as required

E. Furnish incidental labor and facilities:

1. To provide access to Work to be tested

2. To obtain and handle samples at the project site or at the source of the product to be tested

3. To facilitate inspections and tests

4. For storage and curing of test samples

F. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested:

1. Notify Engineer and independent firm 48 hours prior to expected time for operations requiring services to allow for scheduling of tests and laboratory assignment of personnel

2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use

1.11 FIELD TESTING

A. Contractor shall pay all costs associated with field testing of materials and equipment as required in respective sections of the specifications

1. Provide all required materials, labor, equipment, water, and power required for testing

2. Perform all tests in presence of Engineer or Owner and provide one copy of field test results to Engineer same day of tests

B. Repair with no additional compensation all materials and equipment which fail during testing

1.12 TESTING AND SERVICES SCHEDULE

A. Laboratory testing services shall be provided by Contractor for, but shall not be limited to, the following:

Specification Section	Type of Material, Equipment or System
Section 03 30 00	Concrete Paving and Flatwork: Mix Design, Water/Cement Ratio, Slump, Volumetric Air Content, Compressive Strength, Admixtures:
Section 31 23 13	Earthwork and Trenching: Gradations, Sieve Analysis, Proctors with Optimum Moisture Content (for imported materials)
Section 32 12 16	Asphalt Paving: Coarse and fine aggregate from each material source and each required grading, asphalt cement for each penetration grade, job-mix design mixtures for each material or grade, uncompacted asphalt concrete mix, compacted asphalt concrete mix, density and void analysis.

Section 33 05 02	Waterlines
Section 33 05 03	Disinfection of Water Distribution Systems: The Contractor shall be responsible for all disinfection of waterlines. Sampling and testing will be performed by the Town of Firestone. The Contractor shall be responsible for reimbursing the Town for all costs associated with the water quality testing.

1.13 FIELD TESTING

A. Field testing that shall be provided for by the Owner shall be limited to the following:

Specification Section	Type of Material, Equipment or System
Section 03 30 00	Concrete Paving and Flatwork: Slump, Volumetric Air Content, Compressive Strength (field material testing at time of placement)
Section 31 23 13	Earthwork and Trenching: Compaction, Moisture Content, Proctors, Gradations (field material testing for existing materials on site and imported materials)
Section 32 12 16	Asphalt Paving: Temperature, compacted asphalt density and void content; asphalt content. (Field material testing at time of placement)

Test Description	Item Description	Quantity	UM	Quantity	UM	Testing Frequency	Number of Tests
Asphalt Field Density	Asphalt	6230	SY	1360	TON	1 per 600 SY	12
Asphalt Content/Gradation	Asphalt	6230	SY	1360	TON	1 per 500 ton	2
Air, Temp, Slump	Concrete	270	CY	270	CY	1/ 50CY or Daily	10
Cylinder Sets (5 cyl each)	Concrete	270	CY	270	CY	1/ 50CY or Daily	10
Proctor	Aggregate Base Course	7460	SY	3075	TON	1 per 1200 SY	1
Gradation	Aggregate Base Course	7460	SY	3075	TON	1 per 1200 SY	1
Proctor	Onsite Material	7460	SY	-	-	1 per 1200 SY	2
Gradation	Onsite Material	7460	SY	-	-	1 per 1200 SY	2
Field Density	Trench Backfill	2150	LF	-	-	Per 200 LF per 18”	40
Field Density	Subgrade-beneath paved areas	1700	LF	-	-	1 per 500LF per lane	6
Field Density	Aggregate Base Course	1660	CY	70	TON	1 per 1000CY	2

*The testing summary table above outlines the testing quantities to be provided by the Owner under the base scope of work.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 52 00 – TEMPORARY CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heating, ventilating, telephone service, water and sanitary facilities

B. Construction Facilities: Access roads, parking, progress cleaning, project signage, storage and temporary buildings

1.2 GENERAL REQUIREMENTS

A. Furnish, install, and maintain all temporary utilities to assure continuous service except as allowed herein, and remove on completion of Work. Modify and extend systems as work progress requires.

B. Furnish, install, and maintain all construction aids required for the Work, except as allowed herein, and remove on completion of the Work.

C. Furnish, install, and maintain fences and barriers as required for protection of the public, property and the Work.

D. Contractor shall limit his use of existing roadways and parking lots to only that which are required for completion of Work within this Contract.

E. Clean and repair damage caused by temporary installations or use of temporary facilities.

1.3 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies

1. Comply with applicable Federal and State rules and regulations, local codes and ordinances.

2. Comply with utility company requirements.

3. Comply with ditch company requirements.

4. Contractor shall notify Owner and Engineer of achievement of major milestones for inspection. At least 48-hours advance notice must be provided.

1.4 TEMPORARY ELECTRICITY

A. Contractor shall arrange for and pay all costs associated with power service as required for completion of Work and pay all costs for energy used.

1.5 TEMPORARY LIGHTING

A. Provide and maintain incandescent lighting for construction operations.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

1.6 TEMPORARY HEATING

A. Provide and pay for all temporary heat as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions of the installation of materials and to protect materials and finishes from damage due to temperature or humidity.

B. Portable heaters shall be standard approved units complete with controls.

C. Pay all costs of installation, maintenance, operation and removal and for fuel consumed.

D. Maintain minimum ambient temperature of 50ºF in areas where construction is in progress, unless indicated otherwise in specifications.

E. Provide temporary heating for all subcontractors as required.

1.7 TEMPORARY VENTILATING

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases

B. Provide and pay for temporary ventilation equipment as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials and to protect materials and finishes from damage due to temp or humidity.

C. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.

D. Portable ventilators shall be standard approved units complete with controls.

E. Pay all costs of installation, maintenance, operation and removal and for power consumed.

1.8 TELEPHONE SERVICE

A. Provide, maintain and pay for all telephone service as required for completion of Work.

1.9 TEMPORARY WATER SERVICE

A. Contractor shall be required to coordinate with the Town for all water needs. If the Contractor requires Town water for any part of the project, he/she must request a “Town Fire Hydrant Meters Rental Agreement” from the public works department. Any theft of water, including meter jumpers, hose connections in meter pits, drawing water from fire hydrants without a Town of Firestone hydrant meter installed, or any other unauthorized use of Town water will be considered a violation of both this manual and the current adopted Town of Firestone Municipal Code. Uncontrolled usage by contractors and subcontractors will be reported to the responsible property owner. Violations will be enforced in conjunction with the Town of Firestone Municipal Code and/or building permits and inspections may be withheld until such time as violations are corrected and the Town is satisfied that proper control channels are established.

B. Provide all drinking water required by construction personnel. Pay all costs.

C. If removal of existing waterline is awarded as part of the contract, then the Contractor shall install and maintain a temporary above grade waterline to service existing residences. The temporary

waterline shall be completely installed, disinfected, tested, and approved prior to connecting to any existing water mains or services. Services shall be connected to the temporary waterline upstream of the existing meter pits at each residence to allow for continuous monitoring of water by the Town. It shall be the responsibility of the contractor to maintain the temporary water main until the new permanent watermain has been installed, disinfected, and approved by the Town. This shall include protection from vehicular traffic, weather, and any other conditions. Contractor shall provide a phasing plan outlining the temporary waterline installation to be reviewed with the Engineer and Owner. Phasing plan shall include scheduled, outages, durations, lengths, and connection locations.

1. Acceptable Products
   a. NSF 61 Approved HDPE SDR 11- Fusion or electro-fusion.
   b. Or approved equal.
2. Size
   a. 3" minimum

1.10 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide his own sanitary facilities.

1.11 WATER CONTROL

A. Maintain excavations free of water. Provide, operate, and maintain pumping equipment

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.12 EROSION AND SEDIMENT CONTROL

A. Install sediment control/silt fencing at site perimeter where necessary to prevent erosion and sedimentation from occurring off site.

B. During and after site grading, maintain a roughened surface on all disturbed areas to minimize erosion potential.

C. Construct temporary drainage swales with staked straw bale barriers to control drainage patterns and minimize erosion.

D. Provide gravel & wire or staked hay bale sediment traps at culvert inlets to prevent siltation.

1.13 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection as required to protect Owners facilities or where specified in individual specification Sections.

B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished driving surfaces, floors, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic from landscaped or sodded areas.

1.14 SECURITY

A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.

1.15 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from remote spaces prior to enclosing the space.

C. Remove waste materials, debris, and rubbish from site not less than weekly and dispose off-site in accordance with local and state regulations

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 55 26 – TRAFFIC CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General Requirements

B. Regulatory Requirements

C. Construction Parking Control

D. Flagmen

E. Flares and Lights

F. Haul Routes

G. Roadway Usage Between Operations

H. Traffic Signs and Signals

I. Barricades

J. Barriers

K. Removal

1.2 RELATED SECTIONS

A. Section 01 11 00—Summary of Work

B. Section 01 52 00—Temporary Construction Facilities

1.3 GENERAL REQUIREMENTS

A. Unless otherwise authorized, keep at least one lane of traffic open at all times.

B. When work is not in progress, keep all traffic lanes open.

C. All traffic lanes shall be open during hours of darkness, weekends, and holidays

1.4 REGULATORY REQUIREMENTS

A. Conformance: "Manual on Uniform Traffic Control Devices," U.S. Department of Transportation, or applicable statutory requirements of authority having jurisdiction.

B. Operations on or about traffic areas and provisions for regulating traffic will be subject to the regulations of Town of Firestone. The Contractor shall submit a Method of Handling Traffic (MHT) prepared by a certified Traffic Control Supervisor (TCS) to the Town of Firestone for approval prior to proceeding with any phases of the work.

1.5 CONSTRUCTION WORKERS PARKING

A. Contractor's worker vehicles are limited to staging zones. These vehicles shall be marked as belonging to the Contractor. All of contractor's workers shall park in areas not specifically noted to be private parking.

1.6 CONSTRUCTION PARKING CONTROL

A. Contractor is responsible to control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations. Contractor shall be responsible for any and all parking tickets received due to his operations unless they are issued inside the Contractor's work zone or designated staging area.

1.7 FLAGMEN

A. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on parking or traffic lanes.

1.8 FLARES AND LIGHTS

A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

1.9 HAUL ROUTES

A. Coordinate with Owner to establish public thoroughfares to be used for haul routes and site access.

B. Confine construction traffic to designated haul routes.

C. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

1.10 ROADWAY USAGE BETWEEN OPERATIONS

A. At all times when work is not actually in progress, make open, passable, and maintain to traffic such portions of the Project and temporary roadways or portions thereof as may be agreed upon between Contractor and Firestone police Department.

1.11 TRAFFIC SIGNS AND SIGNALS

A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

B. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.

C. Relocate as Work progresses, to maintain effective traffic control.

D. Protect all roadways by effective barricades on which are placed warning signs.

1.12 BARRICADES

A. Contractor shall completely enclose operations with barricades at all times when site is encumbered by open trenches, other excavations or other obstructions.

B. Barricades shall be a minimum of 42-inch-high orange construction fence, weighted or adequately secured at the base as to prevent easy removal or relocation. Barricades shall only allow one ingress/egress gate. Contractor shall be responsible for monitoring of the gate to

prevent access into his operations. Equip gates with locks. Barricade locations shall include open or displaced manhole covers/locations to protect pedestrian and bicycle traffic.

C. Provide additional fencing as required to protect stored materials and products and to ensure public safety.

D. Provide Owner two (2) keys to lock(s).

E. Contractor shall be responsible for depicting location of barricades as defined in Section 01 52 00 – Temporary Construction Facilities. This shall be further required under Section 01 33 00 when submitting “Detailed Work Plans”.

F. Illuminate by means of warning lights all barricades and obstructions form sunset to sunrise.

1.13 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide suitable barriers as required for public protection.

C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

D. Install facilities of a neat and reasonable uniform appearance, structurally adequate for the required purposes.

E. Contractor shall be responsible for depicting location of barricades as defined in Section 01 52 00 – Temporary Construction Facilities.

F. Illuminate by means of warning lights all barricades and obstructions form sunset to sunrise.

G. Relocate barriers as required by progress of construction.

H. Completely remove barriers, including foundations, when construction has progressed to the point that they are no longer needed.

I. Clean and repair damage caused by installation, fill and grade the areas of the site to required elevations and slopes and clean the area.

1.14 REMOVAL

A. Remove equipment and devices when no longer required

B. Repair damage caused by installation

C. Remove post settings to a depth of 2 feet

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 57 13 - TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 SUMMARY OF WORK

A. This section covers Work necessary for stabilization of soil to prevent erosion during construction and land disturbing activities. The minimum areas requiring soil erosion and sediment control measures are indicated on the Drawings. Engineer reserves right to modify use, location, and quantities of soil erosion and sediment control measures based on activities of Contractor.

1.2 DEFINITIONS

A. Soil Erosion Stabilization: Provide erosion control measures on the Project and:
   1. In areas where work is accomplished in conjunction with the Project, so as to prevent pollution of water and detrimental effects to public or private property adjacent to the Project.
   2. On ground surfaces exposed during the wet weather conditions.
   3. In areas which will not be subjected to heavy wear by ongoing construction traffic.
   4. In areas of disturbed ground with intermittence construction traffic.

B. Coordinate the installation of temporary erosion control features with the construction of the permanent erosion control features to the extent necessary to ensure economical, effective, and continuous control of erosion and water pollution.

C. Permanent Stabilization:
   1. Permanent stabilization methods include, but are not limited to permanent slope stabilization.
   2. Permanently stabilize exposed soil surfaces at finished grades shown on Drawings.
   3. Perform permanent stabilization at each completed excavation and embankment areas except for areas that are scheduled to be re-disturbed.
   4. Incorporate all permanent erosion control features into the project at the earliest practical time.

D. Erosion Control Measures: All erosion control devices shall conform to the GENERAL Project Drawings, Specifications, and requirements of the Town of Firestone Standards and Specifications for Public Improvements and in conformance with the Urban Drainage and Flood Control District (UDFCD) Urban Storm Drainage Criteria Manual (as amended), hereon referred to as the “Manual”.

E. Stormwater Control Measures: All stormwater control measures shall conform to the Project Drawings, Specifications, Town of Firestone Standards and Specifications for Public Improvements, and the Urban Drainage Flood Control District’s Urban Storm Drainage Criteria Manuals.

1.3 SUBMITTALS

A. Shop Drawings: Product Data for the following items:
   1. Erosion control rock.
   2. Erosion control mat (temporary or permanent).
   3. Reinforced plastic covering.
   4. Silt fence.
   5. Grouted boulders and riprap.

6. Wattles.

B. Informational Submittals: Submit copies of any notifications, authorizations, and permits required to perform work.

C. Contractor shall obtain all permits required by the Town of Firestone and CDPHE including but limited to the following
   a. Town of Firestone Stormwater Quality Permit application
   b. Colorado Discharge Permit (CDP)
   c. Stormwater Management Plan (SWMP)

1.4 DELIVERY, STORAGE, AND PROTECTION

A. General: Prevent or reduce the discharge of pollutants to stormwater from all material delivery and storage by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment, conducting regular inspection, and training employees and subcontractors.

1.5 SEQUENCING AND SCHEDULING

A. Install erosion and sediment control devices before starting earth disturbance activities. Subcontractor shall accept responsibility for existing soil and erosion control on the Site.

B. Conduct earth-disturbing activities in a manner that effectively reduces accelerated soil erosion and reduces sediment movement and deposition offsite.

C. Schedule construction activities to minimize the total amount of soil exposed at any given time.

D. Establish temporary or permanent cover on areas that have been disturbed as soon as practical after grading is completed.

E. Design and construct temporary or permanent facilities to limit the flow of water to non-erosive velocities for the conveyance of water around, through, or from the disturbed area.

F. Remove sediment caused by accelerated soil erosion from surface runoff water before it leaves the site.

G. Notify Owner at least 3 days in advance of:

   1. Materials delivery.
   2. Start of stabilization activity.

1.6 MAINTENANCE

A. Operations:

   1. Inspect, repair, and replace as necessary all erosion control measures during the time period from start of construction to completion of construction.
   2. Inspect all erosion control devices and disturbed areas a minimum of at least once every 14 days and within 24 hours of each storm event.
   3. At no time shall more than 1-foot depth of sediment be allowed to accumulate in any erosion control device.
   4. Repair or replace split, torn, slumping, or weathered silt fence. Silt fence shall be removed and replaced every 6 months, or when the sediment reduces design capacity by 50 percent of the filtering capacity.

B. Sediment Removal:

1. The Subcontractor shall each day remove all sediment, mud, construction debris, or other potential pollutants that may have been discharged to, or accumulated as a result of construction activities.
2. Remove sediment from erosion control devices within 7 days after each storm event or prior to the next anticipated storm event, whichever is earlier. Remove sediment into the grading plan as required to maintain proper operation of devices. The cleaning operation shall not dispose of sediment offsite.
3. In the event of continuous rainfall over a 24-hour period, or other circumstances that preclude equipment operation in the area, hand carry and install additional sediment controls as approved by the Engineer.
4. Replace rock filters at least three times a year or when the sediment reduces design capacity by 50 percent the filtering capacity of each BMP facility.

2.1 EROSION CONTROL ROCK

A. Imported 3-inch minus gravel.

B. Free from dirt, clay balls and organic material.

2.2 EROSION CONTROL MAT

A. North American Green BioNET SC150BN.

2.3 REINFORCED PLASTIC COVERING

A. Co-extruded, copolymer laminate reinforced with a nonwoven grid of high strength nylon cord submersed in a permanently flexible adhesive media allowing for equal tear resistance in all directions.

B. Black in color and ultraviolet stabilized.

C. Physical Requirement (Minimum Average Roll Values):

1. Tear Strength: 130 pounds.
2. Elongation: 620 percent.
3. Minimum Thickness: 6 mil.

D. Manufacturers:

1. Reef Industries, Inc., Houston, TX.
2. Griffolyn Co., Houston, TX.

2.4 SILT FENCE

A. Support Posts: As recommended by manufacturer of filter fabric.

B. Fasteners: Heavy-duty wire staples at least 1/2-inch long, as recommended by manufacturer of filter fabric. Attached to post with three or more staples per post.

C. Filter Fabric: Polyester, polypropylene, or nylon filaments, woven into a uniform pattern, distinct and measurable openings.

1. Filaments: Resistant to damage from exposure to ultraviolet rays and heat.
2. Material Edges: Finish so that, filaments retain their relative positions under stress.

D. In accordance with requirements of Table No. 1:

Table No. 1 - Filter Fabric		
Physical Property	**Required Value**	**Test Method**
Weight, pz/sq yd, min.	4	ASTM D3776
Equivalent Opening Size, max.	50-70	U.S. Standard Sieve
Grab Tensile Strength, lb, min. ARV	160	ASTM D4632
Elongation, % max.	40	ASTM D1682
Mullen Burst Strength, psi, min. ARV	175	ASTM D3786
Ultraviolet Radiation Resistance, % Strength Retention	70	ASTM D4355
Flow Rate, gpm/sf, min. ARV	25 to 50	ASTM D4491

E. Manufacturers:

1. Polyfelt, Evergreen, AL.
2. Dupont Co., Wilmington, DE.
3. Mirafi, Inc., Charlotte, NC.

2.5 DUST PALLIATIVE

A. Furnish water free of silts and other matter harmful to the quality of the material it is applied.

2.6 CLEARING LIMIT FENCE

A. Fabric:

1. Ultraviolet stabilized polyethylene, polypropylene, or nylon filaments woven into uniform pattern, with distinct and measurable openings.
2. Minimum Physical Qualities:
   a. Tensile Yield: Average 2,000 pounds per 4-foot width; ASTM D638.
   b. Ultimate Tensile Yield: Average 2,900 pounds per 4-foot width; ASTM D638.
   c. Elongation at Break: Greater than 1,000 percent; ASTM D638.
   d. Chemical Resistance: Inert to most chemicals and acids.
3. Color: Yellow or orange.
4. Height: 3 feet.
5. Material Edges: Finished in order that filaments retain their relative positions under stress.

B. Posts: Conventional metal “T” or “U” posts.

2.7 STRAW WATTLE

A. Straw wattle consists of certified seed free agricultural straw inside a flexible and durable tubular netting with metal clips or knotted ends. Designed to provide intimate contact with the soil, which prevents blowouts and undermining. All wattles shall have a weighted core to prevent movement.

B. Straw wattle shall have the following nominal material characteristics:

Property	English	Metric
Product Name	9 in. 12 in. 20 in.	22.9 cm 30.5 cm 50.8 cm
Minimum Diameter	8.5 in. 11.5 in. 19.0 in.	21.3 cm 29.2 cm 48.3 cm
Wattle Density (± 10%)	(9 in.) 4.53 lb/ft^3 (12 in.) 3.82 lb/ft^3 (12 in.) 4.24 lb/ft^3 (20 in.) 2.75 lb/ft^3	72.62 kg/m^3 61.25 kg/m^3 67.98 kg/m^3 44.10 kg/m^3
Wattle Dimensions (W x L) (± 10%)	9 in. x 12 ft 12 in. x 10.0 ft 12 in. x 15.0 ft 20 in. x 10.0 ft	0.2290 m x 7.620 m 0.3048 m x 3.048 m 0.3048 m x 4.572 m 0.508 m x 3.048 m

C. Stakes: Stakes shall be wooden, 1-inch wide by 1-inch thick by 18- to 24-inch long. Stakes shall not extend above the straw wattle more than 2 inches.

3.1 GENERAL

A. Erosion control measures are required during all construction and site disturbance activity and shall remain until permanent site ground covers are in place.

B. The implementation of the erosion control plan and the construction maintenance, replacement and upgrading the erosion control devices are the responsibility of the Subcontractor until all construction is completed and exposed slopes established and approved. During the construction period, the erosion control devices shall be upgraded for unexpected storm events and to ensure that sediment and sediment laden water do not leave the Site.

C. Contractor shall use interceptor swales or dikes to prevent existing stormwater runoff from running through the middle of the site and entering excavations.

3.2 VEHICLE TRACKING CONTROL

A. Provide a graveled vehicle tracking control at each access point between the site and any public or private road or other paved surface.

B. Place erosion control rock to a minimum thickness of 6 inches.

C. Minimum dimensions for construction entrances are 50-foot in length by 20-foot width.

D. Replace erosion control rock for each entrance at least three times a year during the project at times directed by the Engineer to maintain proper function. More frequent applications of rock may be required, and if so, shall be considered as incidental work.

3.3 REINFORCED PLASTIC COVERING

A. Place on graded areas where erosion of soils cannot be controlled.

B. Over all temporary stockpiles that are inactive for more than 30 days, or if wind blows dust emissions from the stockpile.

C. Install in single thickness, strips parallel to direction of drainage. Anchor plastic in 6-inch by 6-inch trench backfilled with compacted native material.

D. Maintain tightly in place by using sand bags on ropes with a maximum 10-foot grid spacing in all directions.

E. Tape or weight down full length, overlap seams at least 12 inches.

F. Remove at final acceptance unless notified otherwise by Owner.

3.4 SILT FENCE

A. Install prior to starting earth disturbing activities.

B. Install silt fence along clearing and grubbing limits or as shown on the Drawings. Do not deviate from grade more than 4 inches.

C. One-piece filter fabric or continuously sewn to make one-piece filter fabric for full height of the fence, including portion buried in the 6-inch deep toe trench.

D. When joints are necessary, splice filter fabric together only at a support post, with a minimum 6-inch overlap, and securely fasten both ends to support post.

E. Filter fabric shall not extend more than 30 inches above the ground surface. Securely fasten to upslope side of each support post using ties. Filter fabric shall not be stapled to existing trees.

F. Take precaution not to puncture filter fabric during installation. Repair or replace damaged area.

G. Remove silt fence after upslope area has been permanently stabilized. Immediately dress sediment deposits remaining after the sediment fence has been removed to conform to existing grade.

3.5 TEMPORARY SOIL STOCKPILES

A. Cover temporary soil stockpiles that are inactive for more than 30 days with reinforced plastic covering, as directed in Article Reinforced Plastic Covering.

3.6 DUST CONTROL

A. Apply appropriate dust control measures 15 to 30 minutes prior to the start of work, during grading and trenching of operations apply dust palliative on a continuous basis to maintain a moist surface, and apply dust palliative at the end of the day to all work areas.

B. Apply on construction routes and other disturbed areas subject to surface dust movement and where off-site damage may occur if dust is not controlled.

C. Avoid creating erosion when using water as a dust controller.

D. Do not apply excessive dust controller to soil to increase the risk of trackout.

3.7 PIPE OUTLET PROTECTION (GROUTED BOULDERS AND RIPRAP)

A. Provide a rock apron immediately downstream at each conveyance discharges that flows onto any disturbed areas of the site.

B. Place boulders and riprap to depths as shown.

C. Minimum dimensions for apron are as shown.

3.8 VEGETATIVE BUFFER

A. Provide buffer strips of preserved natural vegetation or grass help protect adjacent areas from earth disturbing activities.

B. Concentrated flows shall not be directed through a buffer strip; instead, runoff shall be in the form of sheet flow.

C. Clearly delineate the boundary of the natural buffer strip area using construction fencing, silt fence, or a comparable technique.

D. Tree Protection: Before beginning construction operations, establish a tree protection zone around trees to be preserved by installing clearing limit fences. Allow enough space from the trunk to protect the root zone from soil compaction and mechanical damage, and the branches from mechanical damage. If low branches will be kept, place the fence outside of the drip line. Where this is not possible, place fencing as far away from the trunk as possible.

E. Do not allow stockpiles, equipment, trailers or parking within the protected buffer strip or tree protection zone.

3.9 STABILIZED CONSTRUCTION ON ROADWAY

A. The stabilized construction roadway is a clearly designated area where construction equipment and vehicles travel through the site and used to control sediment runoff and dust control.

B. Place erosion control rock to a minimum thickness of 6 inches.

C. Contractor shall replace erosion control rock at least three times a year or as required during the project at times directed by the Engineer to maintain proper function. More frequent applications of rock may be required, and if so, shall be considered as incidental work.

3.10 CONCRETE WASHOUT AREA

A. The concrete washout shall be installed prior to concrete placement on-site.

B. The concrete washout shall not be located within 400 feet of any natural drainage pathway or water body.

C. Minimum dimensions for facility as shown.

D. Remove concrete waste in the washout area, as needed to maintain function or when filled to two-thirds of its capacity. Dress slopes as required to maintain original capacity and function.

E. Concrete waste shall be removed from the site and disposed in an approved location.

F. The washout area shall remain in place until all concrete for the project is placed.

3.11 STRAW WATTLE

A. Straw wattle should be installed to intercept water flow and collect sediment onsite. They may be placed over bare soil or on top of pavement surfaces. Straw waffles shall be installed in a 2-inch trench with the ends of the wattle facing upstream on bare soil.

B. Straw wattles shall be secured to the subgrade by wood stakes every 3 to 4 lineal feet across the length of the straw wattle. The stakes shall be driven through the center of the straw wattle only and driven into the ground as shown.

C. Spacing of straw wattle shall be as shown.

D. Straw wattle shall remain in place until fully established vegetation and root systems are present.

3.12 CLEAN-UP

A. Sediment trapped in erosion control devices shall be regraded into the slopes on the site. Do not flush sediment-laden water into the drainage system.

B. After site restoration is complete and when approved by the Engineer, all temporary erosion control measures shall be completely removed. Immediately shape and permanently stabilize areas affected by the removal process.

C. Silt fence, reinforced plastic covering, and any other erosion control devices shall be disposed off-site to locations that are approved by federal, state, and local authorities.

END OF SECTION

SECTION 01 74 00 – CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General work area conditions during construction

B. Exterior (site) cleaning

1.2 RELATED SECTIONS

A. Division 1—General Requirements

B. Cleaning of certain parts of the work described in various sections of the specifications

1.3 SCHEDULING

A. Schedule cleaning operations as to not interfere with ongoing day-to-day operations.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 GENERAL WORK AREAS DURING CONSTRUCTION

A. Maintain premises free from accumulations of waste and debris caused by work on this project.

B. Prevent dust nuisance attributable to this work.

C. Dispose of degradable and non-degradable debris at an approved solid waste disposal site or in an alternate manner approved by Engineer and regulatory agencies.

D. Repair, patch, and touch-up marred surfaces to specified finish to match adjacent surfaces.

E. On completion of work, leave area in a clean, natural looking condition. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.

3.2 EXTERIOR (SITE) CLEANING

A. Cleaning During Construction:

1. Construction debris:

   a. Confine in strategically located container(s) covered to prevent blowing by wind

   b. Remove from work area to container daily

   c. Haul from site once a week (minimum)

2. Remove soils, sand, and gravel deposited on paved areas and walks daily or more often as required to prevent muddy or dusty conditions.

a. Do not flush into storm sewer system

3. Comply with stormwater general permit requirements, and monitor and employ best management practices (BMPs).

B. Final Cleaning:

1. Remove trash and debris containers from site:

a. Re-sod areas disturbed by location of trash and debris containers

2. Broom clean paved surfaces

3. Rake clean other surfaces of grounds

4. Demobilize all temporary sanitary facilities

3.3 FIELD QUALITY CONTROL

A. During substantial completion walk through or prior to start-up, conduct an inspection with Engineer to verify acceptable condition of all work areas.

END OF SECTION

SECTION 01 77 00 – CLOSE OUT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures

B. Final cleaning

C. Contractor's closeout submittals

D. Project record documents

E. Substantial completion

F. Final inspection

G. Final application for payment

1.2 RELATED SECTIONS

A. Construction Contract

B. Section 01 52 00—Temporary Construction Facilities

C. Section 01 78 23 – Project Record Documents

1.3 CLOSEOUT PROCEDURES

A. Comply with requirements stated in Conditions of the Contract and in specifications for administrative procedures in closing out the Work.

B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. Provide submittals to Engineer/Owner that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean site; sweep paved areas, rake clean landscaped surfaces.

C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 CONTRACTOR'S CLOSEOUT SUBMITTALS

A. Project record documents

B. Evidence of payment and waiver of claims: As specified in the Construction Contract.

C. Final inspection reports by all regulatory agencies demonstrating the agencies' final approval.

D. At Contract close-out, deliver Record Documents to Engineer for the Owner.

E. Accompany submittal with transmittal letter in duplicate, containing:

1. Date

2. Project title and number

3. Contractor's name and address

4. Title and number of each Record Document

5. Signature of Contractor or his authorized representative

1.6 PROJECT RECORD DOCUMENTS

A. Provide project record documents under provisions of Section 01 78 23.

B. Maintain on site, one set of the following record documents; record actual revisions to the Work:

1. Contract Drawings

2. Specifications

3. Addenda

4. Change Orders and other Modifications to the Contract

5. Reviewed shop drawings, product data, and samples

6. Field test reports

7. Construction photographs

C. Store Record Documents and samples separate from documents used for construction.

D. Record information concurrent with construction progress

1. Do not conceal any work until required information is recorded

2. Legibly mark to record actual construction

E. Specifications and Addenda—Legibly mark and record at each Product section description of actual Products installed, including the following:

1. Manufacturer's name, product model, number, trade name and supplies

2. Product substitutions or alternates utilized

3. Changes made by Addenda, field order or change order

F. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured depths of foundations in relation to finish floor datum

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

4. Field changes of dimension and detail

5. Details not on original Contract Drawings

6. Changes made by Field Order or by Change Order

G. Submit documents to Engineer with claim for final Application for Payment.

H. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes

I. Make documents and samples available at all times for inspection by Engineer.

J. Label each document "Project Record" in neat, large printed letters.

1.7 DELIVERY TO OWNER

A. At or prior to the time of the inspection for substantial completion, deliver all required items to Engineer.

1. Contractor and representatives of Owner and Engineer shall inspect and inventory all items delivered.

1.8 SUBSTANTIAL COMPLETION

A. Substantial Completion shall not be allowed until each and every component of the project, including parking lot construction, signing, striping, landscaping and irrigation, and restoration of surfaces has been completed and approved by Engineer. When Contractor considers the Work to be substantially complete, he shall submit to Engineer:

1. A written notice that the Work or designated portion thereof is substantially complete

2. A list of items to be completed or corrected

B. Within a reasonable time after receipt of such notice, Engineer will make an inspection to determine the status of completion.

C. Should Engineer determine that the Work is not substantially complete:

1. Engineer will promptly notify the Contractor in writing, giving the reasons therefore

2. Contractor shall remedy the deficiencies in the Work and send a second written notice of substantial completion to Engineer.

3. Engineer will re-inspect the Work.

D. When Engineer finds that the Work is substantially complete, he will:

1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment.

2. After consideration of any objections made by the Owner as provided in Conditions of the Contract and when Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.9 FINAL INSPECTION

A. When Contractor considers the Work is complete, he shall submit written certification that:

1. Contract Documents have been reviewed

2. Work has been inspected for compliance with Contract Documents

3. Work has been completed in accordance with Contract Documents

4. Performance testing has been completed in the presence of Owner or Owner's representative

5. Work is completed and ready for final inspection

B. Engineer and Owner will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Engineer consider that the Work is incomplete or defective:

1. Engineer will promptly notify the Contractor in writing listing the incomplete or defective work.

2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to Engineer that the Work is complete

3. Engineer will re-inspect the Work

D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.10 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 78 23 – PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Maintenance of record documents. Throughout progress of Work, maintain an accurate record of changes in the Contract Documents and detailed documentation of location of subsurface utilities and, upon completion of Work, transfer recorded changes to set of Record Documents.

1.2 SUBMITTALS

A. Comply with pertinent provisions under Section 01 33 00.

B. Engineer's acceptance of the current status of Project Record Documents will be a prerequisite to Engineer's recommendation for payment of progress payments and final payment under the Contract.

C. Prior to submitting each request for progress payment, secure Engineer's acceptance of the current status of the Project Record Documents.

D. Prior to submitting request for final payment, submit the final Project Record Documents to Engineer for acceptance.

1.3 QUALITY ASSURANCE

A. Delegate the responsibility for maintenance of Record Documents to one person on Contractor's staff acceptable to Engineer.

B. Accuracy of records:

1. Thoroughly coordinate changes within Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.

2. Accuracy of records shall be such that future searches for items shown in the Contract Documents may rely reasonably on information obtained from accepted Project Record Documents.

C. Make entries within 24 hours after receipt of information that the change has occurred.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Maintain job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means necessary to again secure the data for Engineer's acceptance.

1. Such means shall include, if necessary in the opinion of Engineer, removal and replacement of concealing materials.

2. In such case, provide replacement to the standards originally required by the Contract Documents.

PART 2 PRODUCTS

2.1 RECORD DOCUMENTS

A. Job set: Promptly following receipt of Owner's Notice to Proceed, secure from Engineer at no charge to Contractor one complete set of all Documents comprising the Contract.

B. Final Record Documents: At a time nearing the completion of the Work, secure from Engineer at no charge to Contractor one complete set of prints of all Drawings in the Contract.

PART 3 EXECUTION

3.1 MAINTENANCE OF JOB SET

A. Immediately upon receipt of job set, identify each of the Documents with the title, "RECORD DOCUMENTS—JOB SET"

B. Preservation:

1. Devise a suitable method acceptable to Engineer for protecting job set, considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed.

2. Do not use job set for any purpose except entry of new data and for review by Engineer, until start of transfer of data to final Project Record Documents.

3. Maintain job set at the site of Work.

C. Making entries on Drawings:

1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.

2. Alternatively, make the change electronically, utilizing a PDF software, with red markings.

3. Date all entries.

4. Call attention to the entry by a "cloud" drawn around the area or areas affected

5. In the event of overlapping changes, use different colors for the overlapping changes.

D. Make entries in pertinent other Documents accepted by Engineer

1. Show on the job set of Record Drawings, by dimension accurate to within one inch, the centerline of each run of items described above.

a. Clearly identify the item by accurate note such as "cast iron drain," "galv. water," and the like.

b. Show, by symbol or note, the vertical location of the item ("under slab," "exposed," and the like).

c. Make all identifications so descriptive that it may be related reliably to the Specifications.

3.2 FINAL PROJECT RECORD DOCUMENTS

A. The purpose of final Project Record Documents is to provide factual information regarding all aspects of Work, both concealed and visible, to enable future modification of Work to proceed without lengthy and expensive site measurement, investigation, and examination.

B. Acceptance of recorded data prior to transfer:

1. Following receipt of print copies for Final Record Documents, and prior to start of transfer of recorded data thereto, secure Engineer's acceptance of all recorded data.

2. Make required revisions.

C. Transfer of data to Drawings:

1. Carefully transfer change data shown on job set of Record Drawings to the corresponding prints, coordinating the changes as required

2. Clearly indicate at each affected detail and other Drawing, a full description of changes made during construction, and the actual location of items to be located.

3. Call attention to each entry by drawing a "cloud" around the area or areas affected.

4. Make changes neatly, consistently, and with the proper media to assure longevity and legibility.

D. Transfer of data to other Documents:

1. If Documents other than Drawings have been kept clean during progress of Work, and if entries thereon have been orderly and acceptable to Engineer, the job set of those Documents other than Drawings will be accepted as final Record Documents.

2. If any such Document is not acceptable to Engineer, secure a new copy of that Document from the Engineer at Engineer's usual charge for reproduction and handling, and carefully transfer the changed data to the new copy for acceptance by Engineer.

E. Review and submittal:

1. Submit completed set of Project Record Documents to Engineer as described above and under provisions of Section 01 33 00.

2. Participate in review meetings as required.

3. Make required changes and promptly deliver final Project Record Documents to Engineer.

3.3 CHANGES SUBSEQUENT TO ACCEPTANCE

A. Contractor has no responsibility for recording changes in Work subsequent to Final Completion, except for changes resulting from Warranty work.

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Demolition and removal of pipelines, concrete and asphaltic paving, sidewalk, curb and gutter and other work as required herein for a complete and functional project as indicated on the drawings and as specified in this section.

1.2 RELATED SECTIONS

A. Section 01 31 19—Project Meetings: Detailed Work Plan.

B. Section 01 52 00—Temporary Construction Facilities: Barricades, fences and landscape protection. Dust control.

C. Section 31 23 13—Earthwork and Trenching: Backfill materials.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Shop Drawings: Indicate demolition, removal sequence, and location of salvageable items.

1.4 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 77 00

B. Accurately record actual locations of subsurface obstructions.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable State and local codes for demolition of structures, safety of adjacent structures, dust control, and disposal.

B. Obtain required permits from authorities.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways, sidewalks, or hydrants without written permission from Owner.

E. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

1.6 SEQUENCING

A. Sequence work under the provisions of Section 01 11 00.

1.7 SCHEDULING

A. Schedule work under the provisions of Sections 01 11 00 and 01 32 16.

B. Provide detailed descriptions for demolition and removal procedures.

1.8 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, and patching, including attendant excavation and backfill, required to complete the Work or to:
   1. Make its several parts fit together properly
   2. Uncover portions of the Work to provide for installation of ill-timed work
   3. Remove and replace defective work
   4. Remove and replace work not conforming to requirements of Contract Documents
   5. Remove samples of installed work as specified for testing

B. Provide products as specified or as required to complete cutting and patching operations.

C. Inspection:
   1. Inspect existing conditions of the Project, including elements subject to damage or to movement during cutting and patching.
   2. After uncovering work, inspect the conditions affecting the installation of products, or performance of the work.
   3. Report unsatisfactory or questionable conditions to the Engineer in writing; do not proceed with the work until the Engineer has provided further instructions.

D. Preparation:
   1. Provide adequate temporary support as necessary to assure the structural value of integrity of the affected portion of the Work.
   2. Provide devices and methods to protect other portions of the Project from damage.
   3. Provide protection from the elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.
   4. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
   5. Restore work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 INSPECTION

A. Verify areas to be demolished are unoccupied and discontinued in use.

B. Do not commence work until conditions are acceptable to Engineer.

3.2 PREPARATION

A. Provide, erect, and maintain temporary barriers, enclosures, security fences and shoring at demolition locations in accordance with Section 01 55 26 to protect personnel and on-going operations.

B. Protect existing structures and electrical service which are not to be demolished.

C. Provide temporary wiring and connections to maintain existing telephone, electrical, instrumentation and control systems in service during construction.

D. Protect trees and plants from damage. Erect temporary tree enclosures (fence) as necessary to limit equipment contact with branches or trunks.

E. Mark location of existing utilities.

3.3 GENERAL REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures.

B. Conduct operations with minimum interference to Owner access. Maintain protected egress and access at all times.

C. Sprinkle Work with water to minimize dust where applicable. Provide hoses and water connections for this purpose.

D. Do not use water to extent causing flooding, contaminated runoff, or icing.

E. Break concrete and masonry into sections less than 3 feet in any dimension.

F. Repair damage to adjacent structures.

G. Protect walls or adjacent structures exposed to demolition work.

3.4 DISPOSAL

A. Remove demolition debris daily.

B. Do not store or burn materials on-site.

C. Transport demolition debris to disposal area.

3.5 SITE DEMOLITION

A. Disconnect, remove, cap and identify designated utilities within demolition area.

B. Remove asphalt paving, curb, gutter, sidewalk and other concrete slabs to facilitate construction.

C. Backfill areas excavated caused as a result of demolition, in accordance with Section 31 23 13.

D. Rough grade and compact areas affected by demolition to maintain existing site grades and contours.

E. Remove demolished materials from site.

F. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION

SECTION 03 30 00 – CONCRETE PAVING AND FLATWORK

1.1 GENERAL

A. Section includes forming, jointing, placing and curing of concrete pavements, curbs, gutters, sidewalks, ramps, aprons, valley gutter and cross-pans for parking areas, access roads, concrete paving, and pedestrian traffic.

1.2 RELATED SECTIONS

A. Section 31 23 13—Earthwork and Trenching

1.3 REFERENCES

A. ACI 214—Recommended Practice for Evaluating Compression Test Results of Field Concrete

B. ACI 301—Specifications for Structural Concrete for buildings

C. ACI 304—Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete

D. ACI 305/305R—Hot Weather Concreting

E. ACI 306/306R—Cold Weather Concreting

F. ACI 308—Standard Practice for Curing Concrete

G. ASTM A82—Cold Drawn Steel Wire for Concrete Reinforcement

H. ASTM A185—Welded Steel Wire Fabric for Concrete Reinforcement

I. ASTM A497—Welded Deformed Steel Wire Fabric for Concrete Reinforcement

J. ASTM A615—Deformed and Plain Billet-Steel for Concrete Reinforcement

K. ASTM C31—Making and Curing Concrete Test Specimens in the Field

L. ASTM C33—Concrete Aggregates

M. ASTM C39—Test Method for Compressive Strength of Cylindrical Concrete Specimens

N. ASTM C94—Ready Mix Concrete

O. ASTM C143—Test Method of Slump of Hydraulic Cement Concrete

P. ASTM C150—Portland Cement

Q. ASTM C260—Air-Entraining Admixtures for Concrete

R. ASTM C309—Liquid Membrane-Forming Compounds for Curing Concrete

S. ASTM C494—Chemical Admixtures for Concrete

T. ASTM C618—Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

U. ASTM D994—Preformed Expansion Joint Filler for Concrete (Bituminous Type)

V. ASTM D1190—Concrete Joint Sealer, Hot-Poured Elastic Type

W. ASTM D1751—Preformed Expansion Joint Fillers for concrete Paving and Structural Construction

X. ASTM D1752—Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

1.4 SUBMITTALS

A. Provide under provisions of Section 01 33 00

B. Product Data: Provide sufficient information on mix design and products specified to verify compliance with specifications. Provide data on joint filler admixtures and curing compounds under provisions of this section.

1. Existing data on proposed design mixes, certified and complete

2. Submit reports of field quality control testing

1.5 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials and aggregate from same source for all work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle materials in accordance with ACI recommendations.

B. Reinforcing steel: Store on supports which will keep it from contact with the ground and cover.

C. Rubber and plastic materials: Store in a cool place, do not expose to direct sunlight.

D. Prepare a delivery ticket for each load of ready-mixed concrete. Owner reserves the right to request batch weight tickets for each load.

E. Truck operator shall hand ticket to Engineer at the time of delivery with ticket to show:

1. Quantity delivered

2. Actual quantity of each material in batch

3. Outdoor temp in the shade

4. Time at which cement was added

5. Numerical sequence of the delivery

6. Quantity of water that can be added in the field based on mix design

7. Free moisture in fine and coarse aggregate in percent by weight

8. Temperature of batch

1.7 REGULATORY REQUIREMENTS

A. Conform to applicable Town of Firestone Design and Construction Standards and Specifications and Colorado Department of Transportation standards for concrete work.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when subgrade or subbase surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Protect concrete from rapid loss of moisture during hot water placement.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Form Materials: Capable of supporting loads imposed by construction equipment, straight and free from warp. Clean and strong enough to resist pressure of concrete when placed.

B. Joint filler: ASTM D1751 or D1752 type; 3/4 inch thick unless indicated otherwise.

2.2 REINFORCEMENT

A. Reinforcing Steel and Wire Fabric: In accordance with ACI 301.

B. Dowels: ASTM A615; 60 ksi yield grade, plain steel, unfinished finish.

2.3 CONCRETE MATERIALS

A. Provide concrete materials under applicable Town of Firestone Design and Construction Standards and Specifications and Colorado Department of Transportation standards for concrete work.

2.4 ACCESSORIES

A. Curing Compound: ASTM C309, AASHTO M-148, white pigmented liquid membrane.

B. Joint Sealers: Sikaflex self-leveling, non-sag or approved equal

C. Sheet Materials: AASHTO M171, 4 mil

2.5 MIX

A. Flatwork

1. Maximum Aggregate Size: 3/4"

2. Cement: 564 pounds minimum per cubic yard of concrete.

3. Water/Cementitious Material (Cement and Fly Ash) Ratio Less than or equal to 0.45.

4. Slump: 4 inch maximum:

   a. May be increased to 5 inches for hand work, acceptable to Engineer

   b. As low as possible consistent with proper handling and thorough compaction

5. Volumetric Air Content: 5-8%

6. Vary air content with maximum size aggregate, ASTMC94, Table 3

7. Strength: Compressive strength as determined by ASTM C39, 4,500 psi minimum at 28 days.

B. Concrete Slip Form Paving (PCCP)

1. Conform to CDOT Class P.

2. Conform to Section 412 and 601 of the CDOT Standard Specifications; 2017 or latest edition.

3. Provide surface tining or heavy broom as approved by Engineer.

4. Provide dowel and tie rod installation according to jointing plans.

C. Consistency: Uniform slump, suitable for the placement conditions with aggregate floating uniformly throughout the concrete mass, flowing sluggishly when vibrated or spaded.

D. Adjust mix as required to meet specifications.

E. Contractor may substitute fly ash for up to 15 percent of cement at a ratio of the specific gravity of cement divided by specific gravity of fly ash.

F. Calcium chlorides are not permitted

2.6 SOURCE QUALITY CONTROL AND TESTS

A. Provide under provisions of Section 01 45 00.

B. Submit proposed mix design to Engineer for review prior to commencement of work.

C. Tests on cement and aggregates will be performed to ensure conformance with specified requirements.

D. Test samples in accordance with ACI 301.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.2 SUBGRADE

A. Prepare subgrade in accordance with Section 31 23 13.

B. Scarify below existing subbase to 12" depth or greater and recompact to 95% of standard proctor.

C. Check for soft spots by proof-rolling or other means prior to setting forms. Remove soft yielding material and replace. Compact to specifications under provisions of Section 31 23 13.

D. Check crown and/or elevation of subgrade to assure specified thickness. Compact to specification additional material used to bring to correct elevation. Remove excess material where subgrade is too high.

E. Clean subgrade of all loose materials before placement of concrete. Do not disturb area inside forms after fine grading is complete.

3.3 PREPARATION

A. Moisten subgrade to depth of 8 inches at optimal moisture not more than 12 hours prior to placement to minimize absorption of water from fresh concrete.

B. Coat surfaces of manhole and catch basin frames with oil or bond breaker to prevent bond with concrete pavement for concrete collars.

C. The Contractor shall call for inspection, giving one (1) working day (twenty-four [24] hours) notice, and inspection will be made before placement of concrete can occur. Inspector's approval to place materials will be obtained by the Contractor AFTER inspection has been made and BEFORE concrete is placed. Notice of rejection shall be given to Contractor in the event any aforementioned conditions given by the Town Engineer are not met, and work shall be halted until such time as corrective action is taken. Copies of the accepted drawings and the permit shall be on the job site and available to the inspector.

3.4 FRAME ADJUSTMENT

A. Set frames of structures in full grout bed to provide proper bearing. Set to final grade.

B. Form construction joints and blockouts as indicated on drawings.

3.5 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Join neatly and mechanically tamp to assure firm placement. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Oil forms prior to concrete placement.

D. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

E. Set dowels, expansion joints, preformed construction joints and header boards as specified or indicated on the drawings

F. Backfill behind forms as required to prevent water from entering subgrade

3.6 REINFORCEMENT

A. Place reinforcement at mid-height of slabs-on-grade or as shown in standard specifications

B. Hold all tie and marginal dowels in proper position by sufficient supports or pins

C. Mechanically install dowels or place on supports if center longitudinal joint is sawed in lieu of placing plastic strip

D. Interrupt reinforcement at expansion joints

E. Place dowels to achieve pavement and curb alignment as detailed

F. Provide doweled joints inch at interruptions of concrete with one end of dowel set in capped sleeve to allow longitudinal movement

G. Grease dowels on one side of joints with caps on greased end

H. Install all reinforcing, tie rods or dowels in accordance with the plans.

3.7 TRANSPORTING MIXED CONCRETE

A. Transporting of mixed concrete shall conform to ACI 305R

B. Do not exceed manufacturer's guaranteed capacity of truck agitators. Maintain the mixed concrete in a thoroughly mixed and uniform mass during hauling

C. Do not incorporate additional mixing water into the concrete during hauling or after arrival at the delivery point, unless ordered by the Engineer. If additional water is to be incorporated into the concrete, revolve the drum not less than 30 revolutions at mixing speed after the water is added and before placing concrete

D. Furnish a water measuring device in good working condition, mounted on each transit mix truck, for measuring the water added to the mix on the site by the Engineer

E. Provide delivery ticket and comply with delivery requirements of this section

3.8 PLACING CONCRETE

A. Place concrete in accordance with ACI 301

B. Lightly moisten subgrade or base course immediately before placing concrete

C. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement

D. Deposit concrete near final position. Minimize segregation and damage to subgrade

E. Place concrete continuously over the full width of the panel and between predetermined construction joints. Spread mechanically to prevent segregation and separation of materials

F. Consolidate concrete with vibrators and spade next to forms to remove air spaces or honeycombs

G. Do not place concrete in forms that has begun to set

H. Do not place more concrete in one day than can be finished before dark the same day

3.9 COLD WEATHER CONCRETING

A. Conform to ACI 306/306R, except as modified herein

B. Minimum concrete temp at the time of mixing

Outdoor Temp at Placement (in shade)	Concrete Temp at Mixing
Below 30 degrees F	70 degrees F
Between 30 degrees F and 45 degrees F	60 degrees F
Above 45 degrees F	50 degrees F

C. Do not place heated concrete which is warmer than 80 degrees F

D. If freezing temp are expected during curing, maintain the concrete temp at or above 50 degrees F for 5 days or 70 degrees F for 3 days with forms in place

E. Do not allow concrete to cool suddenly

3.10 HOT WEATHER CONCRETING

A. Conform to ACI 305/305R, except as modified herein

B. At air temp of 90 degrees F and above keep concrete as cool as possible during placement and curing. Fog sprayers or special wetting agents may be required for protection

C. Do not allow concrete temperature to exceed 70 deg F at placement

D. Prevent plastic shrinkage cracking due to rapid evaporation of moisture

E. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 lbs. per sq ft per hr as determined from ACI 305, Fig 2.1.4

3.11 JOINTS

A. Paving:

1. Contraction joints: At intervals not to exceed 10 feet, or as modified by pavement jointing plan. Align curb, gutter, and sidewalk joints where applicable. Saw cut contraction joints

3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab. Construct joints according to approved jointing plan and CDOT M-412-1.

2. Expansion joints: At intervals not to exceed 50 feet, or as modified by pavement jointing plan.

B. Sidewalk:

1. Contraction joints: At intervals not to exceed 5 feet and 1 1/2 inches deep

2. Expansion joints: 1/2 inch premolded joints where sidewalks end at curb returns, against fixed objects, at points of sharp radius, and between sidewalk and driveway slabs. Place expansion joint a maximum of every fifty feet

C. Curb and Gutter:

1. Contraction joints: At intervals not to exceed 10 feet made by insertion of 1/8 inch template at right angles to curb and 1 1/2 inch deep

2. Expansion joints: At curb returns, against fixed objects, at points of sharp radius, between adjacent sidewalk and curb at all curb returns, between curb and all driveway slabs

D. Place joint filler between paving components and building or other appurtenances at temperatures above 50 degrees F. Clean all dust, debris and water from joint. Recess top of filler 1/4 inch for sealant placement

E. Provide keyed joints as indicated

3.12 FINISHING

A. Run straight-edge over forms with sawing motion to fill all holes and depressions

B. Wood float surface immediately after using a straight-edge

C. Brush with soft bristle brush to remove trowel marks and leave a uniform appearance just before concrete takes initial set

D. Direction of Texturing:

1. Paving: Transverse to pavement direction; as indicated in the drawings or specifications.

2. Curb and Gutter: At right angles to the curb line

3. Sidewalk: At right angles to centerline of sidewalk

4. Valley Gutters: Parallel to curb line

E. Inclined Vehicular Ramps: Broomed perpendicular to slope

F. Place curing compound on exposed concrete surfaces immediately after finishing. Apply under pressure at the rate of one gallon to not more than 135 square feet by mechanical sprayers in accordance with manufacturer's instructions acceptable to Engineer

3.13 JOINT SEALING

A. Seal all paving joints and clean pavement prior to opening to traffic

B. Seal all expansion joints

C. Separate pavement from vertical surfaces with 3/4 inch thick joint filler

D. Place joint filler in pavement pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete

E. Extend joint filler from bottom of pavement to within 1/4 inch of finished surface.

3.14 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury

B. Have plastic sheeting, straw, burlap and/or canvas materials available at all times to protect fresh uncured surfaces from adverse weather conditions

C. Do not permit pedestrian traffic over sidewalks for 3 days minimum after finishing. Do not permit vehicular traffic over pavement for 7 days minimum after finishing or until 80 percent design strength of concrete has been achieved.

3.15 TOLERANCES

A. Maximum Variation of Surface Grade: 1/4 inch in 10 ft

B. Maximum Variation from True Alignment: 3/8 inch in 10 ft

3.16 FIELD QUALITY CONTROL

A. Section 01 45 00—Quality Assurance: Field inspections and testing

B. Owner will take cylinders and perform slump and air entrainment tests in accordance with ACI 301. Unit weight and mix temperature will also be taken

C. The first three loads will be tested for slump and air content. If any one test fails to meet requirements, that load will be rejected and tests will continue on each load until three consecutive loads meet requirements. Thereafter, five concrete test cylinders will be taken for every 75 cubic yards or less of concrete placed each day or as adjusted by the Engineer.

D. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.

E. One slump and air entrainment test will be taken for each set of test cylinders taken.

F. Cylinders will be tested as follows: 2 at 7 days, 2 at 28 days and 1 at a later date, if necessary, as directed by the Engineer

G. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken

H. Thickness of fresh concrete may be checked by Owner at random. Coring will be conducted in accordance with Colorado Department of Transportation requirements. Any deficiencies greater than ¼" will be removed and replaced at the Contractor's expense.

I. Failure of Test Cylinders or Coring Results: Engineer may order removal and replacement of concrete as required upon failure of 28-day tests or if thickness of pavement is less than 95 percent of specified thickness

END OF SECTION

SECTION 31 23 13 - EARTHWORK AND TRENCHING

PART 1 GENERAL

1.1 DESCRIPTION

A. Clearing, grubbing and site preparation

B. Removal and disposal of debris

C. Handling, storage, transportation, and disposal of excavated material

D. Sheeting, shoring, bracing and protection work

E. Pumping and dewatering as required or necessary

F. Backfilling

G. Pipe Bedding

H. Construction of fills and embankments

I. Trench Stabilization

J. Final grading

K. Appurtenant work

1.2 RELATED SECTIONS

A. Section 32 80 00 – Irrigation

B. Section 32 92 00 – Exterior Plants

C. Section 32 93 01 – Soil Preparation

D. Section 32 93 02 - Topsoil

1.3 REFERENCES

A. ASTM C33—Concrete Aggregates

B. ASTM C136—Sieve Analysis of Fine and Coarse Aggregates

C. ASTM D1241—Material for Soil Aggregate Subbase, Base and Surface Courses

D. ASTM D698—Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12-Inch Drop

E. ASTM D1557—Test Methods for Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb Rammer and 18 inch drop

F. ASTM D4253—Test Methods for Maximum Index Density of Soils Using a Vibratory Table

G. ASTM D4254—Test Methods for Minimum Index Density of Soils and Calculations of Relative Density

H. ASTM D2922—Test Methods for Density of Soil and Soil-Aggregate Mixtures in Place by Nuclear Methods (Shallow Depth)

I. ASTM D3017—Test Method for Moisture Content of Soil and Soil-Aggregate Mixtures

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00

B. Product Data: Submit on all products or materials supplied herein

C. Test Reports: Indicate sieve analysis, optimum moisture content and density in accordance with ASTM D698 for cohesive soils including onsite native material. Indicate supplier, sieve analysis, and maximum relative density in accordance with ASTM D4253 and D4254 for crushed rock or gravel, pipe bedding and other cohesionless material for fills and embankment.

1.5 REGULATORY REQUIREMENTS

A. Comply with all requirements of State Construction Dewatering Permit.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Protect adjacent structures and surrounding areas from damage during excavation, filling, and backfilling.

B. Protect work from erosion or other similar types of damage until the project has been completed.

C. Do not backfill or construct fills during freezing weather. Backfill or construct fills only when temperature is 35ºF and rising.

D. Do not use frozen materials, snow, or ice in any backfill or fill area.

E. Do not backfill or construct fill on frozen surfaces.

F. Protect excavated material from becoming frozen.

G. Protect trees from permanent damage by construction activities.

H. Provide temporary bridges for roadways, walkways, driveways, etc.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide materials under applicable Town of Firestone Design and Construction Standards and Specifications and Colorado Department of Transportation standards.

B. Classification of Excavated Materials:
1. None
2. Remove and handle excavated materials regardless of type, character, composition, condition, or depth of material at no additional cost to Owner.

3. Remove and handle excavated materials regardless of means, methods and techniques required, at no additional cost to Owner.

C. Handling of Excavated Materials:
1. Remove all excavated soils from project Work areas and store at site(s) designated by Contractor.
2. Separate topsoil from trench excavated soils
3. Import off-site job excavated soils only as necessary to accommodate current Work
4. Stockpiling of job excavated soils shall be allowed in designated areas.

D. Backfill below non-paved areas:
1. Use excess earth from excavation for fill between bedding zone and bottom of topsoil
2. Free from rocks or stones larger than 6 inch in greatest dimension and free from brush, stumps, logs, roots, debris, and organic and other deleterious materials
3. No rocks or stones in upper 18 inch of fill

E. Backfill below paved areas:
1. Use excavated materials
2. Compact to 95% SPD or as otherwise specified

F. Topsoil:
1. Native material removed and stockpiled before excavation
2. Free from trash and debris
3. Supplement and/or amend as specified

G. Pipe Bedding: Reference project details – CDOT No. 8 or No. 67; provide aggregates as shown on the plans.

Table 703-2
CONCRETE AGGREGATE GRADATION TABLE
Percentage Passing Designated Sieves and Nominal Size Designation

Sieve Size	Coarse Aggregates (from AASHTO M 43)									Fine Aggregate
	No. 3	No. 357	No. 4	No. 467	No. 57	No. 6	No. 67	No. 7	No. 8	
	50 mm to 25.0 mm (2" to 1")	50 mm to 4.75 mm (2" to No. 4)	37.5 mm to 19.0 mm (1½" to ¾")	37.5 mm to 4.75 mm (1½" to #4)	25.0 mm to 4.75 mm (1" to #4)	19.0 mm to 9.5 mm (¾" to ⅜")	19.0 mm to 4.75 mm (¾" to #4)	12.5 mm to 4.75 mm (½" to #4)	9.5 mm to 2.36 mm (⅜" to #8)	4.75 mm to 150 µm (#4 to #100)
63 mm (2½")	100	100								
50 mm (2")	90 – 100	95 – 100	100	100						
37.5 mm (1½")	35 – 70		90 – 100	95 – 100	100					
25.0 mm (1")	0 – 15	35 – 70	20 – 55		95 – 100	100	100			
19.0 mm (¾")			0 – 15	35 – 70		90 – 100	90 – 100	100		
12.5 mm (½")	0 – 5	10 – 30			25 – 60	20 – 55		90 – 100	100	
9.5 mm (⅜")			0 – 5	10 – 30		0 – 15	20 – 55	40 – 70	85 – 100	100
4.75 mm (#4)		0 – 5		0 – 5	0 – 10	0 – 5	0 – 10	0 – 15	10 – 30	95 – 100
2.36 mm (#8)					0 – 5		0 – 5	0 – 5	0 – 10	80 – 100
1.18 mm (#16)									0 – 5	50 – 85
600 µm (#30)										25 – 60
300 µm (#50)										10 – 30
150 µm (#100)										2 – 10

PART 3 EXECUTION

3.1 EXAMINATION

A. Field verify the location of all underground utilities, pipelines and structures prior to excavation.

3.2 PERFORMANCE

A. Perform work in a safe and proper manner with appropriate precautions against hazard.

B. Provide adequate working space and clearances for work performed within excavations and for installation and removal of concrete forms.

C. Do not undercut excavation faces for extended footings.

D. Clean subgrades of loose material before concrete is placed thereon.

E. Except as otherwise authorized, indicated, or specified, replace all material excavated below the bottom of concrete walls, footings, slabs on grade and foundations with concrete placed at the same time and monolithic with the concrete above.

3.3 PREPARATION

A. Clear sites to be occupied by permanent construction of roots, brush, and other objectionable material and debris.

B. Clean and strip subgrade for fills and embankments of surface vegetation, sod, tree stumps and organic topsoil.

C. Remove waste materials from site and dispose.

D. Remove debris from site daily and dispose of off-site; on-site burning is not permitted.

3.4 PRESERVATION OF TREES

A. Do not remove trees under any circumstances, unless noted otherwise.

B. Protect trees from permanent damage by construction operation.

C. Hand excavate inside of, and within 10’ outside diameter, of root zone

3.5 TOPSOIL

A. Remove and stockpile sufficient topsoil from surface to a minimum depth of 4-inches where the original topsoil will be covered or damaged.

B. Import additional clean material to surface fill embankments, berms, and other areas where original topsoil will be covered or damaged.

C. At the completion of other work in each area, place and grade topsoil to maintain gradient as indicated.

3.6 DEWATERING

A. Provide and maintain adequate dewatering equipment to remove and dispose of surface and groundwater entering excavations, trenches, and other parts of the work.

B. Keep each excavation dry during subgrade preparation and continually thereafter until the structure to be built or the pipe to be installed is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

C. Dewater excavations which extend to or below groundwater by lowering and keeping the groundwater level beneath such excavation at least 12 inches below the bottom of the excavation.

D. Divert surface water or otherwise prevent it from entering excavated areas or trenches to the extent practical without damaging adjacent property.

E. Maintain all drainage pipes, keep clean and free of sediment during construction and final cleanup.

F. Obtain and comply with conditions of CDPHE construction dewatering permit.

3.7 SHEETING, SHORING AND BRACING

A. Provide proper and substantial sheeting, shoring, and bracing, as required, to prevent caving or sliding, to protect workmen and the Work, and to protect existing structures, facilities, and utilities.

B. Design and build sheeting, shoring, and bracing to withstand all loads that might be caused by earth movement or pressure, and to be rigid, maintaining shape and position under all circumstances.

C. Provide a support plan to the Engineer detailing the proposed pile and lagging system, along with assumptions and calculations for design, planned methods and sequencing of the support installation, and anticipated difficulties with proposed resolutions.

D. Do not begin to remove excavation support until support can be removed without damage to existing facilities, completed Work, or adjacent property.

E. Remove excavation support in a manner that does not leave voids in the backfill.

F. Do not pull trench sheeting before backfilling unless pipe strength is sufficient to carry trench loads based on trench width to the back of sheeting.

G. Do not brace sheeting left in place against the pipe, but support it in a manner that precludes concentrated loads or horizontal thrusts on pipe.

H. Cross braces installed above the pipe to support sheeting may be removed after pipe bedding is completed.

3.8 TRENCH STABILIZATION

A. Thoroughly compact and consolidate subgrades for concrete structures, precast structures, and utility trench bottoms so they remain firm, dense and intact during required construction activities.

B. Remove all mud and muck during excavation.

C. Reinforce subgrades with crushed rock or gravel if they become mucky during construction activities. Provide layer of filter fabric over stabilization material if installed.

D. Finished elevation of stabilized subgrades are to be at or below subgrade elevations indicated on drawings.

E. Allow no more than 2 inch depth of mud or muck to remain on trench bottoms when pipe bedding material is placed thereon.

3.9 CRUSHED ROCK OR GRAVEL FILLS

A. Place on suitably prepared subgrade and compacted.

B. Compacted by vibration.

3.10 ROADWAY EXCAVATION AND SUBGRADE PREPARATION

A. Excavate for roadways, drives and parking area to match existing on-site conditions.

B. Excavate unsuitable material from the subgrade.

C. After shaping, roll subgrade compacted to 98 percent of max density within 2 percent (+/-) optimum moisture content, ASTM D698, to a minimum depth of 6 inch.

D. Reshape and wet as required.

E. Remove soft or otherwise unsuitable material, and replace with suitable material.

3.11 FILLS AND EMBANKMENTS

A. Level and roll subgrade so surface materials will be compact and bond with the first layer of fill or embankment.

B. Place in horizontal layers 8 inch max uncompacted depth.

C. Spread and level material deposited in piles and windrows before compacting.

D. Thoroughly compact each layer by rolling or other means acceptable to Engineer to 98 percent of max density within 2 percent (+/-) optimum moisture content.

E. Alter compaction methods if material fails to meet specified density.

F. Where a trench passes through a fill or embankment, place and compact fill or embankment to 12 inch above the top of the pipe before excavating the trench.

G. Add water and harrow, disc, blade, or otherwise work each layer to obtain the uniform moisture content and adequate compaction.

3.12 BLASTING

A. Blasting or other use of explosives is not permitted.

3.13 TRENCH EXCAVATION

A. Establish alignment and grade or elevation from offset stakes

B. Excavate trenches so pipes can be laid straight at uniform grade without dips or bumps, between the terminal elevations indicated on the drawings.

C. Comply with pipe specification sections regarding vertical and horizontal alignment and max joint deflection.

D. Measure pipe cover depth vertically from top of pipe to finished ground or surface elevation.

E. Do not open more trench in advance of pipe laying than is necessary to expedite the work;

F. Except where tunneling or horizontal directional drilling is indicated on the drawings, specified, or permitted by Engineer, excavate trenches by open cut from the surface

G. Mechanical excavation:
   1. Do not use where its operation would damage buildings, culverts, or other existing property, structures, or utilities above or below ground; hand excavate only in such areas
   2. Use mechanical equipment of a type, design, and construction and operated so that:
      a. Rough trench bottom elevation can be controlled
      b. Uniform trench widths and vertical sidewalls are obtained from 1 foot above the top of the installed pipe to the bottom of the trench
      c. Trench alignment is such that pipe is accurately laid to specified alignment and is centered in the trench with adequate clearance between pipe and trench sidewalls.
   3. Do not undercut trench sidewalls.
   4. Re-compact trench bottom disturbed by bucket teeth prior to placement of bedding material.

H. Except as otherwise required, excavate trenches below the underside of pipes as indicated in the drawings to provide for installation of granular bedding pipe foundation material.

I. Whenever so directed by Engineer, excavate to such depth below grade as Engineer directs and bring the trench bottom to grade with such material as Engineer may direct.

J. Provide concrete, or other foundations made necessary by unstable soil as directed by Engineer.

K. Excavate to provide adequate clearance for tools and methods of pipe installation.

L. Do not allow any of bells or couplings to contact the trench bottom, walls when pipe is joined.

M. Cuts in surface construction:
   1. No larger than necessary to provide adequate working space
   2. Cut a clean groove not less than 12 inch deep along each side of trench or around perimeter of excavation area
   3. Remove pavement and base pavement to provide shoulder not less than 3 feet wide between cut edge and top edge of trench
   4. Do not undercut trenches, resulting in bottom trench width greater than top widths
   5. Make pavement cuts to and between straight or accurately marked curved lines parallel to trench centerline or limits of excavation
   6. Remove pavement for connections to existing lines or structures only to the extent required for the installation, as determined by Engineer
   7. Where the trench parallels the length of a concrete walk which is all or partially over the trench, remove and replace the entire walk
   8. Where the trench crosses the drives, walks, curbs, or other surface construction, remove and replace the surface construction between saw cuts as specified for pavement

3.14 PIPE BEDDING

A. Embed pipes above and below the bottom of pipe as indicated in the drawings and as specified.

B. Spread and surface grade granular bedding to provide continuous and uniform support beneath pipe at all points between pipe joints.

C. After grading, aligning, and placing pipe in final position, and shoring home, deposit and compact sufficient bedding under and around each side of the pipe and to hold the pipe in proper position and alignment during subsequent operations

D. Place and compact bedding material uniformly and simultaneously on both sides of pipe to prevent lateral displacement.

E. Granular bedding:
   1. Compact by slicing with shovel or vibrating
   2. Maximum uncompacted thickness of layers: 6 inch

F. Compacted bedding:
   1. Maximum uncompacted thickness of layers: 8 inch
   2. Compact to 95 percent max density as determined by ASTM D698
   3. Compact to 70 percent relative density ASTM D4253/D4254

3.15 TRENCH BACKFILL

A. Compacted backfill:
   1. For full depth of trench above bedding
   2. Beneath roadways, surfacing, driveways, curbs, gutters, walks or other surface construction or structures
   3. In street or highway shoulders
   4. In established sodded areas
   5. Beneath fills and embankments

B. Where the trench for one pipe passes beneath the trench of another pipe, compact the backfill for the lower trench to the bottom of the upper trench.

C. Place job excavated materials in 8 inch max uncompacted thickness, uniform layers.

D. Increased layer thickness may be permitted for uncohesive material if Contractor demonstrates to Engineer's satisfaction that specified compacted density will be achieved.

E. Use methods and equipment appropriate to the material to be compacted to prevent transmission of damaging shocks to pipe.

F. Compact to 98 percent of max density within 2 percent (+/-) optimum moisture content per ASTM D698 or to an equivalent percent relative density per ASTM D4253/D4254 when appropriate.

G. Graded gravel:
   1. Deposit in uniform layers of 8 inch max uncompacted thickness
   2. Compact with suitable vibrating roller or platform vibrator to not less than 70 percent relative density per ASTM D4253/D4254

H. Uncompacted backfill:
   1. Compaction of backfill above pipe bedding in locations other than those specified, is required only to prevent future settlement
   2. May be placed by any method acceptable to Engineer which will not impose excessive concentrated or unbalanced loads, shock, or impact on, and will not result in displacement of installed pipe
   3. Do not drop compact masses of stiff clay or other consolidated material more than 5 feet into trench unless cushioned by 2 feet minimum of loose backfill above pipe bedding

I. Finish the top portion of backfill with a thickness of topsoil corresponding to, or better than, that underlying adjoining sodded areas.

3.16 STRUCTURAL BACKFILL

A. Maximum uncompacted thickness of layers: 6 inches

B. Compact with mechanical, platform-type tampers

C. Minimum density of 98 percent within 2 percent (+/-) optimum moisture content as determined by ASTM D698.

D. Use roller for compaction if necessary to prevent damage to structure and desired density can be obtained.

E. Compaction by inundation by water not permitted.

F. If trench passes through a structure backfill, compact backfill to an elevation of 12 inches above top of pipe before trenching.

G. Do not deposit or compact tamped or otherwise mechanically compacted backfill in water.

H. Take particular care to compact backfill which will be beneath slabs, pipes, drives, roads, parking areas, curb, gutters or other surface construction.

3.17 DRAINAGE MAINTENANCE

A. Do not backfill trenches across roadways, drives, walks or other trafficways adjacent to drainage ditches or water courses prior to backfilling the trench on the upstream side of the trafficway to prevent impounding water after pipe is laid.

B. Backfill so that water does not accumulate in unfilled or partially filled trenches.

C. Remove materials deposited in roadway ditches or other water courses crossed by the trench line immediately after backfilling is completed and restore ditches and water courses to original section, grade, and contours.

D. Do not obstruct surface drainage any longer than necessary.

E. Provide and maintain temporary bridges and other structures across unfilled trenches as required to maintain traffic.

3.18 DISPOSAL OF EXCESS EXCAVATED MATERIALS

A. Use excess excavated materials in fills and embankments as indicated on the drawings to the extent needed.

B. Dispose of suitable excess excavated materials at locations directed by Engineer. Excess excavated materials shall be hauled off site. Excess excavated materials shall not be left on site.

C. Remove unused suitable material from the site and dispose of it.

D. Remove debris, junk, broken concrete, broken asphalt, rock, stones, stumps, logs, roots, and other unsuitable material from the site and dispose of it.

E. Except as otherwise permitted, dispose of excess excavated materials away from the site of the Work or as directed by Owner.

F. Haul excess earth from excavations off-site.

3.19 FINAL GRADING

A. After completion of all other outside work and after backfilling is completed and settled, bring all areas of the site to pre-construction grades.

B. Graders and other power equipment may be used for final grading and slope dressing if the result is uniform and equivalent to hand work.

3.20 STORMWATER MANAGEMENT PLAN

A. Submit General Permit Application to CDPHE for stormwater discharges associated with construction activity and comply with all conditions of the permit.

3.21 SETTLEMENT

A. Warranty for settlement of all fills, embankments, and backfills is stipulated in the General Conditions from final completion of Contract under which Work is performed.

B. Repair or replace within 30 days after notice by Engineer or Owner.

3.22 FIELD QUALITY CONTROL

A. Provide under provisions of Section 01 45 00

B. Coordinate and all tests to determine compliance of in-place and backfill materials and compaction in accordance with the specifications

C. Fills and Embankment:
1. Two moisture-density relationship tests, ASTM D698 on each type of fill material
2. One in-place compaction test for every 1.5 feet of vertical lift of material placed

D. Pipe Bedding and Backfill:
1. Two initial gradation tests for each type of material plus 1 additional test for 500 cubic yards of each material
2. Two moisture-density relationship tests, ASTM D698, or 2 relative density tests, ASTM D4253/D4254, as appropriate for each type of bedding on backfill material proposed, except granular bedding material
3. One in-place compaction test every 100 lineal feet of trench in the compacted bedding zone and at every 1.5 feet of vertical lift of backfill materials, ASTM D2922/D3017
4. One in-place compaction test near top of trench for trench depth of 2 feet or less, ASTM D2922/D3017
5. Five (5) additional in-place compaction tests at the discretion of the Engineer, ASTM D2922/D3017

END OF SECTION

SECTION 32 11 23 – AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The worked to be performed includes placement of aggregate base courses as subgrade base for leveling, fill, and stabilization prior to installation of pavements.

1.02 RELATED SECTIONS

A. Section 03 30 00 – Concrete Paving and Flatwork

B. Section 31 23 13 – Earthwork and Trenching

C. Section 32 12 16 – Asphalt Paving

1.04 SUBMITTALS

A. The CONTRACTOR shall cooperate with the ENGINEER in obtaining and providing samples of all specified materials. The CONTRACTOR shall submit certified laboratory test certificates for all items required in this section under Section 01 33 00.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials under applicable Town of Firestone Design and Construction Standards and Specifications and Colorado Department of Transportation Standards.

   A. Aggregates for bases except Aggregate Base Course (RAP) shall be crushed stone, crushed slag, crushed gravel, natural gravel, or crushed reclaimed concrete.Gradation shall meet CDOT Class 5 or 6 Aggregate Base Course and shall conform to quality requirements of AASHTO M 147 except that the requirements for the ratio of minus 75 µm (No. 200) sieve fraction to the minus 425 µm (No. 40) sieve fraction, stated in 3.2.2 of AASHTO M 147, shall not apply.

   B. Recycled Asphalt base course shall meet the latest version of CDOT Standard Project Specifications.

2 EQUIPMENT

A. General: Equipment shall be capable of legally performing the work as described in this Specification. Equipment that is inadequate to obtain the results specified shall be replaced or supplemented as required to meet the requirements of this Specification. Any equipment that is used in an improper manner may be cause for rejection of the work if in the opinion of the ENGINEER the work fails to meet the requirements of this specification.

B. Equipment used for compaction shall be the rolling type, vibratory type, or combination of both types, and shall be of sufficient capacity to meet the compaction requirements herein.

PART 3 EXECUTION

3.01 PREPARATION OF FOUNDATION

A. Prior to placement of base materials, the foundation shall be considered to be the finished earth subgrade, subbase course, or base course, as the case may be, upon which any subbase, base or surface course is to be constructed.

Preparation of foundation for construction of a subbase, base, or surface course shall consist of the work necessary to restore, correct, strengthen or prepare the foundation to a condition suitable for applying and supporting the intended course.

For aggregate base course roads and parking areas, shall be stripped within the area to be aggregate surfaced. Following stripping of the topsoil, the upper 12 inches of the subgrade shall be scarified and compacted to a minimum of 95% of the Maximum Standard Proctor Density (ASTM D698). On-site material may be used as accepted by the ENGINEER, for compacted fill for the aggregate base course. Fill shall be placed within 2% of optimum moisture content and compacted to a minimum of 95% of the Maximum Standard Proctor Density (ASTM D698).

Aggregate base course used as a foundation for pavements shall be placed on the subgrade within two percent of optimum moisture and compacted to a minimum of 95% of the Maximum Standard Proctor Density (ASTM D698). Deviations in aggregate base course under pavements of more than 1/4 inch in 10 feet, measured with a 10-foot straight edge, shall be corrected prior to pavement construction.

The foundation shall be prepared and constructed such that it will have a uniform density throughout. It shall be brought to the required alignment and cross section with equipment and methods adapted for the purpose. Upon completion of the shaping and compacting operations, the foundation shall be smooth, at the required density, and at the proper elevation and contour to receive the aggregate base course.

Recylced base course material shall not be placed on a foundation that is soft, spongy, or one that is covered by ice or snow. Aggregatwe Base course shall not be placed on a dry or dusty foundation where the existing condition would cause rapid dissipation of moisture from the base course material and hinder or preclude its proper compaction. Dry foundations shall have water applied and reworked and compacted as necessary.

The ENGINEER shall direct the CONTRACTOR to make minor adjustments in the finish grade from that shown in the Drawings as may be necessary or desirable to maintain the characteristics of a stabilized foundation by minimizing the amount of cutting or filling.

Proof rolling shall be required on all subgrades and aggregate base courses or where required by the Town Engineer to locate weak areas. Proof rolling shall be carried out as designated with a fully loaded 2,000 gallon single axle water truck. No separate payment shall be made for proof rolling operations. Areas of subgrade exposed and not previously disturbed but found to be weak and/or fail the test shall, at the direction of the Town Engineerm excavated, scarified , wetted if necesart, and compacted with suitable backfill material to meet the requirements for density and moisture. After density and moisture requirements have been met, failed areas will require a subsequent proof roll.

Areas of subgrade already conditioned but upon proof rolling are found to be weak and/or fail the test sthall be ripped scarified, wetted if necessary, and compacted to the requirements for density and moisute. After density and moisture requirements have been met, failed areas will require a subsequent prioof roll. All reconditioning will be a the contractors expense.

All proof rolls will be voided afther twenty (24) hours or a weather event.

3.03 EARTH SUBGRADE

A. When the foundation is an earth subgrade it shall be prepared by removing all vegetation, excavating and removing materials, filling depressions, scarifying, shaping, smoothing and compacting to meet the required grade, section and density. Stones over six inches in greatest dimension shall be removed.

3.03 PLACEMENT

A. The aggregate base course shall be constructed to the width, section and areas as shown in the Drawings. If the required compacted depth of base coarse exceeds six inches, the base shall be constructed in two or more layers of approximate equal thickness. The maximum compacted thickness of any one layer shall not exceed six inches.

Each layer shall be constructed as far in advance of the succeeding layer as the ENGINEER may direct. The work shall, in general, proceed from the point on the project nearest the point of supply of the aggregate in order that the hauling equipment may travel over the previously placed material, and the hauling equipment shall be routed as uniformly as possible over all portions of the previously constructed courses or layers of the base course.

The material shall be deposited on the soil foundation, or previously placed layer in a manner to minimize segregation and to facilitate spreading to a uniform layer of the required section. In the event that blending of materials is necessary to provide required gradation and properties of the material, and is done in the roadway or placed area, the same shall be accomplished by mixing the aggregate and blending material by means of blade graders, discs, harrows or other equipment to effect a uniform distribution and gradation throughout the finished mixture. Excessive mixing and grading that will cause segregation between the coarse and fine materials is prohibited.

3.04 COMPACTION

A. After a layer or course has been placed and spread to the required thickness, width and contour, it shall be compacted. If the material is too dry to readily attain the required density, it shall be uniformly moistened to the degree necessary during compaction operations for proper compaction.

B. Compaction of each layer shall continue until the required density of Section 3.02 is reached. The surface of each layer shall be maintained during compaction operations in such a manner that a uniform texture is produced and aggregates firmly keyed.

All areas where proper compaction is not obtainable due to segregation of materials, excess fines, or other deficiencies in the aggregate, shall be reworked as necessary or the material removed and replaced with aggregates that will meet this specification.

The surface of each layer shall be kept true and smooth at all times.

3.05 MIXING

A. General: Unless otherwise specified, the CONTRACTOR shall mix the aggregate by the following methods.

1. Road Mix Method

After material for each layer has been placed, the materials shall be mixed while at an optimum moisture content by motor graders or other approved equipment until the mixture is uniform throughout.

3.06 SHOULDER CONSTRUCTION

A. Shoulders shall be constructed with base course materials to conform to the elevation and section shown in the Drawings. No equipment shall be used which by its design or through its manner of operation that will damage the pavement or curbs. Insofar as practicable, the base course material shall be placed directly on the shoulder area. Materials that are deposited outside the shoulder area, if not contaminated, shall be recovered and placed within the required limits. The CONTRACTOR will not be compensated for materials not recovered as determined by the ENGINEER.

Materials shall not be deposited on the pavement or surfacing during placing unless specifically permitted by the ENGINEER.

The base course material as placed shall be spread and compacted to the required density in Section 3.02 in layers not exceeding six inches in compacted thickness. Any material inadvertently placed on the pavement shall be broomed from the pavement. The result shall not effect a change in the gradation of the shoulder material.

END OF SECTION

SECTION 32 12 16 - ASPHALT PAVING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Asphaltic concrete paving over prepared subgrade and/or base course

B. Repair of existing roads, driveways and parking lots which are removed or damaged during construction

1.2 RELATED SECTIONS

A. Section 32 11 23 – Aggregate Base Courses

1.3 REFERENCES

A. ASTM C29—Unit Weight and Voids in Aggregate

B. ASTM C88—Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

C. ASTM C117—Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing

D. ASTM C128—Specific Gravity Test and Absorption of Fine Aggregate

E. ASTM C131—Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

F. ASTM C136—Sieve or Screen Analysis of Fine and Coarse Aggregates

G. ASTM D4—Bitumen Content

H. ASTM D5—Penetration of Bituminous Materials

I. ASTM D70—Specific Gravity of Semi-Solid Bituminous Materials

J. ASTM D93—Flash Point by Pensky-Martens Closed Tester

K. ASTM D113—Ductility of Bituminous Materials

L. ASTM D 276—Method for Identification of Fibers in Textiles (Melting Point).

M. ASTM D1188—Bulk Specific Gravity of Compacted Bituminous Mixtures

N. ASTM D1559—Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus

O. ASTM D2041—Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures

P. ASTM D2170—Kinematic Viscosity of Asphalts (Bitumens)

Q. ASTM D2172—Quantities Extraction of Bitumens from Bituminous Paving Mixtures

R. ASTM D2419—Sand Equivalent Value of Soils and Fine Aggregate

S. ASTM D290—Bituminous Mixing Plant Inspection

T. ASTM D946—Asphalt Cement for Use in Pavement Construction

U. ASTM D692—Course Aggregate for Bituminous Paving

V. ASTM D1073—Fine Aggregate for Bituminous Paving Mixtures

W. ASTM D4354—Practice for Sampling of Geosynthetics for Testing.

X. ASTM D4355—Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).

Y. ASTM D4439—Terminology for Geotextiles.

Z. ASTM D4533—Test Method for Index Trapezoid Tearing Strength of Geotextiles.

AA. ASTM D4632—Test Method for Grab Breaking Load and Elongation of Geotextiles.

BB. ASTM D4759—Practice for Determining the Specification Conformance of Geosynthetics.

CC. ASTM D4873—Guide for Identification, Storage, and Handling of Geotextiles.

DD. ASTM D5199—Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.

EE. ASTM D5261—Test Method for Measuring Mass per Unit Area of Geotextiles.

FF. MS-2—Mix Design Method for Asphalt Concrete and Other Hot Mix Types -The Asphalt Institute (AI)

1.4 SUBMITTALS

A. Provide submittals as specified in this section.

B. Samples: Provide samples of materials for laboratory testing and job-mix design for asphaltic concrete paving section

C. Test Reports: Submit laboratory reports for the following materials tests
   1. Coarse and fine aggregate from each material source and each required grading:
      a. Sieve analysis: ASTM C136 (AASHTO T19)
      b. Unit weight of slag: ASTM C29 (AASHTO T19)
      c. Soundness: ASTM C88 (AASHTO T104)
      d. Sand equivalent: ASTM D2419 (AASHTO T176)
      e. Abrasion of coarse aggregate: ASTM C131 (AASHTO T96)
   2. Asphalt cement for each penetration grade:
      a. Penetration: ASTM D5 (AASHTO T49)
      b. Viscosity (Kinematic): ASTM D2170 (AASHTO T201)
      c. Flash Point: ASTM D93 (AASHTO T48)
      d. Ductility: ASTM D113 (AASHTO T51)
      e. Solubility: ASTM D4 (AASHTO T44)
      f. Specific gravity: ASTM D70 (AASHTO T43)
   3. Job-mix design mixtures for each material or grade:
      a. Bulk specific gravity for fine aggregate: ASTM C128 (AASHTO T84)

4. Uncompacted asphalt concrete mix: Maximum specific gravity ASTM D2041 (AASHTO T209)
5. Compacted asphalt concrete mix:
   a. Bulk density: ASTM D1188 (AASHTO T166)
   b. Marshall stability and flow: ASTM D1559
6. Density and void analysis:
   a. Provide each series of asphalt concrete mixture test specimens, in accordance with MS-2
   b. Use Marshall method of mix design unless otherwise directed or acceptable to Engineer
7. Sampling and testing of asphalt concrete mixtures for quality control during paving operations:
   a. Uncompacted asphalt concrete mix:
      1) Asphalt cement content: ASTM D2172 (AASHTO T164)
      2) Penetration of recovered asphalt cement: ASTM D5 (AASHTO T49)
      3) Ductibility of recovered asphalt cement: ASTM D113 (AASHTO T51)
   b. Compacted asphalt concrete mix:
      1) Bulk density: ASTM D1188 (AASHTO T166)
      2) Marshall stability and flow: ASTM D1559
   c. Perform at least one test for each day's paving
8. Asphalt plant inspection: ASTM D290

D. Geotextile Certification:
1. The Contractor shall provide the Engineer a certificate stating the name of the geotextile manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the geotextile.
2. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.
3. Manufacturing Quality Control (MQC) test results shall be provided upon request.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect and handle materials under provisions of Town of Firestone Design and Construction Standards and Specifications.

B. Transport mixture from mix plant in trucks with tight, clean, non-sticking compartments. Coat hauling compartments with lime-water mixture to prevent sticking. Elevate and drain compartment of excess solution before loading mix.

C. Provide insulated truck beds during temperature below 50 F on long distance deliveries.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not apply when underlying surface is muddy, frozen or wet.

B. Do not place by spreading and finishing machine tack coat or asphaltic cement when temperature is below 45°F and falling. Place when above 40°F and rising.

C. Do not apply pavement marking paint within 8 hours of fog or rain or when below 40 F.

D. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety and to cause the least interruption of work.

1.7 QUALITY ASSURANCE

A. Comply with all applicable requirements of Town of Firestone Design and Construction Standards and Specifications.

PART 2 PRODUCTS

2.1 MATERIALS

A. Asphaltic Cement: ASTM D946, AC10 or AC20 grade determined by design mix, homogeneous, free from water, no tendency to foam when heated to 347 F, and per CDOT Standard Section 702.

B. Aggregate for Asphaltic Concrete:
   1. Sound, angular crushed stone, crushed gravel, or crushed slag: ASTM D692.
   2. Sand, stone, or slag screening: ASTM D1073.
   3. Provide aggregate in gradations for courses to comply with Class S, Colorado Department of Transportation, ASTM C136.
   4. Percent wear: ASTM C131, less than 45 for aggregates retained in #10 sieve.

C. Tack Coat: Emulsified asphalt: SS-1 or CSS-1h, ASTM D977.

2.2 MIXES

A. Determine design mix based upon aggregates furnished (Grade S):
   1. Test mix by independent laboratory at Contractor's expense
   2. Grade dependent on temperature during placement
   3. Submit mix designs under provisions of this section for review and acceptance by Engineer

B. Submit mix design consistent with Town of Firestone Design and Construction Standards and Specifications.

2.3 ACCESSORIES

A. Pavement Marking—Replace all pre-construction pavement marking materials as identified below:
   1. White paint, color after drying shall be flat-white, free from tint, and provide maximum amount of opacity and visibility under both daylight and artificial light, meeting the standards of CDOT Standard Specification 708.
   2. FS TT-P-115, Type I Alkyd, yellow color meeting requirements of CDOT Standard Specification 708.
   3. Preformed plastic marking material or reflectorized paint with glass beads shall be used for all pavement marking.
   4. Furnish paint with a no-pick-up maximum drying time of 20 minutes, when tested according to ASTM D711 using a wet film thickness of 0.015" when tested and applied at 77 F
   5. Provide two coats.

PART 3 EXECUTION

3.1 PREPARATION

A. Prepare subgrade under provisions of Section 32 11 23.

B. Loose and Foreign Material:
   1. Remove loose and foreign material from compacted subgrade surface immediately before application of paving. Clean surface with mechanical sweeper, blowers, or hand brooms, until surfaces are free from dust

C. Tack Coat:
   1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphaltic concrete or portland cement concrete and surfaces
   2. Apply at rate of 0.05 to 0.15 gallons per square yard of surface
   3. Apply tack coat by brush to contact surfaces of curbs, gutters, manholes, and other structures projecting into or abutting asphaltic concrete pavement
   4. Allow surfaces to dry until material is at condition of tackiness to receive pavement
   5. Where asphaltic concrete will adhere to surface, tack coat may be eliminated by Engineer

3.2 RING/FRAME ADJUSTMENTS

A. Set ring/frames of subsurface structures to final grade as a portion of this work, include existing ring/frames and new ring/frames furnished under other work of project

B. Placing Ring/Frames:
   1. Surround ring/frames set to elevation with a ring of compacted asphalt concrete base prior to paving.
   2. Place asphalt concrete mixture up to 1 inch below top of ring/frame, slope to grade, and compact by hand tamping.

C. Adjust frames to proper position to meet paving.

D. If permanent covers are not in place, provide temporary covers over openings until completion of rolling operations.

E. Set ring/frames to grade, flush with surface of adjacent pavement. Maximum ring grade below pavement shall be ¼". Ring grade shall not protrude above pavement.

3.3 PREPARING THE MIXTURE

A. Comply with ASTM D995 for material storage, control, and mixing and for plant equipment and operation.

B. Stockpile:
   1. Keep each component of the various sized combined aggregates in separate stockpiles.
   2. Maintain stockpiles so that separate aggregate sizes will not be intermixed and to prevent segregation.

C. Heating:
   1. Heat the asphalt cement at the mixing plant to viscosity at which it can be uniformly distributed throughout mixture.
   2. Use lowest possible temperature to suite temperature viscosity characteristics of asphalt.
   3. Do not exceed 350 F.

D. Aggregate:
   1. Heat-dry aggregates to acceptable moisture content.
   2. Deliver to mixer at recommended temperature to suite penetration grade and viscosity characteristics of asphalt cement, ambient temperature, and workability of mixture.
   3. Accurately weigh or measure dry aggregates and weigh or meter asphalt cement to comply with job-mix formula requirements.

E. Mix aggregate and asphalt cement to achieve 90-95 percent coated particles.

3.4 EQUIPMENT

A. Bituminous Pavers: Self-propelled, spreads without tearing surfaces, and controls pavement edges to true lines without use of stationary forms.

B. Rolling Equipment:
   1. Steel-wheel roller: Self-propelled, contact pressure of 250 to 350 psi per inch of width of roller wheel, equipped with adjustable scrapers and means for keeping wheel wet to prevent mix from sticking.
   2. Pneumatic-tired rollers: Self-propelled, contact pressure under each tire of 85 to 110 psi, wheels spaced so that one pass will accomplish one complete coverage equal to rolling width of machine, oscillating wheels. Remove and replace immediately tires picking up fines.

C. Hand Tools: Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools.

3.5 INSTALLATION OF GEOTEXTILE PAVING FABRIC

A. Do not install paving fabric in areas that will be exposed to traffic prior to placement of the topping asphaltic mat.

B. Air and pavement temperatures shall be sufficient to allow the tack coat to hold the engineered paving mat in place. The air temperature shall be 40°F and rising for placement of the asphalt tack coat.

C. In locations designated to receive geotextile paving fabric, the geotextile shall be placed onto the asphalt tack coat (calendared or smooth side up) with minimum wrinkling prior to the time the asphalt has cooled and lost tackiness. As directed by the Engineer, wrinkles or folds in excess of 1-inch shall be slit and laid flat. If fabric is removed and replaced, apply additional tack coat as needed to fully bond paving fabric to the substrate.

D. Tack coat shall be applied to the width of the paving fabric plus 4-inches on all sides of paving fabric.

E. Blooming and/or pneumatic rolling shall be utilized to maximize geotextile contact with the pavement surface and remove air bubbles.

F. Overlap of geotextile joints shall be as specified by the manufacturer, but generally shall be sufficient to ensure full closure of the joint, and should not exceed 6-inches. Transverse joints shall be lapped in the direction of paving to prevent edge pickup by the paver. A second application of asphalt sealant to the geotextile overlaps will be required if in the judgement of the Engineer additional asphalt sealant is needed to ensure proper bonding of the double geotextile layer.

G. Placement of HMA mat shall immediately follow the placement of geotextile fabric per the requirements of this section.

H. Removal and replacement of geotextile that is damaged will be the responsibility of the Contractor.

3.6 PLACING THE MIX

A. Place asphalt concrete mixture on prepared surface, spread and strike-off using paving machine.

B. Maximum thickness per laying course: 2".

C. Minimum temperature of 225°F at time of placement. In locations where geotextile paving fabric is utilized, do not exceed paving fabric maximum temperature threshold.

D. Inaccessible and small areas may be placed by hand.

E. Conform to the grade, cross section, finish thickness, and density indicated.

F. Paver Placing:
1. Unless otherwise directed, begin placing at high side on one-way slope and in direction of traffic flow.
2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
3. Place mixture in continuous operation as practicable.

G. Hand Placing:
1. Spread, tamp, and finish mixing using hand tools in areas where machine spreading is not possible as acceptable to Engineer.
2. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than acceptable working temperature.

H. Joints:
1. Construct joints to have same texture, density, and smoothness as adjacent sections of asphalt concrete course.
2. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
3. Offset transverse joints in succeeding courses not less than 24 inches.
4. Cut back edge of existing pavement or previously placed course to expose an even, vertical surface for full course thickness.
5. Offset longitudinal joints in succeeding courses not less than 6 inches.
6. When the edges of longitudinal joints are irregular, honeycombed or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

3.7 COMPACTING THE MIX

A. Provide pneumatic and steel-wheel type rollers to obtain the required pavement density, surface texture and ride-ability.

B. Begin rolling operations when the mixture will bear weight of roller without excessive displacement.

C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.

D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. Breakdown Rolling:

1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
2. Operate rollers as close as possible to paver without causing pavement displacement
3. Check grade and smoothness after breakdown rolling.
4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

F. Second Rolling:
1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
2. Continue second rolling until mixture has been thoroughly compacted.

G. Finish Rolling:
1. Perform finish rolling while mixture is still warm enough for removal of roller marks by combination of steel and pneumatic rollers.
2. Continue rolling until roller marks are eliminated and course has attained specified density, and required surface texture and surface tolerances.

H. Patching:
1. Remove and replace defective areas.
2. Cut-out and fill with fresh, hot asphaltic concrete.
3. Remove deficient areas for full depth of course.
4. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
5. Apply tack coat to exposed surfaces before placing new asphaltic concrete mixture.
6. Compact by rolling to specified surface density and smoothness.
7. Seal all edges at conclusion of asphalt patching.

3.8 REPAIRING EXISTING ASPHALTIC CONCRETE SURFACES

A. Cut sides of pavement area to be replaced perpendicular and parallel to direction of traffic.

B. Subbase preparation:
1. Scarify below existing subbase to 12" depth or greater
2. Grade subbase to match existing subbase depth and required elevation
3. Obtain optimum moisture content
4. Compact subbase to 98 percent maximum density, ASTM 698

C. Paving Fabric:
1. Where applicable, after asphalt milling is completed, install paving fabric.
2. Utilize paving fabric as specified on the Drawings or designated by the Engineer.
3. Paving fabric shall be installed above existing paving course, to minimize reflective cracking, per the manufacturers recommendations.

D. Paving:
1. Apply tack coat against all abutting vertical concrete or bituminous surfaces as specified herein
2. Place and compact asphalt concrete mixture in two equal layers to match the existing elevation and the total compacted thickness
3. Apply asphalt emulsion tack coat between pavement layers as specified
4. Seal all edges and joints upon completion of asphalt paving

E. Compact mix as specified

3.9 MARKING ASPHALTIC CONCRETE PAVEMENT

A. Remove dirt, sand, gravel and oil

B. Cure asphaltic concrete before painting

C. Apply paint with pressurized, self-contained paint machine

D. Apply in straight line 2-6 inches wide, as specified on the drawings.

E. Lay out markings with guide lines, templates and forms

F. Apply at 1 gallon per 105 square foot

G. Provide qualified technician for supervision

3.10 FIELD QUALITY CONTROL

A. Owner will provide field testing to determine compliance of in-place asphaltic concrete paving materials and compaction.

B. Final surfaces of uniform texture, conforming to required grades and cross sections.

C. Test in-place for density, thickness, and surface smoothness.

D. Take not less than 4 inch diameter pavement specimens for each completed course from locations as directed by Engineer if required to confirm total thickness or for additional testing purposes

E. Repair holes from test specimens as specified for patching defective work

F. Minimum acceptable density of in-place course materials is 97 percent of the recorded laboratory specimen density. For each laying course: perform two tests for under 400 SY of material in place. Immediately re-compact asphaltic concrete not conforming to acceptable density. Remove and replace all sections not in conformance density requirements

G. Thickness: Variations from Drawings
   1. Total depth: 1/4 inch
   2. Remove and replace paving less than minimum thickness

H. Surface Smoothness:
   1. Test using a 10 foot straight edge applied parallel to any direction
   2. Advance straight edge five feet, maximum 1/4 inch per foot from nearest point of contact
   3. Do not permit pockets or depressions where water may pool
   4. Remove and replace areas, deficient in smoothness. Overlay corrections may be permitted only if acceptable to Engineer

3.11 CLEANING

A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of Engineer

3.12 PROTECTION OF FINISHED WORK

A. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened and in no case sooner than 6 hours

B. Provide barricades and warning devices as required to protect pavement and general public

END OF SECTION

SECTION 33 05 00 – COMMON WORK RESULTS FOR UTILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pipe and fittings for project water line.

B. Valves, fittings and specials.

1.2 RELATED SECTIONS

A. Section 31 00 00—Earthwork and Trenching

B. Section 33 05 03—Disinfection of Water Distribution Systems

1.3 REFERENCES

A. Town of Firestone Engineering and Construction Standards and Specifications.

B. ASTM D3212---Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

C. ASTM F1417 – Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air

D. AWWA C104—Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water

E. AWWA C105—Polyethylene Encasement for Ductile Iron Piping for Water and Other liquids

F. AWWA C110—Ductile-Iron and Gray-Iron Fittings, 3 Inch through 48 Inch, for Water and Other Liquids

G. AWWA C111—Rubber-Gasket Joints for Ductile Iron and Grey-Iron Pressure Pipe and Fittings

H. AWWA C150—Thickness Design of Ductile-Iron Pipe

I. AWWA C151—Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids

J. AWWA C153—Ductile-Iron Compact Fittings, 3 Inch through 12 Inch, for Water and Other Liquids

K. AWWA C500—Gate Valves, 3 through 48 in NPS, for Water and Sewage Systems

L. AWWA C504—Rubber Seated Butterfly Valves

M. AWWA C509—Resilient Seated Gate Valves 3 in through 12 in NPS, for Water and Sewage Systems

N. AWWA C600—Installation of Ductile-Iron Water Mains and Appurtenances

O. AWWA C606—Grooved and Shouldered Type Joints

P. AWWA C905—Standard for Polyvinyl Chloride (PVC) Pressure Pipe "Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14-inch through 48-inch, for Water Transmission and Distribution".

Q. NSF 61—Drinking Water System Components—Health Effects

1.4 SYSTEM DESCRIPTION

A. Provide piping complete with all fittings, jointing materials, supports, anchors and necessary appurtenances

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00

B. Shop Drawings: Provide piping layout fabrication and assembly drawings with fitting dimensions. Provide sufficient information to verify compliance with specifications

C. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories. Provide manufacturer's catalog information with dimensions, material and assembled weight. Indicate pressure ratings for pipe, valves and hydrants

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements

E. Test Reports: Submit reports of field pressure tests under provisions of Section 01 33 00

1.6 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 33 00

B. Accurately record actual locations of piping mains, valves, connections, and top of pipe elevations

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities

1.7 REGULATORY REQUIREMENTS

A. Conform to all municipal codes and ordinances, laws and regulations of the state

B. In case of apparent conflict, state and local requirements govern over these specifications

C. In absence of state and local regulations, International Plumbing Code applies

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under manufacturer's recommendations.

B. Deliver and store valves and accessories in shipping containers with labeling in place in accordance with AWWA C500

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation

D. Seal valve ends to prevent entry of foreign materials into valve body

E. During loading, transporting and unloading, exercise care to prevent damage to material

1. Use slings, hooks, pipe tongs, or skids

2. Do not drop pipe or fittings

3. Do not roll or skid against pipe already on ground

4. Repair any damage done to coating or lining

5. Handle per manufacturer's recommendations

6. Store rubber gaskets in cool dark location

7. Store all material on wood pallets or timbers

F.Adequately tag or otherwise mark all piping and fittings as to size

PART 2 PRODUCTS

2.1 DUCTILE IRON PIPE

A. ANSI A21.51/AWWA C151: As listed below except as otherwise specified or indicated on Drawings

1. Where fitted with push-on joints, mechanical joints or mechanical joints with joint restraint device or restrained joints: less than or equal to 12” Pressure Class 350, greater than 12” Pressure Class 250

2. Ductile iron pipe shall have standard cement mortar lining in conformance with AWWA C104

3. Ductile iron pipe shall have a bituminous outside coating approximately one (1) mil thick.

B. Fittings

1. Ductile iron: ANSI A21.10/AWWA C151

a. 12 inch and below: 350 psi rating

b. Greater than 12inch: 250 psi rating

C. Joints

1. Mechanical joints: ANSI A21.11/AWWA C111

a. Lined with cement mortar or fusion bonded epoxy.

b. Exterior coated with 1 mil bituminous coating or fusion bonded epoxy in accordance with AWWA C116.

c. Bolts and nuts: High strength, low alloy steel, "Cor-Ten" or approved equal

2. Mechanical joints with tie rods

a. Tie rods: ASTM A307

b. Steel pipe spacers: ASTM A120, standard weight

c. Washers: ANSI A27.2 plain steel

d. Plastic plugs: As recommended by pipe manufacturer

2.2 PVC PIPE:

A. AWWA C900:

1. Plastic pressure pipe class 235, DR 18

2. Fittings:

a. Tees and solid sleeves to be Romac Alpha series.

b. AWWA C111, cast iron

3. Joints: ASTM D3139 compression gasket ring

a. Mechanical joint restraint (bell type) EBAA Iron, Uniflange Series 1390

4. Tracer Wire: Magnetic detectable conductor, brightly colored plastic covering, imprinted with "Water Service" in large letters; 12-gauge wire per construction details. Certification of continuity testing required at time of Initial acceptance.

5. Warning Tape: Three-inch-wide detectable warning tape shall be installed 12” above the pipe.

2.3 COPPER TUBING ¾” TTHORUGH 2”

A. Water tubing: Buried, ASTM B88; FS WW-T-799, Type K annealed; or FS WW-T- 775

B. Water tubing: Exposed or above grade, ASTM B88; Type L, hard drawn

C. Fittings

1. Flared Joints: ANSI B16.26, cast bronze

2. Solder Joints: ANSI B16.18, cast bronze or B16.22, wrought copper and bronze

3. Compression Joints: Crawford "Swagelok," Hoke "Gryolok," Imperial "Hi-Seal," Parker-Hannifin "CPI," Weatherhead "Self Align," or equal

4. Dielectric Connections: Union with galvanized or plated steel threaded-end, copper solder end, water imperious isolation barrier

   a. Threaded: PSI "Delrin Insulating Couplings, "Vallet " V-Line Insulating Couplings," or equal

   b. Flanged: Epco "Dielectric Flange Unions," PSI Type E Flange Insulation," or equal

2.4 GATE VALVES— THROUGH 12 INCHES

A. Reference Town of Firestone Design and Construction Standards Section 632.05

B. All gate valves shall be a resilient seat type and manufactured in accordance with AWWA C515

C. All gate valves shall have an epoxy coated interior and wrapped in 8-mil plastic and sealed with tape

D. All gate valves shall be provided with two o-ring stem seals, in accordance with Section 4.8 of AWWA C509

E. The operating nut on all gate valves shall be between 4 and 5 feet below finished grade

F. All gate valves, whether on ductile iron water lines, HDPE, or PVC, must be restrained

1. If, in order to achieve the operating nut depth noted above it is necessary to use a riser stem, the riser stem shall be pinned. The riser stem shall be coated or galvanized to prevent corrosion.

2.5 AIR AND VACUUM RELIEF VALVES—3 INCHES AND SMALLER

A. Reference Town of Firestone Design and Construction Standards Section 632.10

B. Combination, integral type, air release and vacuum relief valves

C. Manufacturers:

1. Val-Matic Model 203C.2

2. Or Approved Equal

2.6 BEDDING MATERIALS

A. Reference Town of Firestone Design and Construction Standards

B. Bedding: As specified in Section 31 00 00

2.7 HYDRANTS

A. Reference Town of Firestone Design and Construction Standards Section 632.08

B. Manufacturers:

1. Fire hydrants shall be Waterous Pacer WB-67-250 or Mueller Super Centurion

250, A423. Or approved equal

2.8 ACCESSORIES

A. Valve boxes for all buried valves, Reference Town of Firestone Design and Construction Standards Section 632.09

B. Concrete for Thrust Blocks: 3000 psi minimum ready mix. Sack-crete is not permitted.

C. Joint Restraint: Reference Town of Firestone Design and Construction Standards Section 633.06. Megalugs, Star Products, All Grip series 3600, uni-falnge Series 1400 and 1500. Or approved equal.

D. Corporation Stops: Reference Town of Firestone Design and Construction Standards Section 642.15. Ford #F1000, Mueller #300, Cambridge Model 301, Mueller model 300, James Jones Company series j1949, with compre4ssion fittings with a “110”, “Cam Pack”, or “Mac Pack” type fitting.

E. Curb Stop: Reference Town of Firestone Design and Construction Standards Section 642.16. Ford Model B44-333, McDonald model 6100, Cambridge model 301, Mueller model 300, James jones Company Series J3401, with compression fittings with a “110”, “Cam Pack”, or “Mac Pack” type fitting.

F. Tapping Saddles: Reference Town of Firestone Design and Construction Standards Section 642.03 Full brass, 200 psi pressure rating, ROMAC 202B or Approved equal.

2.9 CORROSION CONTROL

A. Polyethylene encasement: Reference Town of Firestone Design and Construction Standards Section 632.17.01

B. Polyethylene encasement: AWWA C105: seamless tube, ASTM D1248, Type I, Class C, Grade E-1, 8 mils thick

1. Joint tape: Self-sticking, PVC or polyethylene, 2-inch wide, 10 mils thick, Chase "Cahsekote 750," Kendall "Polyken 900," 3M "Scotchrap 50," or equal

2. Strapping: Nonmetallic, water resistant, FS PPP-S-760, Type II

3. Harness rods shall be covered by 4-inch flat width polyethylene tubing. The entire joint shall be covered by a complete wrap of 48-inch wide polyethylene sheet material cover over each set of lugs

PART 3 EXECUTION

3.1 EXAMINATION

A. Carefully examine pipe and fittings for cracks, damage to linings, and other defects prior to installation

B. Remove all defective pipe from site and replace

C. Examine areas for weak or structural defects or deviations beyond allowable tolerances for piping clearances that adversely affect excavation and quality of Work

D. Start installation only when conditions are satisfactory

3.2 PREPARATION

A. Ream pipe and tube ends and remove burrs

B. Remove scale and dirt, on inside and outside, before assembly

C. Prepare pipe connections to equipment with flanges or unions

D. Thoroughly inspect and clean interior of fire hydrants. Open and close hydrant to insure parts are in working order, the valves seat properly and the drain valve operates

E. Check packing gland and gland nut of fire hydrant for proper installation

3.3 BEDDING

A. Excavate pipe trench in accordance with Section 31 00 00. Hand trim excavation for accurate placement of pipe to elevations indicated

B. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 6 inches compacted depth

3.4 INSTALLATION—PIPE

A. Install as specified or in accordance with the manufacturer's recommendations

B. Protect from lateral displacement by placing embedment evenly on both sides of pipe

C. Do not lay pipe in water. Do not lay pipe under unsuitable weather or trench conditions

D. Lay pipe with bell ends facing the direction of laying except when Engineer authorizes reverse laying

E. Form and place concrete for thrust blocks at each elbow or change of direction of pipe main as indicated on the drawings

F. Establish elevations of buried piping to ensure not less than 5 ft of cover

G. Backfill trench in accordance with Section 31 00 00

H. Install tracer wire and warning tape continuous along pipeline; reference details

I. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system

3.5 INSTALLATION—VALVES

A. Install valves, hydrants, and accessories in accordance with the manufacturer's recommendations

B. Set valves on solid bearing surface including a concrete slab as shown on detail W3.

C. Center and plumb valve box over valve.

D. Extend stem within 6 inches of final grade. Provide spacers to center stem in valve box

E. Pipe exhaust of air release valves to suitable disposal point

F. Set valve boxes to finished grade with 24” concrete collar.

3.6 CONCRETE ENCASEMENT

A. Provide as indicated on the drawings

B. Suitably support and block pipe and anchor against flotation

3.7 CONNECTION TO EXISTING PIPELINES

A. Make connections between new and existing piping with suitable fittings

B. Schedule connection to minimize inconvenience to the Owner and customers and as authorized by Owner. Maximum allowable outage for tie-ins is 4 hrs.

C. Provide facilities for adequate dewatering and disposal of water from dewatered line and excavations without damage to adjacent property

D. Potable water lines

1. Take special care to prevent contamination

2. Do not permit trench water, mud, or other contaminating substances in lines

3.8 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Flush and disinfect system in accordance with Section 33 05 03

3.9 ERECTION TOLERANCES

A. Establish invert elevations, slopes for drainage to 1/4 inch per foot, two percent minimum but never less than 1/8 per inch per foot. Maintain gradients

B. Slope exposed water piping and arrange to drain at low points

3.10 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 45 00

B. Test each line at the Contractor's expense in the presence and to the satisfaction of Engineer

C. Provide all necessary pumping equipment, piping connections, pressure gauges, and other required equipment, facilities, and materials

D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner

E. Test Conditions

Pipe Material	Service	Test Pressure	Duration	Test Medium
PVC	Water Supply	150 psi	2 Hour(s)	Water
Note: Allowable Loss per AWWA Standards. [L=S*D*P^1/2/133,200]				
Note: Chlorination and bacterial testing per Section 33 05 03				

END OF SECTION

SECTION 33 05 03 – DISINFECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Disinfection of potable water distribution system

B. Testing and reporting results

1.2 RELATED SECTIONS

A. Section 33 05 02—Waterlines

1.3 REFERENCES

A. ANSI/AWWA B300—Standard for Hypochlorites

B. ANSI/AWWA B301—Standard for Liquid Chlorine

C. ANSI/AWWA B302—Standard for Ammonium Sulfate

D. ANSI/AWWA B303—Standard for Sodium Chlorite

E. ANSI/AWWA C651—Standards for Disinfecting Water Mains

F. ANSI/AWWA C652—Standards for Disinfection of Water Storage Facilities

G. NSF 60—Drinking Water Treatment Chemicals - Health Effects

1.4 SUBMITTALS

A. Test Reports: Indicate results comparative to specified requirements

B. Certificate: Certify that cleanliness of water distribution system meets or exceeds Colorado Department of Health Standards.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 33 00

B. Disinfection report; record:

1. Type and form of disinfectant used

2. Date and time of disinfectant injection start and time of completion

3. Test locations

4. Initial and 24 hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested

5. Date and time of flushing start and completion

6. Disinfectant residual after flushing in ppm for each outlet tested

C. Bacteriological report; record:

1. Date issued, project name, and testing laboratory name, address, and telephone number

2. Time and date of water sample collection

3. Name of person collecting samples

4. Test locations

5. Initial and 24 hour disinfectant residuals in ppm for each outlet tested

6. Coliform bacteria test results for each outlet tested

7. Certification that water conforms, or fails to conform, to bacterial standards of the Colorado Department of Health

8. Bacteriologist's signature and authority

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ANSI/AWWA C651 and C652

1.7 QUALIFICATIONS

A. Water Treatment Firm: Company specializing in disinfecting potable water systems specified in this Section with minimum three (3) years' experience

B. Testing Firm: Disinfection shall be done in the presence of a Town Engineering Staff. Contact the Town Engineering Division forty-eight 48 hours prior to performing disinfection. All Bacteriological testing shall be performed by the Town. The Contractor shall be responsible for reimbursing the Town for all costs associated with the water quality testing.

1.8 REGULATORY REQUIREMENTS

A. Conform to applicable code or state regulation for performing the work of this Section

B. Provide certificate of compliance from Town Engineer indicating approval of water system.

PART 2 PRODUCTS

2.6 DISINFECTION CHEMICALS

A. Chemicals: ANSI/AWWA B300, Hypochlorite, ANSI/AWWA B301, Liquid Chlorine, and ANSI/AWWA B303, Sodium Chlorite

PART 3 EXECUTION

3.6 EXAMINATION

A. Verify that piping system has been cleaned and inspected.

B. Perform scheduling and disinfection activity with start-up, testing, adjusting and balancing, demonstration procedures, including coordination with related systems

C. Complete disinfection before passing pressure tests

D. Submit required equipment to perform the work of this Section

E. Refer to specification section 33 05 02 for testing pressures and duration.

F. Do NOT pressure test against active service valves unless disinfection procedure listed below has been completed. Pressure test system according to specifications contained herein and in Section 33 05 02. Repair leaks as necessary and re-test.

G. Disinfection Procedure: Reference Town of Firestone Design and Construction Standards Section 633.13

a. Complete disinfection of water main in strict accordance with AWWA C651-14.

b. Inject treatment disinfectant into piping system to obtain 50 to 80 mg/l residual

c. Bleed water from outlets to ensure distribution and test for disinfectant residual

d. Maintain disinfectant in system for at least 24 hours

e. If final disinfectant residual tests less than 25 mg/l, repeat disinfection process

f. Flush, circulate and clean until residual is 1.0 mg/l is achieved; use domestic water

g. The line shall be tested for turbidity at the discretion of the Town Engineer. If the test is above 1 NTU the line shall be flushed again. If the turbidity test fails a second time the line shall be re-chlorinated as noted above and then re-flushed.

h. Take two bacterial samples no sooner than 24 hours after flushing from multiple points a minimum of 24 hours apart determined by the Town Engineer. If either of the test fail, the line shall be re-chlorinated, re-flushed, and retested. The Contractor shall be responsible for reimbursing the Town for all water quality testing. The Contractor shall contact both the Town and the Town's water quality lab to arrange for testing a minimum of two working days prior to testing.

i. Replace permanent system devices removed for disinfection

j. Repeat disinfection and pressure testing procedure until acceptable results are obtained.

k. No water mains shall be placed in service or tapped until a written release is obtained from the public health authority having jurisdiction and a copy of that release furnished to the Town Engineer.

3.7 QUALITY CONTROL

A. Contractor shall pay all costs for bacteriological tests and analysis of treated water except as indicated otherwise under provisions of Section 01 45 00.

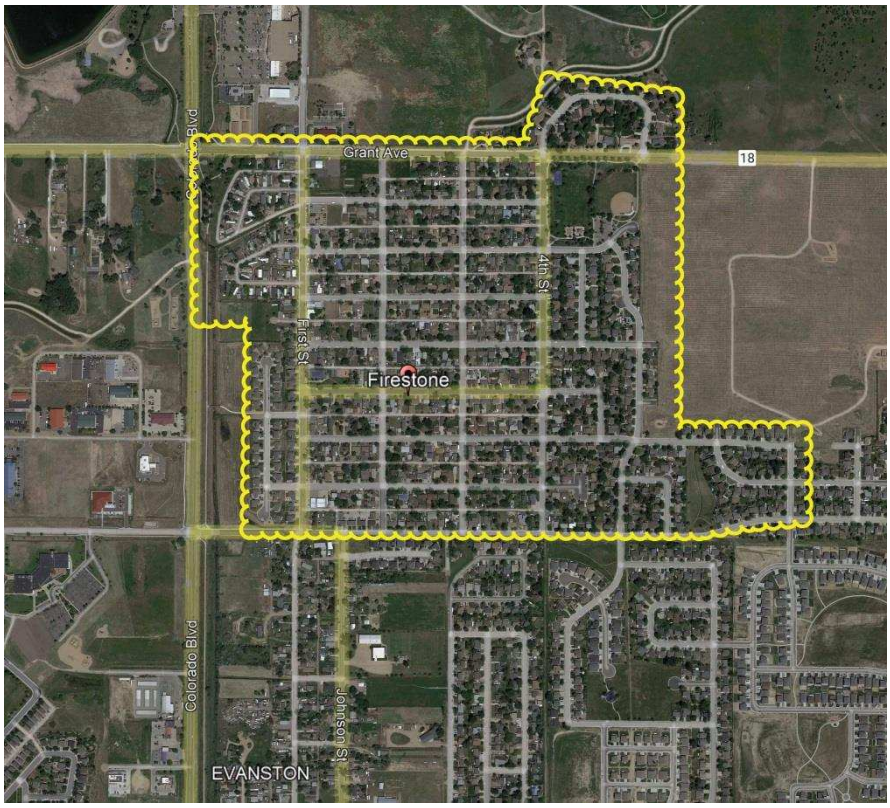
B. Test samples in accordance with ANSI/AWWA C651

END OF SECTION

APPENDIX A
GEOTECHNICAL REPORT

GROUND
ENGINEERING

Geotechnical Subsurface Exploration Program
Town of Firestone Historic Waterline Project
Firestone, Colorado



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April 26th, 2022

Revised May 9th, 2022

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PURPOSE AND SCOPE OF STUDY

This report presents the results of a geotechnical evaluation performed by GROUND Engineering Consultants, Inc. (GROUND) in support of the construction planning of the proposed Town of Firestone Historic Waterline Project. Our study was conducted in general accordance with GROUND's Proposal Number 2110-2067 dated October 29th, 2021 between Ditesco Services and GROUND.

A field exploration program was conducted to obtain information on the subsurface conditions. Material samples obtained during the subsurface exploration were tested in the laboratory to provide data on the classification and engineering characteristics of the on-site soils. The results of the field exploration and laboratory testing are presented herein.

This report has been prepared to summarize the data obtained and to present our findings and conclusions based on the proposed development/improvements and the subsurface conditions encountered. Design parameters and a discussion of engineering considerations related to the proposed improvements are included herein. This report should be understood and utilized in its entirety; specific sections of the text, drawings, graphs, tables, and other information contained within this report are intended to be understood in the context of the entire report. This includes the *Closure* section of the report which outlines important limitations on the information contained herein.

This report was prepared for Ditesco Services based on our understanding of the project at the time of preparation of this report. The data, conclusions, opinions, and geotechnical parameters provided herein should not be construed to be sufficient for other purposes, including the use by contractors, or any other parties for any reason not specifically related to the design of the project. Furthermore, the information provided in this report was based on the exploration and testing methods described below. Deviations between what was reported herein and the actual surface and/or subsurface conditions may exist, and in some cases may be significant.

PROPOSED CONSTRUCTION

We understand proposed construction will consist of waterline replacement with the following streets:

- Wooster Drive
- Jackson Drive,
- Sherilynn Circle
- Monmouth Avenue
- Buchanan Avenue from First Street to Fourth Street
- Granville Avenue
- Berwick Avenue
- Florence Avenue
- Fourth Street
- Granville Circle
- Adams Way
- Fifth Street from Buchanan Avenue to McClure Avenue
- First Street from Berwick Avenue to McClure Avenue
- Alleyway between Florence Avenue
- McClure Avenue between First Street to Fourth Street

The project area and test hole locations are shown on Figure 1. If the proposed construction differs from what is described above, or changes subsequently, GROUND should be notified to re-evaluate the information in this report.

SITE CONDITIONS

At the time of our subsurface exploration program all of the roadways within the scope of work existed as residential asphalt paved roadways. The existing asphalt varied from good to very poor. The site slopes gentlydownwards from the west to the east.

A small amount of fill was observed in several test holes throughout the project area. In general fill was observed to extend from 1 to 3 feet below existing grade at these various locations. Fill materials may also exist else ware at the site. The actual extents, limits, and composition of any man-made fill were not determined as part of the scope of work addressed by this study.

SUBSURFACE EXPLORATION

The subsurface exploration for the project was conducted on March 8th and 18th, 2022. Twenty-six (26) test holes were drilled with a conventional truck-mounted continuous

flight power-auger drill rig to evaluate the subsurface conditions, as well as, to retrieve soil samples for laboratory testing and analysis. The test holes were drilled to depths of approximately 8 to 10 feet below existing grades. A GROUND representative directed the subsurface exploration, logged the test holes in the field, and prepared the soil and bedrock samples for transport to our laboratory.

Samples of the subsurface materials were retrieved with a 2-inch I.D. California liner sampler. The sampler was driven into the substrata with blows from a 140-pound hammer falling 30-inches. This procedure is similar to the Standard Penetration Test described by ASTM Method D1586. Penetration resistance values, when properly evaluated, indicate the relative density or consistency of soils. Depths at which the samples were obtained and associated penetration resistance values are shown on the test hole logs.

The approximate locations of the test holes are shown in Figures 1 and 2. Logs of the exploratory test holes are presented in Figure 3. Explanatory notes and a legend are provided in Figure 4.

LABORATORY TESTING

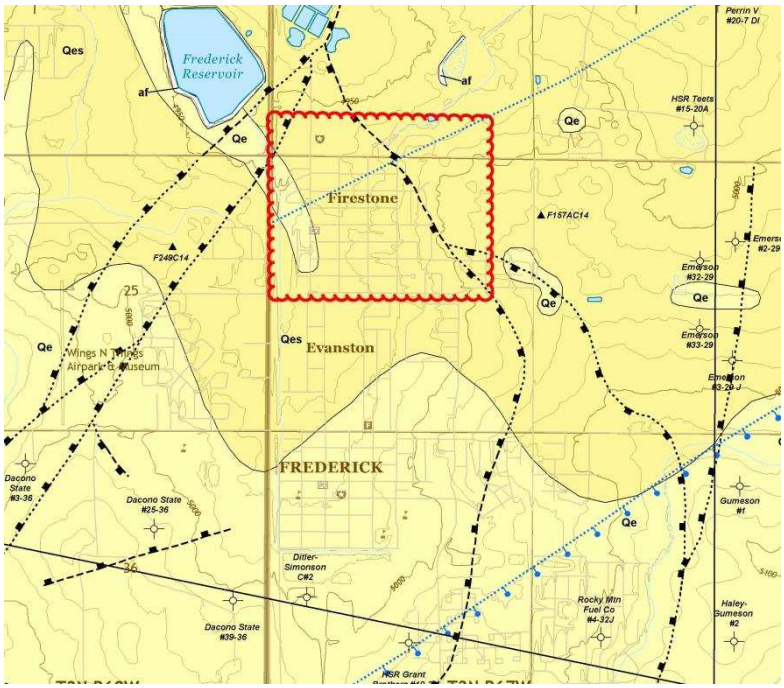
Samples retrieved from our test holes were examined and visually classified in the laboratory by the project engineer. Laboratory testing of soil samples obtained from the subject site included standard property tests, such as natural moisture contents, grain size analyses, liquid and plastic limits, and swell-consolidation testing. Water-soluble sulfate and corrosively testing was completed on selected samples of the soils as well. Laboratory tests were performed in general accordance with applicable ASTM protocols. Results of the laboratory testing program are summarized on Tables 1 and 2.

GEOLOGIC SETTING

Published geologic maps, e.g., Keller (2018),[1] depict the project area as underlain by Eolian Sand (**Qes**) and Loess (**Qe**). These surficial deposits are mapped as being underlain by the Upper Cretaceous Laramie Formation (**Kl**).

[1] Keller, S.M., and Morgan, M.L., 2018, *Geologic Map of the Frederick Quadrangle, Weld and Broomfield Counties, Colorado,* Colorado Geological Survey, Open-File Report 18-01, scale 1:24,000

Eolian Sand and Loess (windblown deposits), in the project area, generally consists of fine to medium sands and silts, with the varying fractions of clays. Weathering typically increases the clay contents of these soils. Windblown deposits commonly are susceptible to hydro-consolidation ("collapse") upon loading and wetting. A portion of the geologic map is reproduced below.



The Upper Cretaceous Laramie Formation generally consists of grey claystone, shale, sandy shale, and scattered lenticular beds of sandstone and lignite.

SUBSURFACE CONDITIONS

The subsurface conditions encountered in the test holes generally consisted of a layer of asphalt ranging from 0.5 to 5 inches in thickness underlain by road base ranging from 2 to 4 inches in thickness. The road base was generally underlain by clay and sand fill or native clay and sand extending to depths ranging from 3 to 10 feet below existing grade. In boreholes B-7, B-8, B-9, B-13, and B-14 the clay and sand materials were underlain by claystone/sandstone bedrock, which at its shallowest was encountered in boreholes B-7 and B-13 at a depth of 3 feet below existing grade. However, in general the claystone bedrock was encountered at depths ranging from 6 to 7 feet below existing

grade and extending to the test hole termination depths of approximately 10 feet. Please see attached logs in Appendix A for individual soil profiles.

Fill consisted of sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.

Sand and Clay materials ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.

Weathered Claystone was medium to highly plastic, moist, brown-gray in color with localized iron staining.

Claystone Bedrock was medium to highly plastic, hard to very hard, moist, brown-gray in color with localized iron, and caliche staining.

Sandstone Bedrock was fine to medium grained, low to medium plastic, hard to very hard, moist, orange-tan in color with iron staining.

Swell-Consolidation Testing of samples of the overburden and bedrock materials yielded a consolidations of up to approximately 0.4 percent and swells up to approximately 2 percent at a surcharge pressures based on estimated overburden pressure.

Groundwater was encountered in the test holes B-1, B-2, and B-3 at depths ranging from approximately 4 to 5 feet below existing grades at the time of drilling. Additionally, ground water was encountered in test holes B-20 and B-22 at depth ranging from 7 to 8 feet below existing grade. Ground water was not encountered in any of the other test holes at the time of drilling. The test holes were backfilled upon drilling completion per Code of Colorado Regulations (2 CCR 402-2). Groundwater levels can be expected to fluctuate, however, in response to annual and longer-term cycles of precipitation, irrigation, surface drainage, nearby rivers and creeks, land use, and the development of transient, perched water conditions. The groundwater observations performed during our exploration must be interpreted carefully as they are short-term and do not constitute a groundwater study. In the event the Town of Firestone desires additional/repeated

groundwater level observations, GROUND should be contacted; additional exploration and fees will be necessary in this regard.

WATER-SOLUBLE SULFATES

The concentrations of water-soluble sulfates measured in selected earth material samples retrieved from the test holes ranged from <0.01 to 0.23 percent by weight (See Table 2). Such concentrations of soluble sulfates represent a severe environment for sulfate attack on concrete exposed to these materials. Degrees of attack are based on the scale of 'negligible,' 'moderate,' 'severe' and 'very severe' as described in the "Design and Control of Concrete Mixtures," published by the Portland Cement Association (PCA). The Colorado Department of Transportation (CDOT) utilizes a corresponding scale with 4 classes of severity of sulfate exposure (Class 0 to Class 3) as described in the published table below.

REQUIREMENTS TO PROTECT AGAINST DAMAGE TO CONCRETE BY SULFATE ATTACK FROM EXTERNAL SOURCES OF SULFATE

Severity of Sulfate Exposure	**Water-Soluble Sulfate (SO_4) In Dry Soil** *(%)*	**Sulfate (SO_4) In Water** *(ppm)*	**Water Cementitious Ratio** *(maximum)*	**Cementitious Material Requirements**
Class 0	0.00 to 0.10	0 to 150	0.45	Class 0
Class 1	0.11 to 0.20	151 to 1500	0.45	Class 1
Class 2	0.21 to 2.00	1501 to 10,000	0.45	Class 2
Class 3	2.01 or greater	10,001 or greater	0.40	Class 3

Based on our test results and PCA and CDOT guidelines, GROUND recommends the use of the appropriate cement in all concrete exposed to site soils, conforming to one of the following requirements:

Class 2 (Severe)

(1) ASTM C150 Type V with a minimum of a 20 percent substitution of Class F fly ash or slag cement by weight.

(2) ASTM C150 Type II or III with a minimum of a 20 percent substitution of Class F fly ash, High-Reactivity Pozzolan, or slag cement by weight. The Type II or III cement shall have no more than 0.040 percent expansion at 14 days when test according to ASTM C452.

(3) A blend of Portland cement meeting ASTM C150 Type II or III with a minimum of 20 percent Class F fly ash, High-Reactivity Pozzolan, or slag cement by weight, where the blend has less than 0.05 percent expansion at 6 months or 0.10 percent expansion at 12 months when tested according to ASTM C1012.

(4) ASTM C595 Type IP(HS), IL(HS), or IT(HS). Class F fly ash, slag cement, or High-Reactivity Pozzolan may be substituted for Type IL cement.

(5) ASTM C595 Type IL(MS) or IT(MS) plus Class F fly ash, slag cement, or High-Reactivity Pozzolan where the blend has less than 0.05 percent expansion at 6 months or 0.10 percent expansion at 12 months when tested according to ASTM C1012.

Class C fly ash shall not be substituted for cement.

When fly ash or High-Reactivity Pozzolan is used to enhance sulfate resistance, it shall be used in a proportion greater than or equal to the proportion tested in accordance to ASTM C1012, shall be the same source, and shall have a calcium oxide content no more than 2.0 percent greater than the fly ash or High-Reactivity Pozzolan tested according to ASTM C1012. ASTM C1012 test results are acceptable for up to two years from the completion date of the test.

In addition, all concrete used shall have a minimum compressive strength of 4,500 psi.

The contractor should be aware that certain concrete mix components affecting sulfate resistance including, but not limited to, the cement, entrained air, and fly ash, can affect workability, set time, and other characteristics during placement, finishing and curing. The contractor should develop mix(es) for use in project concrete which are suitable with regard to these construction factors, as well as sulfate resistance. A reduced, but still significant, sulfate resistance may be acceptable to the owner, in exchange for desired construction characteristics.

SOIL CORROSIVITY

The degree of risk for corrosion of metals in soils commonly is considered to be in two categories: corrosion in undisturbed soils and corrosion in disturbed soils. The potential for corrosion in undisturbed soil is generally low, regardless of soil types and conditions, because it is limited by the amount of oxygen that is available to create an electrolytic cell. In disturbed soils, the potential for corrosion typically is higher, but is strongly affected by soil chemistry and other factors.

A preliminary corrosivity analysis was performed to provide a general assessment of the potential for corrosion of ferrous metals installed in contact with earth materials at the site, based on the conditions existing at the time of GROUND's evaluation. Soil chemistry and physical property data including pH, and sulfides content were obtained. Test results are summarized on Table 2.

pH Where pH is less than 4.0, soil serves as an electrolyte; the pH range of about 6.5 to 7.5 indicates soil conditions that are optimum for sulfate reduction. In the pH range above 8.5, soils are generally high in dissolved salts, yielding a low soil resistivity (AWWA, 2010). Testing indicated **pH values of 9.0 and 8.8.**

Reduction-Oxidation testing indicated a negative potential: approximately **-109 to -96 millivolts**. Such a low potential typically creates a more corrosive environment.

Sulfide Reactivity testing for the presence of sulfides indicated **'Positive'** results. The presence of sulfides in the site soils also suggests a more corrosive environment.

Soil Resistivity In order to assess the "worst case" for mitigation planning, samples of materials retrieved from the test holes were tested for resistivity in the in the laboratory, after being saturated with water, rather than in the field. Resistivity also varies inversely with temperature. Therefore, the laboratory measurements were made at a controlled temperature.

Measurements of electrical resistivity indicated values of approximately **3,674** and **9,357 ohm-centimeters** in a sample of the site earth materials.

Corrosivity Assessment The American Water Works Association (AWWA, 2010[2]) has developed a point system scale used to predict corrosivity. The scale is intended for protection of ductile iron pipe but is valuable for project steel selection. When the scale equals 10 points or higher, protective measures for ductile iron pipe are suggested. The AWWA scale (Table A.1 Soil-test Evaluation) is presented below. The soil characteristics refer to the conditions at and above pipe installation depth.

Table A.1 Soil-test Evaluation

Soil Characteristic / Value	Points
Resistivity	
<1,500 ohm-cm	10
1,500 to 1,800 ohm-cm	8
1,800 to 2,100 ohm-cm	5
2,100 to 2,500 ohm-cm	2
2,500 to 3,000 ohm-cm	1
>3,000 ohm-cm	0
pH	
0 to 2.0	5
2.0 to 4.0	3
4.0 to 6.5	0
6.5 to 7.5	0 *
7.5 to 8.5	0
>8.5	3
Redox Potential	
< 0 (negative values)	5
0 to +50 mV	4
+50 to +100 mV	3½
> +100 mV	0
Sulfide Reactivity	
Positive	3½
Trace	2
Negative	0
Moisture	
Poor drainage, continuously wet	2
Fair drainage, generally moist	1
Good drainage, generally dry	0

* If sulfides are present and low or negative redox-potential results (< 50 mV) are obtained, add three points for this range.

[2] American Water Works Association ANSI/AWWA C105/A21.5-05 Standard.

We anticipate that drainage at the site after construction will be effective. Nevertheless, based on the values obtained for the soil parameters, the overburden soils appear to comprise a highly corrosive environment for metals (11.5 points.)

If additional information are needed regarding soil corrosivity, the American Water Works Association or a Corrosion Engineer should be contacted. It should be noted, however, that changes to the site conditions during construction, such as the import of other soils, or the intended or unintended introduction of off-site water, may significantly alter corrosion potential.

PIPELINE INSTALLATION

Pipe Support The bearing capacity of the alignment soils appeared adequate, in general, for support of the proposed waterline. The pipe + contents are less dense than the soils which will be displaced for installation. Therefore, GROUND anticipates no significant pipe settlements in these materials where properly bedded.

Pipe trench excavation bottoms may expose soft, loose, or otherwise deleterious materials, including debris. Firm materials may be disturbed by the excavation process. All such unsuitable materials should be excavated and replaced with properly compacted fill. Areas allowed to pond water will require excavation and replacement with properly compacted fill. The contractor should take particular care to ensure adequate support near pipe joints which are less tolerant of extensional strains.

Where thrust blocks are needed, a sliding friction coefficient of **0.33** and equivalent fluid weight of **265 pcf** to a maximum of **2,650 pcf** for the passive condition may be used for thrust block design. Also note that the values provided above were based on a moist unit weight (γ') of 120 pcf and an angle of internal friction (ϕ) of 26 degrees for the on-site clayey sand soils and are un-factored. Appropriate factors of safety should be included in design calculations.

Vaults The following geotechnical criteria may be used for vault design:

1) Vault footings should bear on firm undisturbed, existing sand/clay soils.

2) Footing excavation bottoms may expose debris, loose, or wet materials, organic or otherwise deleterious materials. Firm materials may be disturbed by the excavation process. All such unsuitable materials should be excavated entirely or to a depth of at least 18 inches and replaced with properly compacted fill or the footing deepened.

3) Footings bearing on firm, existing soils may be designed for an allowable bearing pressure of **1,500 psf** for footings up to **12 feet** in width (maximum lateral dimension).

4) Vault walls which are laterally supported and can be expected to undergo only a limited amount of deflection, i.e., an **at-rest** condition, should be designed to resist lateral earth pressures computed on the basis of an equivalent fluid unit weight of **67 pcf** where on-site materials are placed as backfill.

5) Vault footings should have a minimum lateral dimension of **24 or more inches**. Actual footing dimensions, however, should be determined by the structural engineer, based on the design loads.

6) A sliding friction coefficient of **0.33** and equivalent fluid weight of **265 pcf** to a maximum of **2,650 pcf** for the passive condition may be used for footing design.

7) Where local soils are placed as fill over portions of a vault structure, a moist unit weight of the fill soil of **120 pcf** may be assumed for design purposes.

8) Foundation excavations may expose wet soils locally. A layer of lean concrete or gravel can be placed in the bottom of foundation excavations prior to steel and concrete placement. This "mud mat" will reduce disturbance of the natural soils caused by construction operations. Disturbing the native soils will increase potential settlements.

Trench Backfilling Some settlement of compacted soil trench backfill materials should be anticipated, even where all the backfill is placed and compacted correctly. Typical settlements are on the order of 1 to 2 percent of fill thickness. However, the need to compact to the lowest portion of the backfill must be balanced against the need to protect the pipe from damage from the compaction process. Some thickness of backfill

may need to be placed at compaction levels lower than specified (or smaller compaction equipment used together with thinner lifts) to avoid damaging the pipe. Protecting the pipe in this manner can result in somewhat greater surface settlements. Therefore, although other alternatives may be available, the following options are presented for consideration:

Controlled Low Strength Material: Because of these limitations, the most conservative option consists of backfilling the entire depth of the trench (both bedding and common backfill zones) with "controlled low strength material" (CLSM), i.e., a lean, sand-cement slurry, "flowable fill," or similar material along all trench alignment reaches with low tolerances for surface settlements.

If used, the CLSM used as pipe bedding and trench backfill should exhibit a 28-day unconfined compressive strength between 50 to 200 psi so that re-excavation is not unusually difficult.

Placement of the CLSM in several lifts or other measures likely will be necessary to avoid 'floating' the pipe. Measures also should be taken to maintain pipe alignment during CLSM placement.

Compacted Soil Backfilling: Where compacted soil backfilling is employed, using the site soils or similar materials as backfill, the risk of backfill settlements entailed in the selection of this higher risk alternative must be anticipated and accepted by the Client/Owner.

We anticipate that the on-site soils excavated from trenches will be suitable, in general, for use as common trench backfill within the above-described limitations. Backfill soils should be free of vegetation, organic debris and other deleterious materials. Fragments of rocks and cobbles coarser than 3 inches in maximum dimension should not be incorporated into trench backfills.

Pipe Bedding Pipe bedding materials, placement and compaction should meet the specifications of the pipe manufacturer and applicable municipal standards. Bedding should be brought up uniformly on both sides of the pipe to reduce differential loadings.

If a granular bedding material is specified, with regard to potential migration of fines into the pipe bedding, design and installation should follow ASTM D2321, Appendix X1.8. If the granular bedding does not meet filter criteria for the enclosing soils, then non-woven filter fabric (e.g., Mirafi® 140N, or the equivalent) should be placed around the bedding to reduce migration of fines into the bedding which can result in severe, local surface settlements. Where this protection is not provided, settlements can develop/continue several months or years after completion of the project. In addition, clay or concrete cut-off walls should be installed to interrupt the granular bedding section to reduce the rates and volumes of water transmitted along the water line alignment which can contribute to migration of fines.

If granular bedding is specified, it may be not anticipated that significant volumes of on-site soils may be suitable for that use with processing. Materials proposed for use as pipe bedding should be tested for suitability prior to use.

PROJECT EARTHWORKS

The considerations provided below were based on our interpretation of the geotechnical considerations at the site. Where they conflict with applicable Town of Firestone, or other agency specifications, the latter should be considered to govern.

General Considerations Prior to earthwork construction, existing asphalt/concrete, vegetation and other deleterious materials should be removed and disposed of off-site. Relic underground utilities should be abandoned in accordance with applicable regulations, removed as necessary, and properly capped.

Topsoil present on-site should not be incorporated into ordinary fills. Instead, topsoil should be stockpiled during initial grading operations for placement in areas to be landscaped or for other approved uses.

Use of Existing Native Soils Native site soils that are free of trash, organic material, construction debris, and other deleterious materials are suitable, in general, for placement as compacted trench backfill. Organic materials should not be incorporated into project fills.

Imported Fill Materials If it is necessary to import material to either alignment the site the imported soils should be free of organic material, and other deleterious materials. **Imported material should consist of materials that have less than 50 percent passing the No. 200 Sieve and should have a plasticity index less than 15.** Representative samples of the materials proposed for import should be tested and approved prior to transport to the site.

Fill Platform Preparation If surfaces to receive fill expose loose, wet, soft, or otherwise deleterious material, additional material should be excavated, or other measures taken to establish a firm platform for filling. The surfaces to receive fill must be effectively stable prior to placement of fill.

Trench Backfill Placement Fill materials should be thoroughly mixed to achieve a uniform moisture content, placed in uniform lifts not exceeding **8 inches** in loose thickness, and properly compacted.

Compaction Criteria Soils that classify as **GP, GW, GM, GC, SP, SW, SM, or SC** in accordance with the USCS classification system (granular materials) should be compacted to **95 or more percent** of the maximum modified Proctor dry density at moisture contents within **2 percent** of optimum moisture content as determined by ASTM D1557.

Soils that classify as **ML or CL** should be compacted to **95 percent or more** of the maximum standard Proctor density at moisture contents within **2 percent of** the optimum moisture content as determined by ASTM D698.

No fill materials should be placed, worked, rolled while they are frozen, thawing, or during poor/inclement weather conditions.

Care should be taken with regard to achieving and maintaining proper moisture contents during placement and compaction. Materials that are not properly moisture conditioned may exhibit significant pumping, rutting, and deflection at moisture contents near optimum and above. The contractor should be prepared to handle soils of this type, including the use of chemical stabilization, if necessary.

Compaction areas should be kept separate, and no lift should be covered by another until relative compaction and moisture content within the provided ranges are obtained.

Settlements Settlements will occur in filled ground, typically on the order of 1 to 2 percent of the fill depth. If fill placement is performed properly and is tightly controlled, in GROUND's experience the majority (on the order of 60 to 80 percent) of that settlement will typically take place during earthwork construction, provided the contractor achieves the compaction levels provided herein. The remaining potential settlements likely will take several months or longer to be realized, and may be exacerbated if these fills are subjected to changes in moisture content.

EXCAVATION CONSIDERATIONS

Excavation Difficulty The test hole for the subsurface exploration was advanced to the depths indicated on the test hole log by means of conventional, truck-mounted, geotechnical drilling equipment. We anticipate no significant excavation difficulties in the majority of the site with conventional heavy-duty excavation equipment in good working condition. Local cobbles may be encountered within project excavations and the contractor should be prepared to handle materials of this nature.

Excavation Slopes Temporary, un-shored excavation slopes up to 8 feet in height be cut no steeper than 1 ½ (H) to 1 (V) in the on-site soils in the absence of seepage. Some surface sloughing may occur on the slope faces at these angles. Where seepage or flowing groundwater is encountered in shallow project excavations, a geotechnical engineer should be retained to evaluate the conditions and provided additional direction, as appropriate. The risk of slope instability will be significantly increased in areas of seepage along excavation slopes.

Should site constraints prohibit the use of the recommended slope angles, temporary shoring should be used. The shoring should be designed to resist the lateral earth pressure exerted by structure, traffic, equipment, and stockpiles. GROUND can be retained to provide shoring design upon request.

Any excavations in which personnel will be working must comply with all OSHA Standards and Regulations (CFR 29 Part 1926). The contractor's "responsible person"

should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. GROUND has provided the information above solely as a service to the client, and is not assuming responsibility for construction site safety or the contractor's activities.

Surface Water and Groundwater: Good surface drainage should be provided around temporary excavation slopes to direct surface runoff away from the slope faces. A properly designed swale should be provided at the top of the excavations. In no case should water be allowed to pond at the site. Slopes should be protected against erosion. Erosion along the slopes will result in sloughing and could lead to a slope failure.

Groundwater was observed in the test holes at approximately 4 to 8 feet below existing grades, primarily along the eastern edge of the work area. Based on the likely depth of earth working and construction, groundwater will likely be encountered along portions of the utility trench in this area. A properly designed and installed de-watering system may be required during the construction in these sections of trench. The risk of slope instability will be significantly increased in areas of seepage along the excavation slopes. If seepage is encountered in shallow project excavations, the geotechnical engineering should be retained to evaluate the conditions and provide additional direction, as appropriate.

EXISTING PAVEMENT

The existing pavement sections observed in within the various roadways are summarized in the table below.

Roadway	Asphalt Thickness (in.)	Roadbase Thickness (in.)
3rd Street	2 to 2.5	3
4th Street	0.75 to 5	2
Berwick Avenue	0.5 to 1	-
Buchanan Avenue	0.75 to 1	-
Fifth Street	3	3
First Street	4	2
Florence Avenue	2	4
Florence Court	2	3
Granville Avenue	0.5 to 2	-
Granville Circle	0.75	-
Jackson Drive	1	2
Monmouth Avenue	0.5-0.75	-
Sherilynn Circle	4-5	3
Wooster Drive	2-3	6

Pavement layer thicknesses are difficult to accurately measure in small diameter test holes. Reported thicknesses area approximate and represent only the locations explored.

PAVEMENT SECTIONS

A pavement section is a layered system designed to distribute concentrated traffic loads to the subgrade. Performance of the pavement structure is directly related to the physical properties of the subgrade soils and traffic loadings. The standard care of practice in pavement design describes the flexible pavement section as a “20-year” design pavement: however, most pavements will not remain in satisfactory condition without routine maintenance and rehabilitation procedures performed throughout the life of the pavement. Pavement designs were developed in general accordance with the design guidelines and procedures of the American Association of State Highway and Transportation Officials (AASHTO) and the Town of Firestone Standards and Specifications.

Subgrade Materials Based on the results of our field exploration and laboratory testing, the likely pavement subgrade materials ranged from A-2-4 to A-6 to A-7-6 soil in accordance with the American Association of State Highway and Transportation Officials

(AASHTO) classification system. These materials are highly variable and may be unstable depending on the conditions exposed at the time of construction.

Lab testing of a composite sample of the pavement subgrade yielded an R-Value of 62. Due to the somewhat moisture sensitive nature of the materials an R-value 40 was utilized for the pavement design which converts to a resilient modulus of 9,497 psi based on CDOT guidelines for pavement designs purposes. It is important to note that significant decreases in soil support have been observed as the moisture content increases above the optimum. Pavements that are not properly drained may experience a loss of the soil support and subsequent reduction in pavement life.

Anticipated Traffic Firestone's Standards and Specifications section 523.01 provides minimum traffic values for a variety of roadway classifications within the Town of Firestone. Due to the numerous and varied roadways that will be impacted during this project we have provided pavement designs for many of the indicated roadway classifications. As summary of those roadway classifications and the provided Equivalent (18 Kip) Daily Load Application (EDLA) values area provided in the pavement section table below. If anticipated traffic loadings differ significantly from these assumed values, GROUND should be notified to re-evaluate the pavement sections below

Pavement Sections The soil resilient modulus and the equivalent single-axle load (ESAL) values were used to determine the required design structural number for the project pavements. The required structural number was then used to develop the pavement sections. Pavement designs were based on the DARWin™ computer program that solves the 1993 AASHTO pavement design equations. Other pavement design parameters such as serviceability, reliability, and overall standard deviation were obtained from Weld County Engineering and Construction Criteria. Structural coefficients of 0.44 and 0.11 were used for hot bituminous asphalt and for aggregate base course, respectively. The resultant minimum pavement sections that should be used at the facility are tabulated below.

Pavement Sections

Roadway Classification	***EDLA***	***ESAL***	***Composite Asphalt Section*** *(inches Asphalt / inches ABC)*
Local Residential (<50 D. U.)	8	58,400	4.0 / 8.0*
Local Residential (>50 D. U.)	10	73,000	4.0 / 8.0*
Collector: 70' ROW Width	30	219,000	4.0 / 8.0*
Collector: 80' ROW Width	100	730,000	6.0 / 9.0*
Minor Arterial	200	1,460,000	6.0 / 9.0*

ABC = Aggregate Base Course

**Indicates that the Town of Firestone Minimum acceptable pavement section from 523.01 of the Firestone Standards and Specifications meet or exceed the required pavement section.*

Pavement Materials Asphalt pavement should consist of a bituminous plant mix composed of a mixture of aggregate and bituminous material. Asphalt mixture(s) should meet the requirements of a job-mix formula established by a qualified engineer as well as applicable local municipality design requirements.

Aggregate base material should meet the criteria of CDOT Class 5 or 6 aggregate base course. Base course should be placed and compacted in accordance with the criteria in the *Project Earthwork* section of this report.

Subgrade Preparation Shortly before paving, the pavement subgrade should be excavated and/or scarified to a minimum depth of **12 inches**, moisture-conditioned and properly re-compacted. Although subgrade preparation to a depth of 12 inches is typical in the project area, pavement performance commonly can be improved by a greater depth of moisture-density conditioning of the soils.

Subgrade preparation should extend the full width of the pavement. The subgrade for sidewalks and other project hardscaping also should be prepared in the same manner (moisture density treatment to a depth of 12-inches).

Criteria and standards for fill placement and compaction are provided in the *Project Earthwork* section of this report. The contractor should be prepared to either dry the subgrade materials or moisten them, as needed, prior to compaction.

Note: It should be expected that the subgrade soils below the existing pavement section may be very moist to saturated and potentially be unstable. This is generally due to the ability of water to migrate down and laterally through subgrade soils and through cracks/joints in the pavement section. In addition, water can't easily evaporate through the asphalt or concrete pavement and therefore the moisture is trapped and elevates the moisture content of the subgrade.

A geotechnical engineer should be retained to evaluate subgrade conditions and provide recommendations to address areas that are unstable. Additional mitigation such as chemical stabilization with cement or fly ash, rock stabilization, and/or utilization of geogrid type stabilization may be necessary. If chemical stabilization is utilized, a pavement thickness credit on the order of one inch of asphalt or 4 inches of aggregate base course can typically be applied to the pavement thicknesses

Where adequate drainage cannot be achieved or maintained, excavation and replacement should be undertaken to a greater depth, in addition to the edge drains discussed below.

Proof Rolling Immediately prior to paving, the subgrade should be proof rolled with a heavily loaded, pneumatic tired vehicle. Areas that show excessive deflection during proof rolling should be excavated and replaced and/or stabilized as discussed above. Areas allowed to pond prior to paving will require significant re-working prior to proof-rolling. Establishment of a firm paving platform (as indicated by proof rolling) is an additional requirement beyond proper fill placement and compaction. It is possible for soils to be compacted within the limits indicated in the *Project Earthwork* section of this report and fail proof rolling, particularly in the upper range of specified moisture contents.

Additional Considerations The collection and diversion of surface drainage away from paved areas is extremely important to satisfactory performance of the pavements. The subsurface and surface drainage systems should be carefully designed to ensure removal of the water from paved areas and subgrade soils. Allowing surface waters to pond on pavements will cause premature pavement deterioration. Where topography, site constraints or other factors limit or preclude adequate surface drainage, pavements should be provided with edge drains to reduce loss of subgrade support. The long-term performance of the pavement also can be improved greatly by proper backfilling and compaction behind curbs, gutters, and sidewalks so that ponding is not permitted and water infiltration is reduced.

Landscape irrigation in planters adjacent to pavements and in "island" planters within paved areas should be carefully controlled or differential heave and/or rutting of the nearby pavements will result. Drip irrigation systems are recommended for such planters to reduce over-spray and water infiltration beyond the planters. Enclosing the soil in the planters with plastic liners and providing them with positive drainage also will reduce differential moisture increases in the surrounding subgrade soils.

In our experience, infiltration from planters adjacent to pavements is a principal source of moisture increase beneath those pavements. This wetting of the subgrade soils from infiltrating irrigation commonly leads to loss of subgrade support for the pavement with resultant accelerating distress, loss of pavement life and increased maintenance costs. This is particularly the case in the later stages of project construction after landscaping has been emplaced but heavy construction traffic has not ended. Heavy vehicle traffic over wetted subgrade commonly results in rutting and pushing of flexible pavements, and cracking of rigid pavements. Where the subgrade soils are expansive, wetting also typically results in increased pavement heave. In relatively flat areas where design drainage gradients necessarily are small, subgrade settlement or heave can obstruct proper drainage and yield increased infiltration, exaggerated distress, etc. (These considerations apply to project flatwork, as well.)

The anticipated traffic loading does not include excess loading conditions imposed by heavy construction vehicles. Consequently, heavily loaded concrete, lumber, and building material trucks can have a detrimental effect on the pavement. GROUND

recommends that an effective program of regular maintenance be developed and implemented to seal cracks, repair distressed areas, and perform thin overlays throughout the life of the pavements.

Most pavements will not remain in satisfactory condition and achieve their "design lives" without regular maintenance and rehabilitation procedures performed throughout the life of the pavement. Maintenance and rehabilitation measures preserve, rather than improve, the structural capacity of the pavement structure. Therefore, GROUND recommends that an effective program of regular maintenance be developed and implemented to seal cracks, repair distressed areas, and perform thin overlays throughout the lives of the pavements. The greatest benefit of pavement maintenance will be achieved by executing sealing and repairs as quickly as possible when observed.

If actual traffic loadings exceed the values used for development of the pavement sections, however, additional pavement maintenance measures will be throughout the life of the pavement.

CLOSURE

Geotechnical Review The author of this report or a GROUND principal should be retained to review project plans and specifications to evaluate whether they comply with the intent of the measures discussed in this report. The review should be requested in writing.

The geotechnical conclusions and parameters presented in this report are contingent upon observation and testing of project earthworks by representatives of GROUND. If another geotechnical consultant is selected to provide materials testing, then that consultant must assume all responsibility for the geotechnical aspects of the project by concurring in writing with the parameters in this report, or by providing alternative parameters.

Materials Testing Ditesco Services or the owner (The Town of Firestone) should consider retaining a geotechnical engineer to perform materials testing during construction. The performance of such testing or lack thereof, however, in no way alleviates the burden of the contractor or subcontractor from constructing in a manner

that conforms to applicable project documents and industry standards. The contractor or pertinent subcontractor is ultimately responsible for managing the quality of his work; furthermore, testing by the geotechnical engineer does not preclude the contractor from obtaining or providing whatever services that he deems necessary to complete the project in accordance with applicable documents.

Limitations This report has been prepared for Ditesco Services as it pertains to design and construction of the proposed Town of Firestone Historic Waterline Project as described herein. It may not contain sufficient information for other parties or other purposes.

In addition, GROUND has assumed that project construction will commence by Summer/Fall 2022. Any changes in project plans or schedule should be brought to the attention of a geotechnical engineer, in order that the geotechnical conclusions in this report may be re-evaluated and, as necessary, modified.

The geotechnical conclusions in this report relied upon subsurface exploration at a limited number of exploration points, as shown in Figures 1 and 2, as well as the means and methods described herein. Subsurface conditions were interpolated between and extrapolated beyond these locations. It is not possible to guarantee the subsurface conditions are as indicated in this report. Actual conditions exposed during construction may differ from those encountered during site exploration.

If during construction, surface, soil, bedrock, or groundwater conditions appear to be at variance with those described herein, a geotechnical engineer should be retained at once, so that re-evaluation of the conclusions for this site may be made in a timely manner. In addition, a contractor who obtains information from this report for development of his scope of work or cost estimates may find the geotechnical information in this report to be inadequate for his purposes or find the geotechnical conditions described herein to be at variance with his experience in the greater project area. The contractor is responsible for obtaining the additional geotechnical information that is necessary to develop his workscope and cost estimates with sufficient precision. This includes current depths to groundwater, etc.

ALL DEVELOPMENT CONTAINS INHERENT RISKS. It is important that ALL aspects of this report, as well as the estimated performance (and limitations with any such estimations) of proposed improvements are understood by Ditesco Services. Utilizing these criteria and measures herein for planning, design, and/or construction constitutes understanding and acceptance of the conclusions with regard to risk and other information provided herein, associated improvement performance, as well as the limitations inherent within such estimates.

If any information referred to herein is not well understood, then Ditesco Services, the owner, or other members of the design team, should contact the author or a GROUND principal immediately. We will be available to meet to discuss the risks and remedial approaches presented in this report, as well as other potential approaches, upon request.

GROUND makes no warranties, either expressed or implied, as to the professional data, opinions or conclusions contained herein. This document, together with the concepts and conclusions presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Re-use of, or improper reliance on this document without written authorization and adaption by GROUND Engineering Consultants, Inc., shall be without liability to GROUND Engineering Consultants, Inc.

GROUND appreciates the opportunity to complete this portion of the project and welcomes the opportunity to provide Ditesco Services or the owner with a proposal for construction observation and materials testing.

Sincerely,

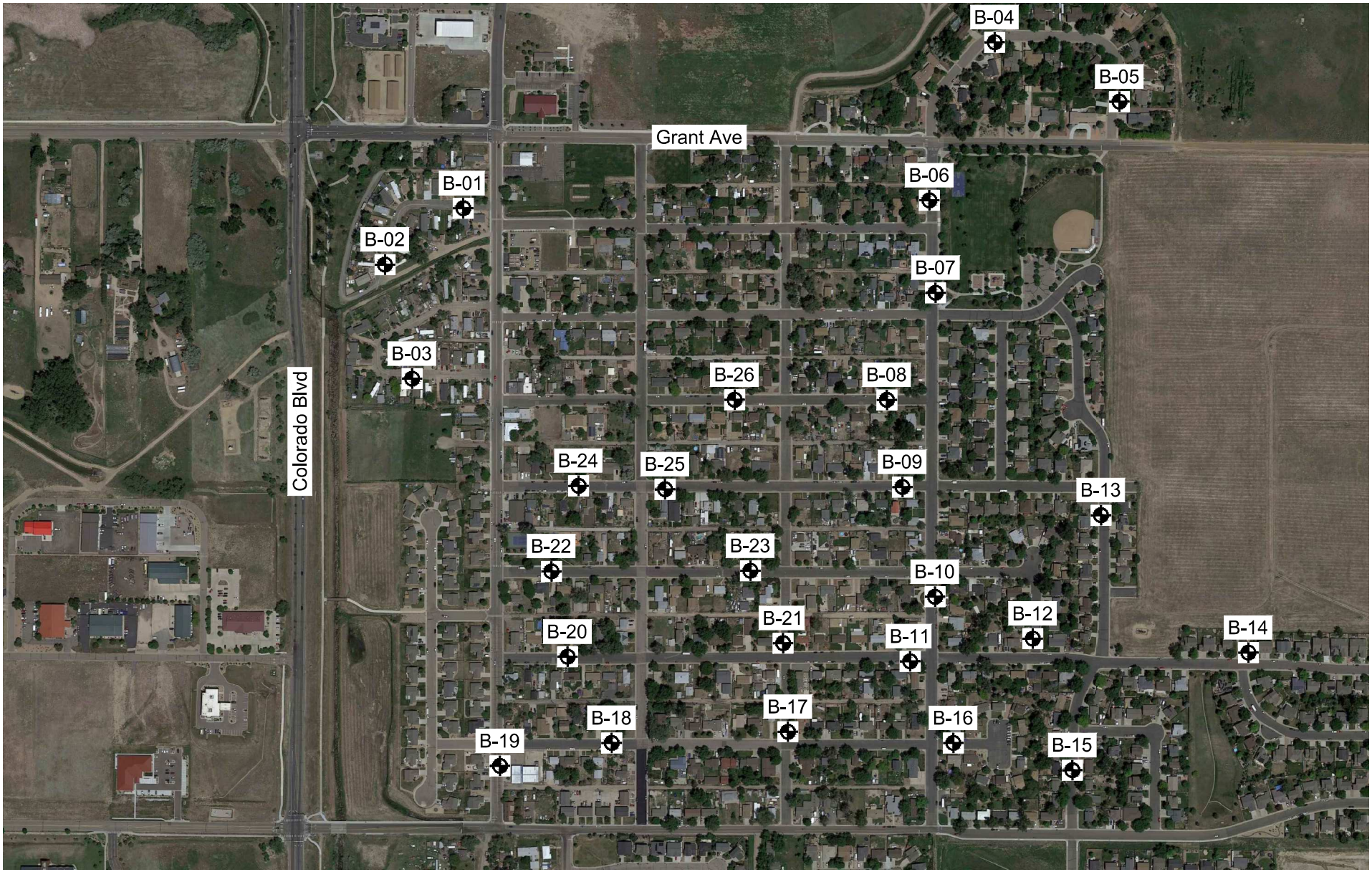
GROUND Engineering Consultants, Inc.



Jaro Lepic

Kelsey Van Bemmel, P.E.

Reviewed by Joseph Zorack, P.E.



1
Indicates test hole number and approximate location.

GOOGLE EARTH AERIAL IMAGE (6/10/2021)
SITE PLAN PROVIDED BY CLIENT

NOT TO SCALE

GROUND ENGINEERING

JOB NO.: 22-0005

FIGURE: 1

LOCATION OF TEST HOLES

GROUND ENGINEERING

LOGS OF THE TEST HOLES

CLIENT: Ditesco Services

JOB NO: 22-0005

PROJECT NAME: Town of Firestone Waterlines

PROJECT LOCATION: Firestone, CO

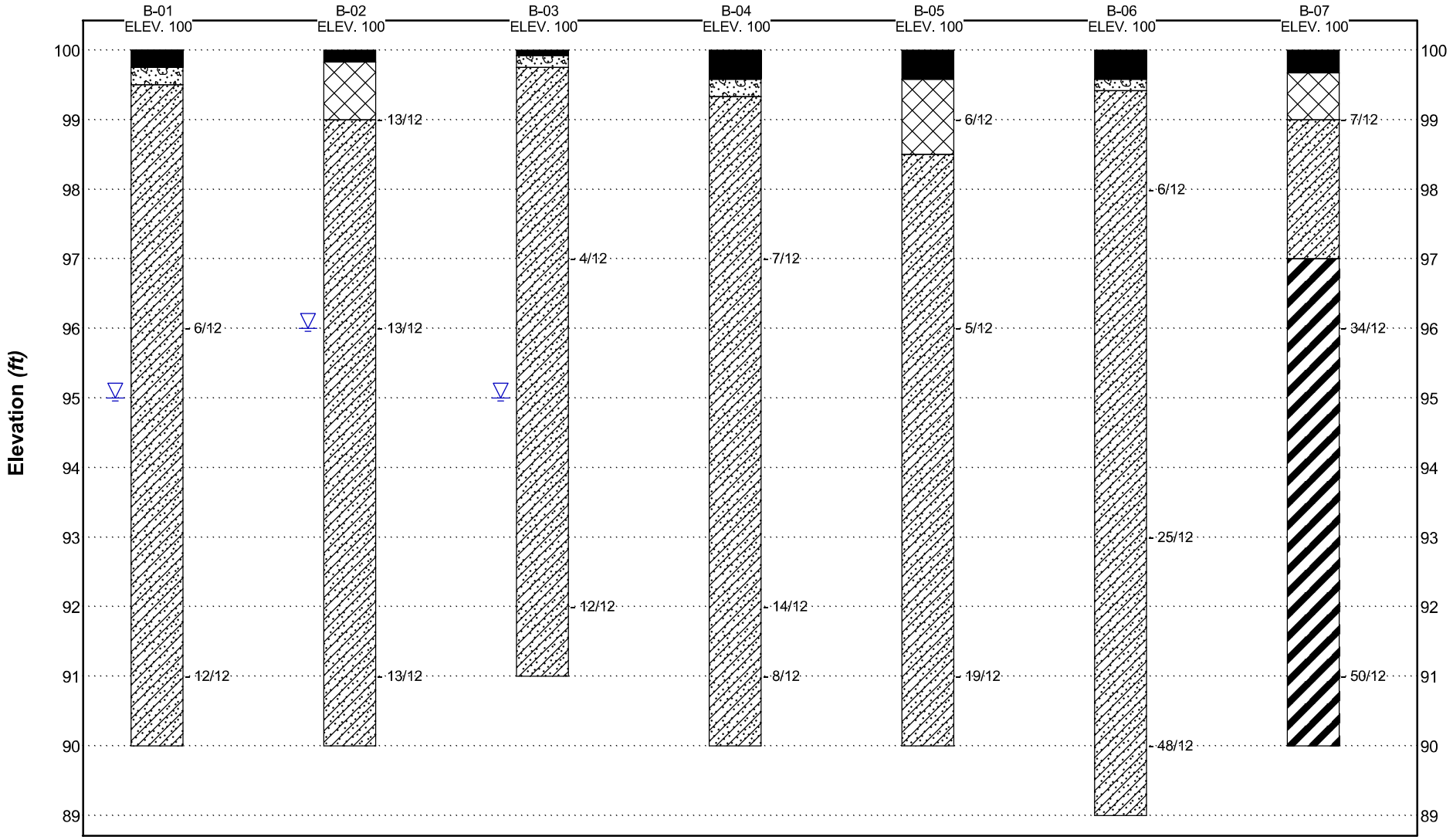


Figure #2

LOGS OF THE TEST HOLES

CLIENT: Ditesco Services

JOB NO: 22-0005

PROJECT NAME: Town of Firestone Waterlines

PROJECT LOCATION: Firestone, CO

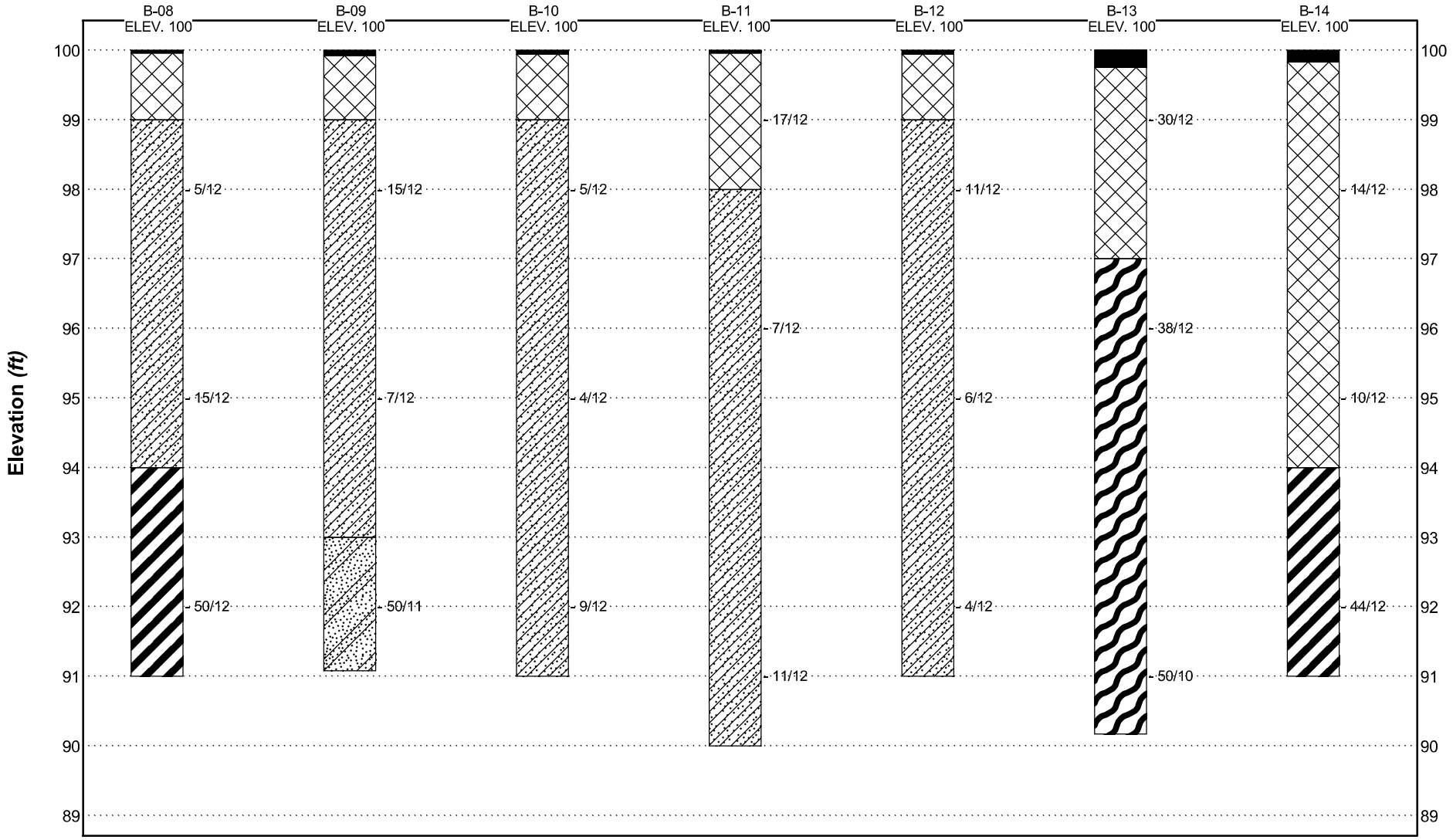


Figure #3

LOGS OF THE TEST HOLES

CLIENT: Ditesco Services

JOB NO: 22-0005

PROJECT NAME: Town of Firestone Waterlines

PROJECT LOCATION: Firestone, CO

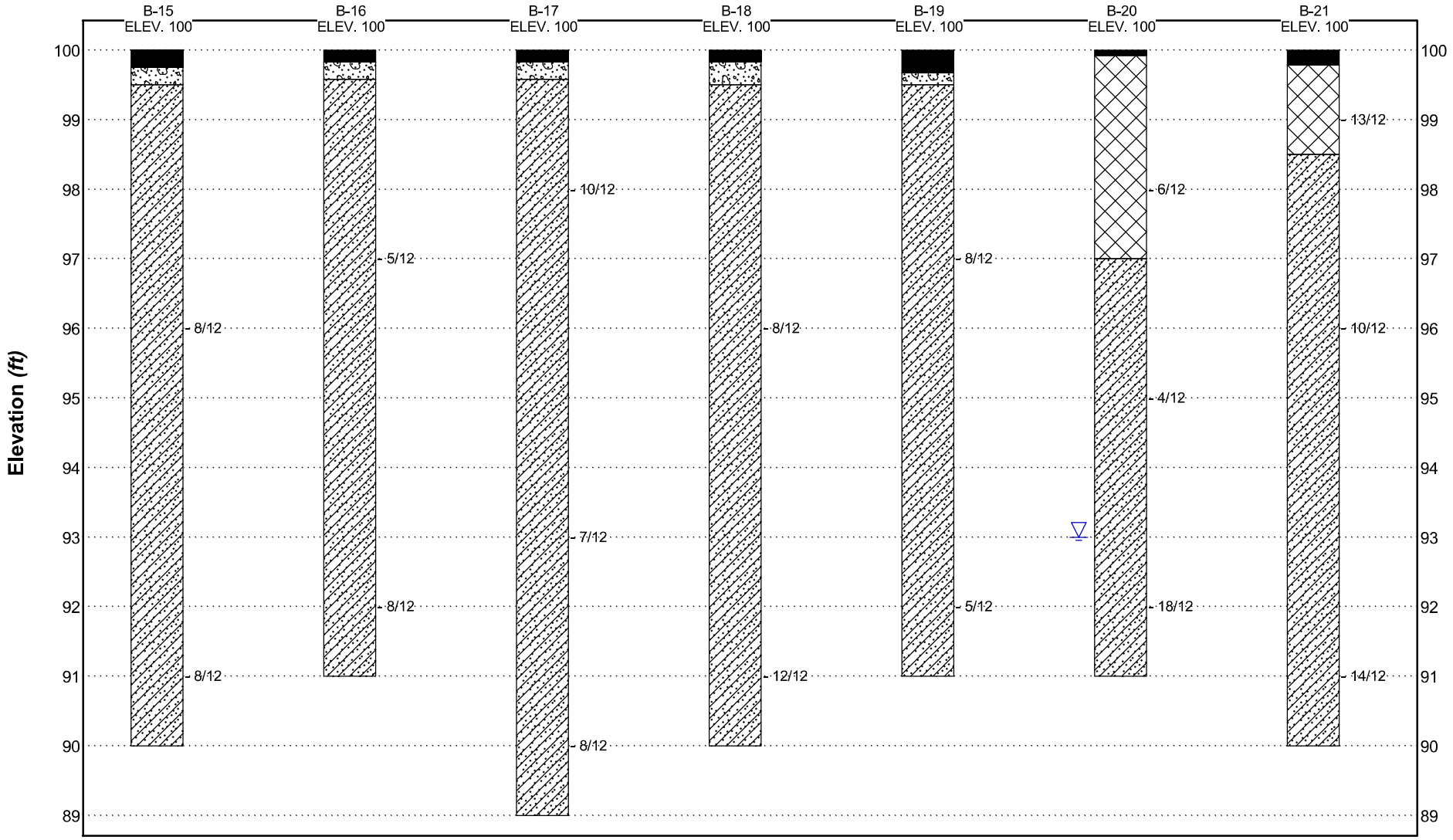


Figure #4

LOGS OF THE TEST HOLES

CLIENT: Ditesco Services

JOB NO: 22-0005

PROJECT NAME: Town of Firestone Waterlines

PROJECT LOCATION: Firestone, CO

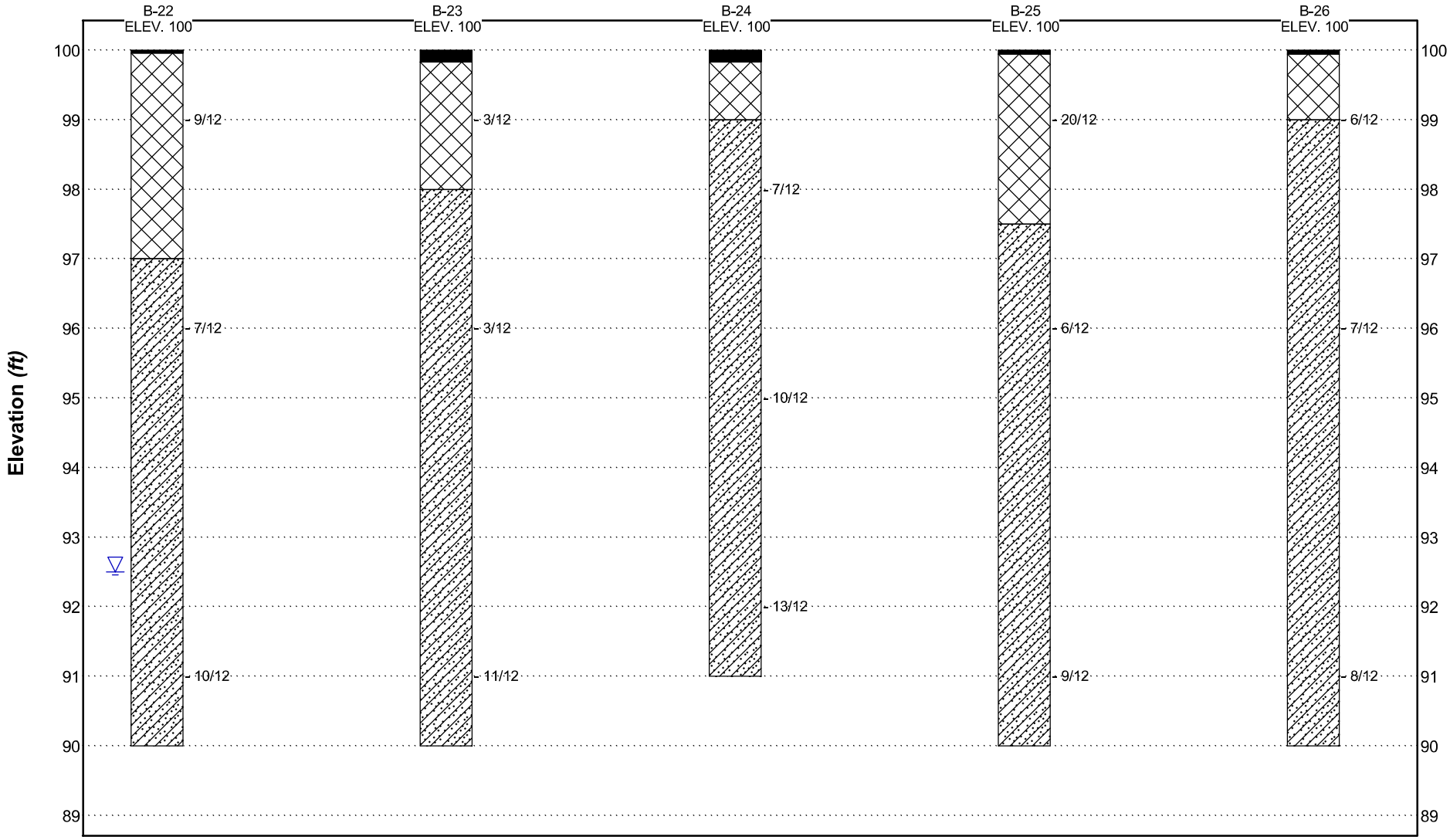


Figure #5

LEGEND AND NOTES

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

MATERIAL SYMBOLS


ASPHALT


ROAD BASE


FILL


SAND and CLAY


WEATHERED CLAYSTONE


CLAYSTONE BEDROCK


SANDSTONE BEDROCK

NOTE: See Detailed Logs for Material descriptions.

SAMPLER SYMBOLS



Modified California Liner Sampler
23 / 12 Drive sample blow count indicates 23 blows of a 140 pound hammer falling 30 inches were required to drive the sampler 12 inches.

NOTES

1. Test holes were drilled on 3/8 and 3/18/2022 with 4" solid stem auger.

2. Locations of the test holes were determined approximately by pacing from features shown on the site plan provided.

3. Elevations of the test holes were not measured and the logs of the test holes are drawn to depth. Nominal elevation of "100 feet" indicates existing ground level at the test hole at the time of drilling.

4. The test hole locations and elevations should be considered accurate only to the degree implied by the method used.

5. The lines between materials shown on the test hole logs represent the approximate boundaries between material types and the transitions may be gradual.

6. Groundwater level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water level may occur with time.

7. The material descriptions on these logs are for general classification purposes only. See full text of this report for descriptions of the site materials & related information.

8. All test holes were immediately backfilled upon completion of drilling, unless otherwise specified in this report.

ABBREVIATIONS

▽ Water Level at Time of Drilling, or as Shown

▼ Water Level at End of Drilling, or as Shown

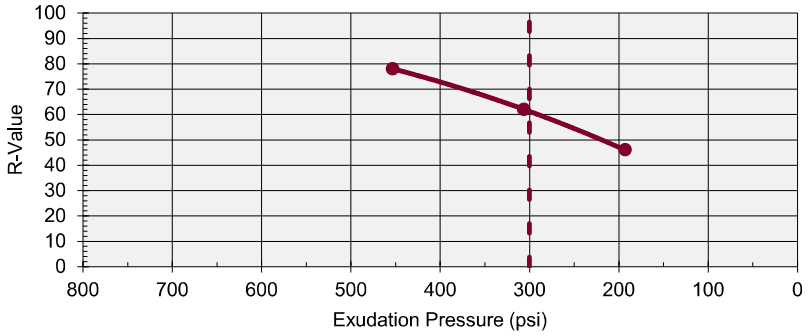
▼ Water Level After 24 Hours, or as Shown

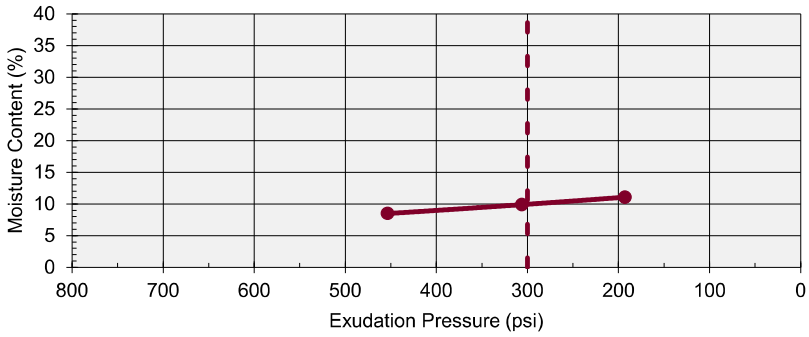
NV	No Value
NP	Non-Plastic

Figure #6

Town of Firestone Waterlines

R-Value (ASTM D2844 / AASHTO T190)





Test Point	Moisture (%)	Exudation Pressure (psi)	R-Value
1	11.1	193	46
2	9.9	306	62
3	8.5	453	78
4	-	-	-

R-Value at 300 psi Exudation Pressure
62

Location: Bulk - Standard Proctor & R-Value
Description: clayey SAND

Classification: (SC) / A-2-6 (0) *< No. 200 (%):* 28.0
Liquid Limit: 30
Plasticity Index 14

Results apply only to the specific items and locations referenced and at the time of testing. This report should not be reproduced, except in full, without the written permission of GROUND Engineering Consultants, Inc.

3/2022

Figure 7

GROUND ENGINEERING

Client: Ditesco Services

Project No.: 22-0005

Town of Firestone Waterlines

Standard Proctor (ASTM D698)



Method	Preparation	Hammer
Method C	Moist	Manual

Maximum Dry Density (pcf)	Optimum Moisture (%)	Oversize Corrected	
		Maximum Dry Density (pcf)	Optimum Moisture (%)
122.4	**11.1**	-	-

Oversize Sieve: 3/4 in
Coarse Fraction (%): 0
Fine Fraction (%): 100
Coarse Specific Gravity: -
Coarse Absorption (%): -
Fine Specific Gravity: 2.65 Estimated

Location: Bulk - Standard Proctor & R-Value
Description: clayey SAND

Classification: (SC) / A-2-6 (0) *< No. 200 (%):* 28.0
Liquid Limit: 30
Plasticity Index 14

Results apply only to the specific items and locations referenced and at the time of testing. This report should not be reproduced, except in full, without the written permission of GROUND Engineering Consultants, Inc.

GROUND ENGINEERING

Town of Firestone Waterlines

TABLE 1: SUMMARY OF LABORATORY TEST RESULTS

Sample Location		Natural	Natural	Gradation			Atterberg Limits		Swell/Consolidation		USCS	AASHTO	Sample Description
Test Hole	Depth	Moisture Content	Dry Density	Gravel	Sand	Fines	Liquid Limit	Plasticity Index	Volume Change	Surcharge Pressure	Equivalent Classification	Equivalent Classification (Group Index)	
No.	(feet)	*(%)*	*(pcf)*	*(%)*	*(%)*	*(%)*			*(%)*	*(psf)*			
B-1	4	17.5	108.1		71	29	22	5	-	-	SC-SM	A-2-4 (0)	silty clayey SAND
B-3	8	15.3	117.3	-	-	19	NV	NP	-	-	SM	A-2-4 (0)	Silty Sand
B-5	4	6.5	87.6		70	30	NV	NP	-	-	SM	A-2-4 (0)	Silty Sand
B-4	9	17.1	114.2	-	-	61	28	10	-	-	s(CL)	A-4 (4)	sandy CLAY
B-7	4	15.5	108.1		35	65	41	20	-0.4	500	s(CL)	A-7-6 (11)	sandy CLAY
B-8	8	14.7	110.6		28	72	32	12	-0.3	1000	(CL)s	A-6 (7)	CLAY with sand
B-10	5	3.4	89.1		91	9	NV	NP	-	-	SP-SM	A-2-4 (0)	poorly graded silty SAND
B-13	4	12.1	100.7		5	95	41	22	0.1	500	CL	A-7-6 (22)	Weathered Claystone
B-13	9	10.0	124.4		7	93	37	18	2.0	1000	CL	A-6 (17)	Claystone Bedrock
B-12	5	11.5	114.3		55	45	25	9	-	-	SC	A-4 (1)	CLAY and SAND
B-15	4	17.0	103.8		30	70	32	15	-	-	s(CL)	A-6 (8)	sandy CLAY
B-17	7	16.6	106.3	-	-	65	32	12	-	-	s(CL)	A-6 (6)	sandy CLAY
B-19	3	10.2	105.5	-	-	20	NV	NP	-	-	SM	A-2-4 (0)	Silty SAND
B-20	8	11.5	108.6	-	-	13	NV	NP	-	-	SM	A-2-4 (0)	silty SAND
B-23	4	4.0	99.7	-	-	10	NV	NP	-	-	SP-SM	A-2-4 (0)	poorly graded silty SAND
B-24	8	12.3	108.5		78	22	NV	NP	-	-	SM	A-2-4 (0)	Silty SAND
B-26	4	11.8	111.2		52	48	20	5	-	-	SC-SM	A-4 (0)	silty clayey SAND

SD = Sample disturbed, NV = No value, NP = Non-plastic

Job No. 22-0005

GROUND ENGINEERING

Town of Firestone Waterlines

TABLE 2: SUMMARY OF SOIL CORROSION TEST RESULTS

Sample Location		Water Soluble Sulfates	pH	Redox Potential	Sulfide Reactivity	Resistivity	Sample Description
Test Hole No.	Depth (feet)	(%)		(mv)		(ohm-cm)	
B-1	4	0.03	9.0	-109	Positive	3,674	silty SAND
B-15	4	0.23	8.8	- 96	Positive	9,357	CLAY

Job No. 22-0005

Appendix A

Detailed Logs of the Test Holes

TEST HOLE B-01

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 3 inches of asphalt.										
			ROAD BASE: Approximately 3 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5												
					6/12	17.5	108.1	29	22	5			SC-SM
95.0 ▽	5.0		Groundwater encountered at 5 feet at time of drilling.										
92.5	7.5												
					12/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-02

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.		13/12								
97.5	2.5												
			Groundwater encountered at 4 feet at time of drilling.		13/12								
95.0	5.0												
92.5	7.5												
					13/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-03

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 1 inch of asphalt.										
			ROAD BASE: Approximately 2 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				4/12								
95.0 ▽	5.0		Groundwater encountered at 5 feet at time of drilling.										
92.5	7.5				12/12	15.3	117.3	19	NV	NP			SM

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-04

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 5 inches of asphalt.										
			ROAD BASE: Approximately 3 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5												
					7/12								
95.0	5.0												
92.5	7.5				14/12								
90.0	10.0				8/12	17.1	114.2	61	28	10			s(CL)

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-05

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 5 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					6/12								
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
					5/12	6.5	87.6	30	NV	NP			SM
95.0	5.0												
92.5	7.5												
					19/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-06

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 5 inches of asphalt.										
			ROAD BASE: Approximately 2 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				6/12								
95.0	5.0												
92.5	7.5				25/12								
90.0	10.0				48/12								

Bottom of borehole at Approx. 11 feet.

TEST HOLE B-07

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 4 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.		7/12								
97.5	2.5												
			CLAYSTONE BEDROCK: Medium to highly plastic, hard to very hard, moist, brown-gray in color with localized iron, and caliche staining.										
					34/12	15.5	108.1	65	41	20	-0.4 (500)		s(CL)
95.0	5.0												
92.5	7.5												
					50/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-08

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.5 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				5/12								
95.0	5.0				15/12								
			CLAYSTONE BEDROCK: Medium to highly plastic, hard to very hard, moist, brown-gray in color with localized iron, and caliche staining.										
92.5	7.5				50/12	14.7	110.6	72	32	12	-0.3 (1000)		(CL)s

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-09

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 1 inch of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				15/12								
95.0	5.0				7/12								
92.5	7.5		**SANDSTONE BEDROCK:** Fine to medium grained, low to medium plastic, hard to very hard, moist, orange-tan in color with iron staining.		50/11								

Bottom of borehole at Approx. 8.92 feet.

TEST HOLE B-10

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.75 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				5/12								
95.0	5.0				4/12	3.4	89.1	9	NV	NP			SP-SM
92.5	7.5				9/12								

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-11

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.5 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					17/12								
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
					7/12								
95.0	5.0												
92.5	7.5												
					11/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-12

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.75 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.		11/12								
95.0	5.0				6/12	11.5	114.3	45	25	9			SC
92.5	7.5				4/12								

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-13

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 3 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					30/12								
97.5	2.5												
			WEATHERED CLAYSTONE: Medium to highly plastic, moist, brown-gray in color with localized iron staining.										
					38/12	12.1	100.7	95	41	22	0.1 (500)		CL
95.0	5.0												
92.5	7.5												
					50/10	10.0	124.4	93	37	18	2.0 (1000)		CL

Bottom of borehole at Approx. 9.83 feet.

TEST HOLE B-14

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
97.5	2.5				14/12								
95.0	5.0				10/12								
			CLAYSTONE BEDROCK: Medium to highly plastic, hard to very hard, moist, brown-gray in color with localized iron, and caliche staining.										
92.5	7.5				44/12								

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-15

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 3 inches of asphalt.										
			ROAD BASE: Approximately 3 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5												
					8/12	17.0	103.8	70	32	15			s(CL)
95.0	5.0												
92.5	7.5												
					8/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-16

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			ROAD BASE: Approximately 3 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				5/12								
95.0	5.0												
92.5	7.5				8/12								

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-17

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			ROAD BASE: Approximately 3 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5				10/12								
95.0	5.0												
92.5	7.5				7/12	16.6	106.3	65	32	12			s(CL)
90.0	10.0				8/12								

Bottom of borehole at Approx. 11 feet.

TEST HOLE B-18

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			ROAD BASE: Approximately 4 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5												
					8/12								
95.0	5.0												
92.5	7.5												
					12/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-19

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 4 inches of asphalt.										
			ROAD BASE: Approximately 2 inches of road base.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
97.5	2.5												
					8/12	10.2	105.5	20	NV	NP			SM
95.0	5.0												
92.5	7.5												
					5/12								

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-20

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 1 inch of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
97.5	2.5				6/12								
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
95.0	5.0				4/12								
			Groundwater encountered at 7 feet at time of drilling.										
92.5	7.5				18/12	11.5	108.6	13	NV	NP			SM

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-21

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2.5 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					13/12								
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
					10/12								
95.0	5.0												
92.5	7.5												
					14/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-22

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.5 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					9/12								
97.5	2.5												
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
					7/12								
95.0	5.0												
92.5	7.5		Groundwater encountered at 7.5 feet at time of drilling.										
					10/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-23

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					3/12								
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
					3/12	4.0	99.7	10	NV	NP			SP-SM
95.0	5.0												
92.5	7.5												
					11/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-24

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 2 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.		7/12								
95.0	5.0				10/12								
92.5	7.5				13/12	12.3	108.5	22	NV	NP			SM

Bottom of borehole at Approx. 9 feet.

TEST HOLE B-25

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.75 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
					20/12								
97.5	2.5		**SAND and CLAY:** Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.										
					6/12								
95.0	5.0												
92.5	7.5												
					9/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TEST HOLE B-26

CLIENT: Ditesco Services **PROJECT NAME:** Town of Firestone Waterlines

JOB NO: 22-0005 **PROJECT LOCATION:** Firestone, CO

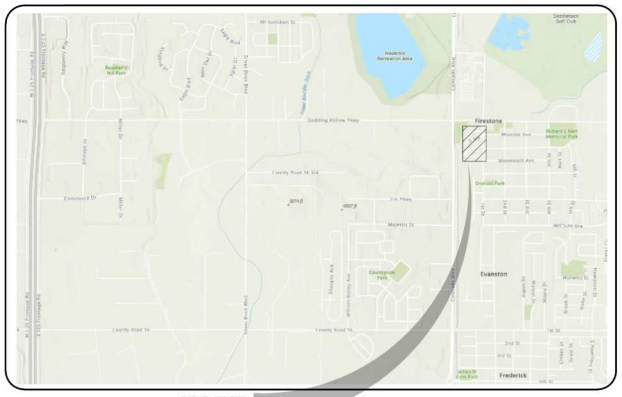
Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Percent Passing No. 200 Sieve	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	Swell/Consolidation (%) at Surcharge Pressure (psf)	Unconfined Compressive Strength (ksf)	USCS Equivalent Classification
100.0	0.0		**ASPHALT:** Approximately 0.75 inches of asphalt.										
			FILL: Sand and clay that ranged from sandy clay to clayey sand, was fine to medium grained, low to medium plastic, moist, and brown to tan in color.										
			SAND and CLAY: Sandy clay to clayey sand, was fine to medium grained, low to medium plastic, soft/loose to very stiff/medium dense, moist to wet, and brown in color with localized caliche deposits.		6/12								
97.5	2.5												
					7/12	11.8	111.2	48	20	5			SC-SM
95.0	5.0												
92.5	7.5												
					8/12								
90.0	10.0												

Bottom of borehole at Approx. 10 feet.

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT # W2021-9540

June, 2022



PROJECT LOCATION

VICINITY MAP

NOT TO SCALE

CONTACT INFORMATION

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Chad Dilka, PLS
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GEOTECHNICAL ENGINEER
Ground Engineering Consulting, Inc.
Kelsey Van Bemmel, PE
2468 East 9th Street
Loveland, Colorado 80537
(970) 685-3239

BENCHMARKS

Coordinate Control

VERTICAL DATUM:
PROJECT DATUM: NAVD88

BENCHMARK P 329: A 3.5" BRASS DISK SET IN THE TOP OF A CONCRETE POST PROJECTING 0.4' ABOVE GROUND, LOCATED ON THE NORTH SIDE OF HIGHWAY 66 ±7.5 MILES EAST OF ITS INTERSECTION WITH HIGHWAY 287, ±18 FEET EAST OF THE CENTERLINE OF A PRIVATE DRIVE AND ±2 FEET WEST– SOUTHWEST OF A CARSONITE WITNESS POST.

ELEVATION: 4953.57 (NAVD 88 DATUM)

HORIZONTAL DATUM:
MODIFIED COLORADO STATE PLANE NORTH ZONE 0501 (GROUND) COORDINATES NAD 83(2011) DATUM. HORIZONTAL CONTROL BASED UPON TRIMBLE VRS NETWORK SOLUTION.

NOTE:
1. THIS DRAWING IS IN MODIFIED STATE PLANE COORDINATES. TO REDUCE TO STATE PLANE COORDINATES, SCALE WITH COMBINED SCALE FACTOR 0.99972814 (INVERSE IS 1.00027193) ABOUT THE ORIGIN 0,0.

SHEET INDEX

INDEX NO.	SHEET NO.	DESCRIPTION
COVER AND GENERAL NOTES		
1	C001	COVER SHEET
2	C002	GENERAL NOTES
OVERALL EXISTING CONDITIONS AND DEMOLITION SHEETS		
3	C101	OVERALL SURFACE DEMOLITION PLAN
4	C102	OVERALL UTILITY DEMOLITION, POTHOLE AND KEYMAP PLAN
PHASING SHEETS		
5	C201	OVERALL PHASING PLAN AND INSTALLATION NOTES
EROSION CONTROL SHEETS		
6	C301	EROSION CONTROL PLAN
7	C302	EROSION CONTROL DETAILS
EXISTING CONDITIONS AND UTILITY PLAN SHEETS		
8 - 13	C401 - C406	EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN
14	C407	POTHOLE TABLE
WATERLINE PLAN AND PROFILE SHEETS		
15	C501	ALLEY WATERLINE PLAN & PROFILE STA 10+00 TO STA 11+60
16	C502	ALLEY WATERLINE PLAN & PROFILE STA 11+60 TO STA 12+80
17	C503	ALLEY WATERLINE PLAN & PROFILE STA 12+80 TO END
18	C504	WOOSTER DRIVE WATERLINE PLAN & PROFILE STA 10+00 TO STA 11+60
19	C505	WOOSTER DRIVE WATERLINE STA 11+60 TO STA 13+60 WATERLINE PLAN & PROFILE
20	C506	WOOSTER DRIVE WATERLINE PLAN & PROFILE STA 13+60 TO STA 15+60
21	C507	WOOSTER DRIVE WATERLINE PLAN & PROFILE STA 15+60 TO END
22	C508	JACKSON DRIVE WATERLINE PLAN & PROFILE STA 10+00 TO STA 11+60
23	C509	JACKSON DRIVE WATERLINE PLAN & PROFILE STA 11+60 TO STA 13+60
24	C510	JACKSON DRIVE WATERLINE PLAN & PROFILE STA 13+60 TO STA 15+60
25	C511	JACKSON DRIVE WATERLINE PLAN & PROFILE STA 15+60 TO STA 17+60
26	C512	JACKSON DRIVE WATERLINE PLAN & PROFILE STA 17+60 TO STA 19+60
27	C513	JACKSON DRIVE WATERLINE PLAN & PROFILE STA 19+60 TO END
WATERLINE CONNECTION DETAIL SHEETS		
28	C601	WATERLINE CONNECTIONS DETAILS
ROADWAY IMPROVEMENTS SHEETS		
29	C701	WOOSTER DRIVE SURFACE RESTORATION PLAN
30	C702	JACKSON DRIVE SURFACE RESTORATION PLAN
31	C703	WOOSTER DRIVE & JACKSON DRIVE TYPICAL CROSS SECTIONS
DETAIL SHEETS		
32 - 34	C801 - C803	GENERAL DETAILS
GEOTECH BORE LOGS		
35	C901	SUMMARY LOGS OF EXPLORATORY BORINGS

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
Know what's below. Call before you dig.
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

ditesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Ft. Collins, Colorado 80525
Phone: 970.632.5068
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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

No	Sheet Revisions	By	Date
1	Addendum 2	JW	6-17-22

COVER SHEET

DESIGNED BY: J. Woodridge | DATE: June 17, 2022
DRAWN BY: R. Bunner | SCALE: NTS
APPROVED BY: J. Burrell | FILE NAME: Firestone-Cover.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT NUMBER: W2021-9540
SHEET NUMBER C001
SHEET INDEX: 1

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Cover.dwg Friday, July 08, 2022 3:06 PM By: Rhonda Bunner

GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST "DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS FOR PUBLIC IMPROVEMENTS" BY THE TOWN OF FIRESTONE. COPIES OF THE STANDARDS AND SPECIFICATIONS MAY BE OBTAINED FROM THE TOWN WEB SITE. CONTRACTOR SHALL HAVE A SET ON SITE AT ALL TIMES.
2. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY/ALL WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK SITE FROM ADJACENT PRIVATE PROPERTY OWNERS. A COPY OF ALL AGREEMENTS SHALL BE PROVIDED TO THE TOWN. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
3. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE TOWN ENGINEERING STAFF. THE TOWN RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO TOWN STANDARDS AND SPECIFICATIONS. INSPECTIONS AND ONSITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE TOWN ENGINEERING STAFF OF THE CONTRACTORS' CONTRACTUAL COMMITMENT. REQUESTS FOR INSPECTION BY THE TOWN SHALL BE MADE BY THE CONTRACTOR A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE.
4. CONSTRUCTION WATER IS AVAILABLE TO THE CONTRACTOR AS ESTABLISHED IN THE TOWN STANDARDS AND SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE TOWN REGARDING CURRENT REGULATIONS, FEES AND REQUIRED AGREEMENTS RELATED TO THE PROVISION OF CONSTRUCTION WATER.
5. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE AFFECTED UTILITY COMPANIES AND SHALL NOTIFY THE UTILITY NOTIFICATION CENTER, PHONE NUMBER 811, THREE (3) BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION.
6. UTILITIES IN THE AREA OF CONSTRUCTION ARE APPROXIMATE ONLY. THEY HAVE BEEN LOCATED FROM FIELD INVESTIGATION AND THE BEST AVAILABLE UTILITY RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL CONTACT ALL RESPECTIVE UTILITIES AND HAVE ALL UTILITIES FIELD-LOCATED PRIOR TO CONSTRUCTION. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, IT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TOWN ENGINEERING STAFF AND DESIGN ENGINEER PRIOR TO PROCEEDING.
7. THE CONTRACTOR SHALL NOTIFY TOWN ENGINEERING STAFF OF ANY PROBLEM IMPACTING WATER AND WASTE WATER FACILITIES THAT WOULD POTENTIALLY REQUIRE A VARIANCE FROM THE APPROVED PLANS AND SPECIFICATIONS. ANY VARIANCE FROM THE APPROVED DOCUMENTS SHALL BE AT THE SOLE DISCRETION OF THE TOWN ENGINEERING STAFF.
8. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE SPECIFICATIONS AND PERMITS NECESSARY TO PERFORM THE PROPOSED WORK.
9. AS-BUILT DRAWINGS AS REQUIRED IN THE SPECIFICATIONS, ARE TO BE SUBMITTED BY THE OWNER/DEVELOPER PRIOR TO INITIAL ACCEPTANCE OF THE CONSTRUCTION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ANY EXISTING SIGNS, STRUCTURES, FENCES, ETC., ENCOUNTERED ON THE JOB AND RESTORING THEM TO THEIR ORIGINAL CONDITION.
11. THE CONTRACTOR IS RESPONSIBLE FOR:
    A. NOTIFYING THE TOWN UTILITY CUSTOMERS OF POTENTIAL SERVICE OUTAGES, AND COORDINATE WITH THE TOWN FOR DETERMINATION OF MINIMUM TIME REQUIREMENT.
    B. NOTIFYING THE TOWN ENGINEERING STAFF IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE TOWN FORTY-EIGHT (48) HOURS PRIOR TO RESTART.
    C. IN THE EVENT OF AN AFTER HOURS EMERGENCY, CALL 720-652-4222.
    D. NOTIFYING THE FREDERICK FIRESTONE FIRE PROTECTION DISTRICT OF ALL STREET CLOSURES AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. A CONSTRUCTION DEWATERING PERMIT MUST BE OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE). GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS OR EROSION OF ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. THE USE OF ANY SANITARY SEWER TO DISPOSE OF TRENCH WATER WILL NOT BE PERMITTED. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE TOWN, AND THE DESIGN ENGINEER AT THE TIME OF THE OCCURRENCE.
15. DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. THE TOWN OR THE DESIGN ENGINEER EXERCISE NO CONTROLS OVER THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERINTENDING OF THE SAME. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE DESIGN ENGINEER OR THE TOWN. THE TOWN ENGINEERING STAFF, OR ANY CONTRACTED ENGINEER, ARE NOT RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS RELATING THERETO.
16. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
17. REGULAR WORK HOURS ARE SEVEN (7) A.M. UNTIL SEVEN (7) P.M. OR DUSK (WHICHEVER OCCURS FIRST) OF THE SAME DAY, MONDAY THROUGH FRIDAY. THE CONTRACTOR WILL NOT PERMIT OVERTIME WORK OUTSIDE OF REGULAR WORKING HOURS OR THE PERFORMANCE OF WORK ON SATURDAY, SUNDAY OR ANY LEGAL HOLIDAY WITHOUT RECEIVING WRITTEN CONSENT FROM THE TOWN ENGINEER. REQUESTS FOR WEEKEND WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN NO LATER THAN WEDNESDAYS AT 3:30PM FOR SUBSEQUENT WEEKEND AND REQUESTS FOR HOLIDAY WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN NO LATER THAN 7:00AM-2 BUSINESS DAYS PRIOR TO THE HOLIDAY. ALL EXPENSES INCURRED BY THE TOWN SHALL BE REIMBURSED AT A RATE TO BE DETERMINED BY DIRECTOR OF FINANCE.
18. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FOR ANY PROJECT DISTURBING OVER ONE ACRE FROM BOTH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND THE TOWN.
19. EACH TYPE OF CONSTRUCTION SHALL BE COMPLETED BY A CONTRACTOR THAT HAS DEMONSTRATED ACCEPTABLE QUALIFICATIONS TO THE TOWN AND IS A LICENSED CONTRACTOR IN THE TOWN.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION. ALL TRAFFIC CONTROLS SHALL CONFORM TO THE TOWN STANDARDS AND SPECIFICATIONS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITIONS. A PLAN SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
21. ALL BACKFILL SHALL CONFORM TO THE TRENCH DETAIL LOCATED IN THE TOWN STANDARDS & SPECIFICATIONS.
22. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS.
23. THE CONTRACTOR SHALL REPAIR ANY EXCAVATION OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.
24. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPING AND/OR PAVEMENT MARKINGS, WHICH HAVE BEEN EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED DURING HIS OPERATION. RENEWAL OF PAVEMENT STRIPING AND MARKING SHALL BE DONE IN CONFORMANCE WITH THE TOWN STANDARD SPECIFICATIONS.
25. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE EVERY MEASURE NECESSARY TO COMPLY WITH ANY STATE, COUNTY OR TOWN DUST CONTROL ORDINANCE.
26. CONSTRUCTION VEHICLES SHALL USE TRUCK ROUTES DESIGNATED BY THE TOWN. OVERSIZE AND/OR OVERWEIGHT VEHICLES REQUIRE AN OVERWEIGHT VEHICLE PERMIT FROM THE TOWN PRIOR TO TRAVELLING ON TOWN STREETS.
27. THE OWNER/DEVELOPER WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF TWO (2) YEARS FROM THE DATE OF INITIAL ACCEPTANCE OF THE IMPROVEMENTS BY THE TOWN. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE OWNER/CONTRACTOR TO THE SATISFACTION OF THE TOWN AT NO EXPENSE TO THE TOWN.
28. THE SOILS ENGINEER SHALL PERFORM SUFFICIENT INSPECTIONS DURING GRADING AND CONSTRUCTION SO THAT AN OPINION CAN BE RENDERED AND VERIFIED IN WRITING AS TO COMPLIANCE WITH THE PLANS AND CODES WITHIN THE SOILS ENGINEER'S PURVIEW.

GENERAL NOTES - GRADING:

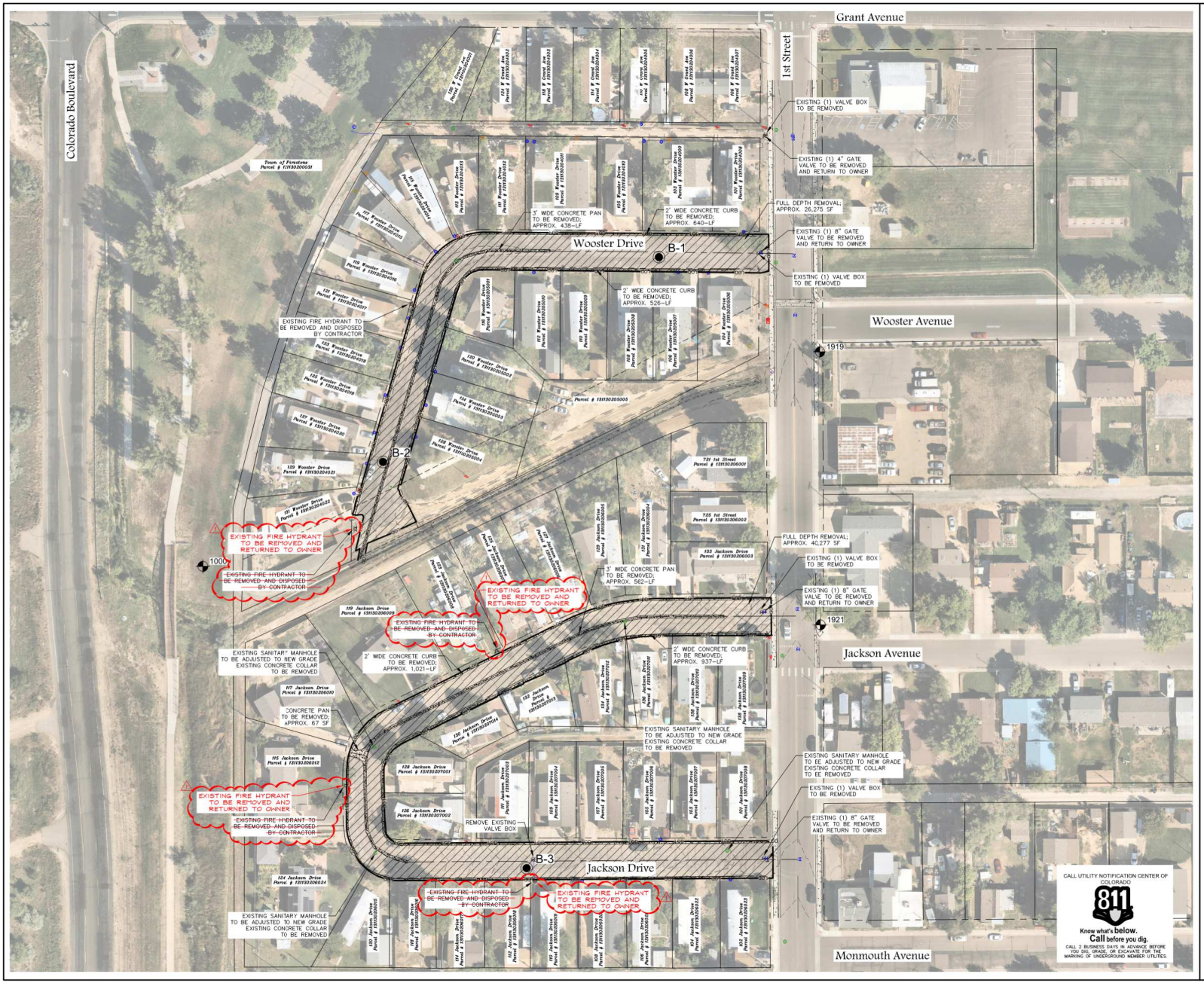
1. ALL CONSTRUCTION ACTIVITIES THAT DISTURBS ONE OR MORE ACRES OF LAND, AS WELL AS ACTIVITIES THAT DISTURB LESS THAN ONE ACRE OF LAND, BUT IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT, MUST COMPLY WITH BOTH LOCAL AND STATE REGULATIONS REGARDING STORMWATER DRAINAGE ON CONSTRUCTION SITES. OWNERS OR CONTRACTORS MUST OBTAIN A COLORADO STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) AND A STORMWATER QUALITY PERMIT FROM THE TOWN OF FIRESTONE. OWNERS AND OPERATORS SHALL:
    A. MAINTAIN A COPY OF THE STORM WATER MANAGEMENT PLAN (SWMP) ONSITE AT ALL TIMES, THOUGH A DIGITAL COPY WILL SUFFICE. THE SWMP MUST BE MAINTAINED AND MADE AVAILABLE TO TOWN INSPECTORS UPON REQUEST.
    B. INSTALL AND MAINTAIN EROSION, SEDIMENT, AND MATERIALS MANAGEMENT CONTROL BMPS AS SPECIFIED IN THE SWMP.
    C. INSPECT ALL BEST MANAGEMENT PRACTICES (BMPS) AT LEAST EVERY SEVEN (7) DAYS OR EVERY FOURTEEN (14) DAYS AND WITHIN TWENTY FOUR (24) HOURS AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT CAUSES SURFACE RUNOFF.
    D. MAINTAIN INSPECTION AND MAINTENANCE RECORDS OF BMPS ONSITE WITH THE SWMP. COPIES OF THESE REPORTS SHALL BE PROVIDED TO THE TOWN ENGINEERING STAFF.
    E. BASED ON INSPECTIONS PERFORMED BY THE PERMIT HOLDER OR BY TOWN PERSONNEL, MODIFICATIONS TO THE SWMP WILL BE NECESSARY IF AT ANY TIME THE SPECIFIED BMPS DO NOT MEET THE OBJECTIVES OF THE PERMIT. ALL MODIFICATIONS SHALL BE COMPLETED AS SOON AS PRACTICABLE AFTER THE REFERENCED INSPECTION, AND SHALL BE RECORDED ON THE OWNER'S COPY OF THE SWMP.
    F. THE OPERATOR SHALL AMEND THE SWMP WHENEVER THERE IS A MINOR CHANGE TO ADDRESS A SPECIFIED CONTROL MEASURE THAT DOES NOT MEET THE REQUIREMENTS OF THE STORMWATER QUALITY PERMIT. SIGNIFICANT CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR DISCHARGE OF POLLUTANTS TO THE RECEIVING WATERS, OR IF THE SWMP PROVES TO BE INEFFECTIVE IN ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, A REVISED SWMP SHALL BE SUMITTED TO THE TOWN ENGINEER.
    G. INSTALLATION AND MAINTENANCE OF BMPS SHALL BE SUPERVISED BY PERSONNEL CERTIFIED IN EROSION AND SEDIMENT CONTROL.
2. ALL SITE GRADING (EXCAVATION, EMBANKMENT, AND COMPACTION) SHALL CONFORM TO THE RECOMMENDATIONS OF THE LATEST SOILS INVESTIGATION FOR THIS PROPERTY AND SHALL FURTHER BE IN CONFORMANCE WITH THE TOWN OF FIRESTONE "DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS OF PUBLIC IMPROVEMENTS", LATEST EDITION.
3. ALL GRADING AND FILLING OPERATIONS SHALL BE OBSERVED, INSPECTED AND TESTED BY A LICENSED SOILS ENGINEER. ALL TEST RESULTS SHALL BE SUBMITTED TO THE TOWN ENGINEERING STAFF.
4. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATION AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID ANY DAMAGE TO EXISTING FOLIAGE THAT LIES IN THE PROJECT AREA UNLESS DESIGNATED FOR REMOVAL AND SHALL BE LIABLE FOR SUCH DAMAGE AT HIS/HER EXPENSE.
5. TOPSOIL SHALL BE STOCKPILED TO THE EXTENT PRACTICABLE ON THE SITE FOR USE ON AREAS TO BE RE-VEGETATED. ANY AND ALL STOCKPILES SHALL BE LOCATED AND PROTECTED FROM EROSIVE ELEMENTS.
6. TEMPORARY VEGETATION SHALL BE INSTALLED ON ALL DISTURBED AREAS WHERE PERMANENT SURFACE IMPROVEMENTS ARE NOT SCHEDULED FOR IMMEDIATE INSTALLATION. SEEDING WILL BE DONE ACROSS THE SLOPE FOLLOWING THE CONTOURS. VEGETATION SHALL CONFORM TO THE TOWN STANDARDS AND SPECIFICATIONS. PROJECT SCHEDULING SHOULD TAKE ADVANTAGE OF SPRING OR FALL PLANTING SEASONS FOR NATURAL GERMINATION. SEEDED AREAS SHALL BE IRRIGATED IN ACCORDANCE WITH THE TOWN STANDARDS AND SPECIFICATIONS.
7. AT ALL TIMES, A WATER TRUCK SHALL BE ON-SITE AND THE PROPERTY SHALL BE MAINTAINED AND/OR WATERED TO PREVENT WIND-CAUSED EROSION. EARTHWORK OPERATIONS SHALL BE DISCONTINUED WHEN FUGITIVE DUST SIGNIFICANTLY IMPACTS ADJACENT PROPERTY. IF EARTHWORK IS COMPLETE OR DISCONTINUED AND DUST FROM THE SITE CONTINUES TO CREATE PROBLEMS, THE CONTRACTOR SHALL IMMEDIATELY INSTITUTE MITIGATIVE MEASURES AND SHALL CORRECT DAMAGE TO ADJACENT PROPERTY.
8. FILL SLOPES SHALL BE COMPACTED BY MEANS OF SHEEPSFOOT COMPACTOR OR OTHER SUITABLE EQUIPMENT. COMPACTING SHALL CONTINUE UNTIL SLOPES ARE STABLE AND THERE IS NOT AN APPRECIABLE AMOUNT OF LOOSE SOIL ON THE SLOPES.
9. TEMPORARY CUT/FILL SLOPES SHALL ABIDE BY THE SOILS REPORT. PERMANENT SLOPES SHALL BE AS SHOWN ON PLANS.
10. DEPTH OF MOISTURE-DENSITY CONTROL SHALL BE FULL DEPTH ON ALL EMBANKMENT AND SIX (6) INCHES ON THE BASE OF CUTS AND FILLS.
11. OUTLET SIDES OF ALL STORM PIPES SHALL BE GRADED TO DRAIN AND SHALL HAVE SUFFICIENT EROSION PROTECTION.
12. TEMPORARY CUT/FILL SLOPES SHALL NOT BE STEEPER THAN 2:1 (2H:1V). PERMANENT SLOPES SHALL NOT BE STEEPER THAN 4:1 (4H:1V) IN AREAS TO BE SEEDED OR SODDED.

GENERAL NOTES - SANITARY SEWER:

1. TOWN OF FIRESTONE SEWER SERVICE IS UNDER THE JURISDICTION OF THE ST. VRAIN SANITATION DISTRICT (SVSD). ALL SANITARY SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH SVSD STANDARDS AND CRITERIA IN ADDITION TO THE TOWN STANDARDS AND SPECIFICATIONS.
2. MINIMUM VERTICAL SEPARATIONS BETWEEN ALL UTILITY PIPES SHALL BE EIGHTEEN (18) INCHES. IF VERTICAL SEPARATIONS ARE LESS THAN EIGHTEEN (18) INCHES, THE UTILITY PIPES SHALL BE REINFORCED AND PROTECTED AS REQUIRED BY CURRENT TOWN STANDARD SPECIFICATIONS.
3. WATER AND SANITARY SEWER LINES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. WHEN A TEN (10) FOOT SEPARATION IS NOT PROVIDED OR WHEN SEWER LINES CROSS WATER LINES WITH LESS THAN ONE AND ONE-HALF (1½) FEET OF VERTICAL SEPARATION, SEWER LINE JOINTS SHALL BE CONCRETE ENCASED. FOR PERPENDICULAR CROSSINGS, ENCASED JOINTS SHALL EXTEND TEN (10) FEET, PERPENDICULAR TO THE WATER LINE IN BOTH DIRECTIONS.
4. ALL SANITARY SEWERS AND WATER SERVICES ARE TO BE TEN (10) FEET APART.
5. SERVICE LATERALS SHALL EXTEND FIVE (5) FEET BEYOND RIGHTS OF WAY OR UTILITY EASEMENTS, WHICHEVER IS GREATER. THE ENDS SHALL BE MARKED BY A GREEN PAINTED WOOD POST UNTIL CURB AND GUTTER IS IN PLACE. WHEN CURB AND GUTTER IS IN PLACE THE LATERALS SHALL BE MARKED ON THE CONCRETE CURB FACE WITH AN 'S' or "X".
6. BEDDING MATERIAL SHALL CONFORM TO SVSD AND TOWN STANDARDS AND SPECIFICATIONS.
7. WARNING TAPE SHALL BE INSTALLED 12' MINIMUM AND 18' MAXIMUM ABOVE SEWER PIPE.
8. PRECAST CONCRETE MANHOLE SECTIONS SHALL BE IN ACCORDANCE WITH ASTM C-478. CAST IRON RING AND COVER SHALL CONFORM TO ASTM A-48.
9. MANHOLES SHALL BE A MINIMUM FOUR (4) FOOT DIAMETER AND CONSTRUCTED PER THE STANDARDS AND SPECIFICATIONS.
10. MANHOLE RIMS SHALL BE SET AT AN ELEVATION RELATIVE TO THE PAVEMENT, IN ACCORDANCE WITH THE TOWN STANDARDS. WHETHER THE MANHOLE IS AT PAVED OR UNPAVED GRADE, A MINIMUM OF ONE (1) AND A MAXIMUM OF FOUR (4) CONCRETE RINGS SHALL BE USED TO ADJUST THE RIM ELEVATION TO FINAL GRADE. THE MAXIMUM ACCEPTABLE VERTICAL ADJUSTMENT UTILIZING CONCRETE RINGS IS EIGHTEEN (18) INCHES.
11. LOCATION OF SANITARY SERVICES ARE NOT SHOWN ON THESE PLANS. CONTRACTOR SHALL VERIFY LOCATIONS OF SANITARY SERVICES AND IDENTIFY ANY POTENTIAL CONFLICTS. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY MINIMUM SEPARATION REQUIREMENTS AND PROVIDE JOINT ENCASEMENTS PER THE TOWN OF FIRESTONE STANDARDS WHEREVER SEPARATION REQUIREMENTS CANNOT BE MET.

GENERAL NOTES - WATER:

1. AT ALL POINTS OF CONNECTION OF NEW WATER MAINS TO EXISTING MAINS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATING AND VERIFYING LOCATION OF THE EXISTING LINES PRIOR TO ANY CONSTRUCTION.
2. EXCEPT IN CASE OF AN EMERGENCY, VALVES ON THE TOWN OF FIRESTONE WATER SYSTEM SHALL BE OPERATED BY OR UNDER THE DIRECTION OF THE APPROPRIATE TOWN PERSONNEL. THE CONTRACTOR SHALL GIVE THE TOWN ENGINEERING STAFF 48 HOURS NOTICE TO ARRANGE FOR OPERATING VALVES. BOTH THE CONTRACTOR AND THE APPROPRIATE TOWN PERSONNEL SHALL BE PRESENT WHEN THE VALVES ARE OPERATED.
3. WATER AND SANITARY SEWER LINES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. WHEN A TEN (10) FOOT SEPARATION IS NOT PROVIDED OR WHEN SEWER LINES CROSS WATER LINES WITH LESS THAN ONE AND ONE-HALF (1½) FEET OF VERTICAL SEPARATION, SEWER LINE JOINTS SHALL BE CONCRETE ENCASED. FOR PERPENDICULAR CROSSINGS, ENCASED JOINTS SHALL EXTEND TEN (10) FEET, PERPENDICULAR TO THE WATER LINE IN BOTH DIRECTIONS.
4. ALL WATER LINES SHALL HAVE A MINIMUM OF FOUR AND ONE-HALF (4½) FEET OF COVER AND BE LOCATED A MINIMUM OF TEN (10) FEET FROM THE SANITARY SEWER AND THREE (3) FEET FROM THE EDGE OF CONCRETE CURB AND GUTTER PAN.
5. CHANGES IN DIRECTION OF WATERLINE PIPE SHALL REQUIRE BENDS IN ALL INSTANCES. AXIAL DEFLECTION AT THE JOINTS SHALL NOT BE ALLOWED.
6. WHEN IT IS NECESSARY TO DEPRESS WATER LINES AT UTILITY CROSSINGS, A MINIMUM CLEARANCE OF ONE AND ONE-HALF (1-1/2) FEET SHALL BE MAINTAINED BETWEEN OUTSIDES OF PIPE.
7. DISTANCES FOR WATER LINES ARE THE HORIZONTAL DISTANCE BETWEEN THE CENTERS OF THE FITTINGS. THEREFORE, DISTANCES SHOWN ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND FITTING DIMENSIONS.
8. ALL WATER LINE VALVES SHALL BE SET ADJACENT TO THE TEE, EXCEPT FOR POINTS THAT FALL IN THE FLOW LINE OF A CONCRETE CROSS PAN. IN WHICH CASE, THE VALVE SHALL BE LOCATED SO THAT SURFACE DRAINAGE DOES NOT INFILTRATE THE VALVE BOX. VALVE BOXES SHALL BE SET AT AN ELEVATION IN ACCORDANCE WITH TOWN PAVING REQUIREMENTS.
9. ALL WATER MAINS SHALL BE POLYVINYL CHLORIDE (PVC) PRESSURE PIPE UNLESS SPECIFIED OTHERWISE. NOMINAL PVC PIPE SIZES 8INCH THROUGH 12-INCH SHALL CONFORM TO ALL REQUIREMENTS OF AWWA STANDARD C-900, PRESSURE CLASS 150 (DR18). NOMINAL PVC PIPE SIZES 16-INCH THROUGH 24-INCH SHALL CONFORM TO ALL REQUIREMENTS OF AWWA STANDARD C-905, PRESSURE CLASS 165 (DR25). ALL PVC PIPES SHALL HAVE OUTSIDE DIAMETERS EQUIVALENT TO DUCTILE IRON PIPE.
10. FIRE HYDRANT ASSEMBLY INCLUDES THE FIRE HYDRANT, SIX (6) INCH VALVE, AND SIX (6) INCH PIPE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE TOWN STANDARDS AND SPECIFICATIONS.
11. ALL FITTINGS SHALL BE MADE FROM DUCTILE IRON, FURNISHED WITH MECHANICAL JOINT ENDS OR INTEGRAL RESTRAINED JOINTS, AND SHALL HAVE A PRESSURE RATING OF 350 PSI.
12. POLYETHYLENE WRAPPING SHALL BE INSTALLED AROUND ALL DUCTILE IRON PIPES, FITTINGS, VALVES, FIRE HYDRANT BARRELS AND ROD AND CLAMPS. THE POLYETHYLENE SHALL HAVE A MINIMUM THICKNESS OF EIGHT (8) MILS, IN ACCORDANCE WITH AWWA STANDARD C-105.
13. ALL WATER LINE PIPE SHALL BE PROVIDED WITH A MINIMUM GAGE SIZE OF 12 SINGLE STRAND INSULATED COPPER WIRE. SPLICES IN TRACER WIRE SHALL BE CAPPED IN WATER PROOF GEL CAP TYPE CONNECTORS SUITED FOR DIRECT BURY APPLICATION (3M TYPE DBY® LOW VOLTAGE OR EQUAL). WIRE SHALL BE ATTACHED TO TOP OF WATER LINE WITH 2-INCH WIDE PVC TAPE @ 5-FT INTERVALS ALONG PIPE. TRACER WIRE SHALL EXTEND TO THE SURFACE AND BE COILED IN A LOCATE BOX AT THE BACKSIDE OF EITHER EACH FIRE HYDRANT OR VALVE. UNDER THE SUPERVISION OF TOWN ENGINEERING STAFF, TEST SHALL BE MADE BY THE CONTRACTOR @ THE COMPLETION OF CONSTRUCTION TO INSURE THAT THE TRACER WIRES CARRY A CONTINUOUS CURRENT BETWEEN ALL ACCESS POINTS.
14. WARNING TAPE SHALL BE INSTALLED 12' MINIMUM AND 18' MAXIMUM ABOVE WATER PIPE.
15. BEDDING MATERIAL SHALL CONFORM TO TOWN STANDARDS AND SPECIFICATIONS.
16. VALVES SHALL OPEN COUNTER CLOCKWISE. VALVES 12-INCH AND SMALLER SHALL BE RESILIENT SEAT GATE VALVES. LARGER VALVES SHALL BE BUTTERFLY VALVES.
17. VALVE BOXES SHALL BE RAISED TO ONE-FOURTH (1/4) INCH BELOW GRADE AFTER COMPLETION OF SURFACE PAVING OR FINAL GRADING. VALVE BOXES IN NON-PAVED AREAS SHALL HAVE A CONCRETE COLLAR AROUND THE VALVE LID IN ACCORDANCE WITH THE DETAIL.
18. ALL SERVICE LINE TAPS SHALL HAVE DOUBLE STRAP BRASS TAPPING SADDLES. (ROMAC 202B OR APPROVED EQUAL).
19. ALL RESIDENTIAL WATER TAPS SHALL BE FIVE-EIGHTS (5/8) INCH OR AS REQUIRED BY THE CURRENT BUILDING CODE.
20. ALL WATER SERVICE LATERALS SHALL EXTEND FIVE (5) FEET BEYOND RIGHT OF WAY OR UTILITY EASEMENTS, WHICHEVER IS GREATER. THE ENDS SHALL BE MARKED BY A BLUE PAINTED WOOD POST UNTIL CURB AND GUTTER IS IN PLACE. WHEN CURB AND GUTTER IS IN PLACE THE LATERALS SHALL BE MARKED ON THE CONCRETE CURB FACE WITH A 'V' or 'W'.
21. CONCRETE THRUST BLOCKS AND/OR "MEGA-LUG" MECHANICAL RESTRAINTS ARE REQUIRED AT ALL MECHANICAL FITTINGS. THRUST BLOCKS MAY NOT BE REQUIRED IF PIPE RESTRAINT IS PROVIDED IN ACCORDANCE WITH RESTRAINED PIPE DETAIL.
22. NO WORK SHALL BE BACKFILLED (INCLUDING BEDDING MATERIAL ABOVE THE SPRING LINE OF THE PIPE) UNTIL THE CONSTRUCTION HAS BEEN INSPECTED AND APPROVED FOR BACKFILLING BY TOWN ENGINEERING STAFF.
23. ONLY ONE CONNECTION TO THE EXISTING WATER DISTRIBUTION SYSTEM SHALL BE MADE UNTIL ALL HYDROSTATIC TESTING, CHLORINATION AND FLUSHING HAS BEEN COMPLETED.
24. DISINFECTION AND HYDROSTATIC TESTING SHALL BE DONE IN THE PRESENCE OF A TOWN ENGINEERING STAFF. CONTACT THE TOWN ENGINEERING DIVISION FORTY-EIGHT (48) HOURS PRIOR TO DISINFECTING AND/OR TESTING.
25. DISINFECTION AND FLUSHING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE COLORADO DEPARTMENT OF HEALTH AND THE PROCEDURE SET FORTH IN AWWA C651, "STANDARD FOR DISINFECTING WATER MAINS". THE CHLORINATION OF THE WATER LINE SHALL BE PERFORMED PRIOR TO THE HYDROSTATIC TESTING. ALL VALVES, FIRE HYDRANTS AND OTHER APPURTANCES SHALL BE OPERATED WHILE PIPELINE IS FILLED WITH THE CHLORINATING AGENT TO INSURE THAT HIGH CHLORINE CONTACT IS MADE WITH ALL INTERNAL SURFACES.
26. TWO TWENTY-FOUR (24) HOUR BACTERIOLOGICAL TESTS, FROM MULTIPLE POINTS TO BE DETERMINED BY THE TOWN ENGINEER, FOR TOTAL COLI-FORM BACTERIA SHALL BE PERFORMED BY THE TOWN A MINIMUM OF 24 HOURS APART. IF EITHER OF THESE TESTS FAIL, THE LINE SHALL BE RE-CHLORINATED, RE-FLUSHED AND THEN RETESTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REIMBURSING THE TOWN FOR ALL COSTS ASSOCIATED WITH THE WATER QUALITY TESTING.
27. ALL WATER LINES SHALL BE HYDROSTATIC TESTED. PRESSURE AND LEAKAGE TESTS SHALL BE CONDUCTED ACCORDING TO THE APPLICABLE SECTIONS OF AWWA C600/605 TO A MINIMUM PRESSURE OF ONE HUNDRED AND FIFTY (150) POUNDS PER SQUARE (PSI) INCH AT THE LOW POINT OF THE SECTION BEING TESTED FOR THE DURATION OF TWO (2) HOURS. THE MAXIMUM LENGTH OF LINE TO BE TESTED SHALL BE ONE THOUSAND (1,000) FEET. ALL JOINTS IN CONNECTIONS ARE TO BE WATERTIGHT WITHIN TOLERANCES ALLOWED BY THE SPECIFICATIONS IN AWWA C600/605. ANY LEAKAGE THAT IS DISCOVERED BY OBSERVATION OR TESTS SHALL BE LOCATED AND MADE WATERTIGHT BY THE CONTRACTOR. PRESSURE AND LEAKAGE TESTS SHALL NOT BE CONDUCTED UNTIL THE LINE HAS PASSED ALL REQUIRED DISINFECTION TESTS.
28. INITIAL ACCEPTANCE OF THE NEW WATER LINES ARE CONTINGENT UPON RECEIVING COPIES OF:
    A. WATER TRENCH COMPACTION TEST RESULTS
    B. HYDROSTATIC TESTING OF 100% OF THE SYSTEM
    C. HEALTH DEPARTMENT TESTS. (CH



50' 0 50' 100' 150'

SCALE: 1" =50'
(True scale for 22x34 sheet size)

LEGEND:

- EXISTING CONTOURS — 4987
- LIMITS OF DISTURBANCE/CONSTRUCTION — LOD
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE (S)
- EXISTING STORM DRAIN MANHOLE (D)
- BORE HOLES — TH-2
- CONTROL POINT — 100
- FULL DEPTH REMOVAL — DFR / DFR

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION, REMOVAL, REPLACEMENT AND DISPOSAL OF ALL FACILITIES AND MATERIAL.
3. THE CONTRACTOR IS ENCOURAGED TO PERFORM DEMOLITION IN A MANNER THAT MAXIMIZES SALVAGE, RE-USE AND RECYCLING OF MATERIALS. THIS INCLUDES APPROPRIATE SORTING AND STORING. IN PARTICULAR, DEMOLITION CONCRETE, ASPHALT AND BASE COURSE SHOULD BE RECYCLED IF POSSIBLE.
4. ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
5. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
6. REMOVAL OF FIRE HYDRANTS TO BE RETURNED TO OWNER AND RISER TO BE DEMOLISHED BELOW GRADE.
7. REMOVAL OF VALVE BOXES TO BE DEMOLISHED BELOW GRADE.
8. CONTRACTOR TO PROTECT ALL ADJACENT PROPERTIES IN PLACE WHEN COMPLETING DEMOLITION OF CONCRETE OR ASPHALT SURFACING.
9. CONTRACTOR TO PROTECT ALL EXISTING FENCES, UTILITY POLES, AND TREES ADJACENT TO WORK.
10. WHERE CONCRETE DRIVEWAYS ARE ADJACENT TO RIBBON CURB, CONTRACTOR TO SAWCUT EDGE PRIOR TO REMOVAL OF CONCRETE RIBBON CURB. PROTECT ALL ADJACENT DRIVEWAYS FROM CONSTRUCTION IMPACTS AND ACTIVITIES.

SURVEY CONTROL PCINTS

POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1000	CP-COAL	1285659.2120	3157049.2390	4951.92
1919	CP-GAS	1285888.4880	3157708.2480	4952.22
1921	CP-MAG 1921	1285596.7160	3157708.8730	4956.52

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

dtesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5068
www.dtescoservices.com

COLORADO LICENSED PROFESSIONAL ENGINEER 53283

No	Sheet Revisions / Revisions	By	Date
1	Addendum 2	DT	6-7-22

OVERALL SURFACE DEMOLITION PLAN

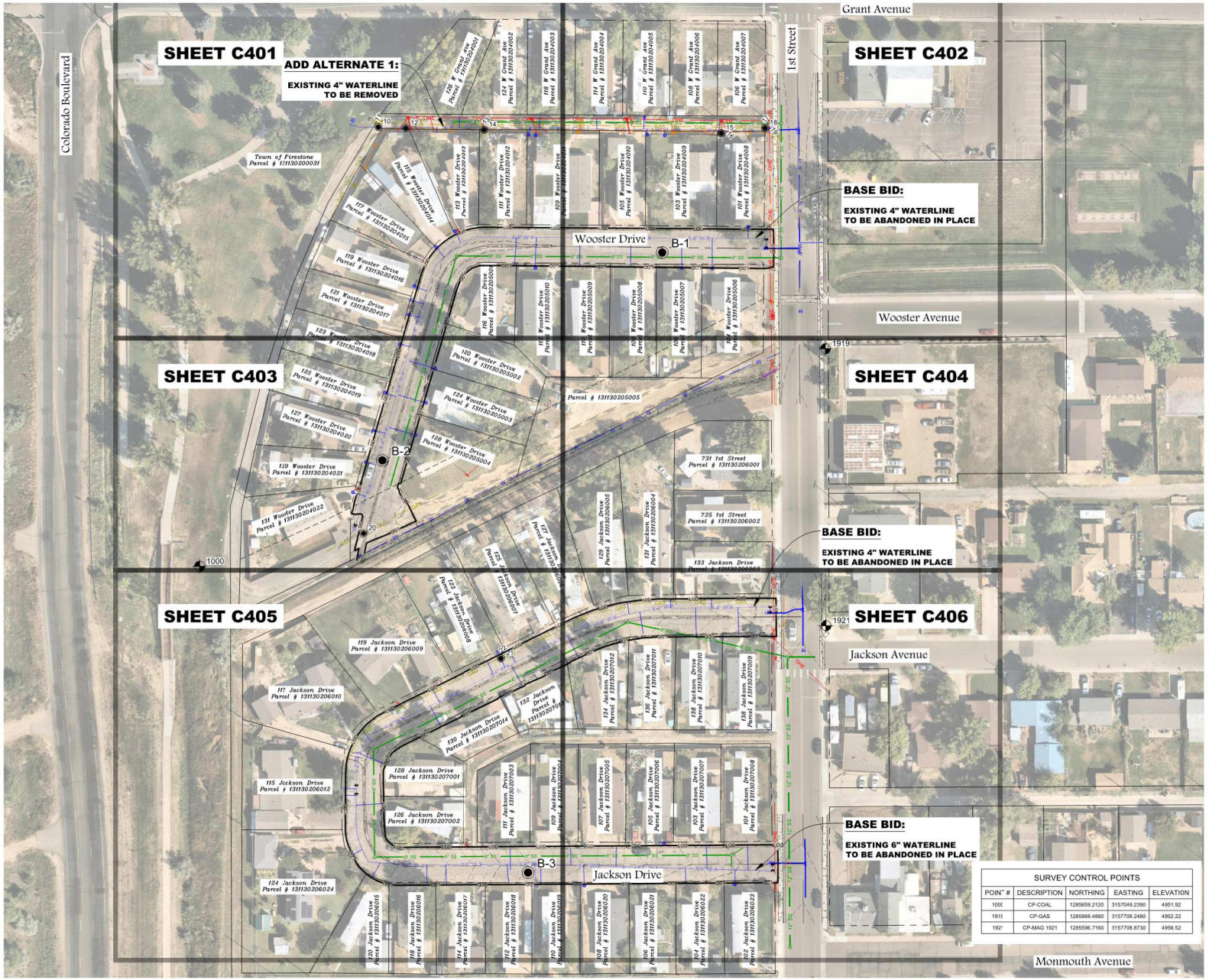
DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 50'
FILE NAME: Firestone-Surface Demo.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER: C101
SHEET INDEX: 3

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone_Surface Demo.dwg Friday, July 08, 2022 9:06 AM By: Rhonda Bunner



SURVEY CONTROL POINTS				
POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1001	CP-COAL	1285659.2120	3157049.2390	4951.92
1911	CP-GAS	1285888.4880	3157708.2480	4952.22
1921	CP-MAG 1921	1285596.7160	3157708.8730	4956.52

50' 0 50' 100' 150'

SCALE: 1" =50'
(True scale for 22x34 sheet size)

LEGEND:

- EXISTING CONTOURS — 4987
- EXISTING WATER — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- EXISTING SANITARY SEWER — SS
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E
- EXISTING OVERHEAD UTILITY — OHU
- EXISTING FIBER OPTIC — FO
- EXISTING FIBER OPTIC — TEL
- EXISTING GAS — GAS
- LIMITS OF DISTURBANCE/CONSTRUCTION — LOD
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE — S
- EXISTING STORM DRAIN MANHOLE — D
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2
- CONTROL POINT — 100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK.
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3. THE CONTRACTOR IS ENCOURAGED TO PERFORM DEMOLITION IN A MANNER THAT MAXIMIZES SALVAGE, RE-USE AND RECYCLING OF MATERIALS. THIS INCLUDES APPROPRIATE SCRTING AND STORING. IN PARTICULAR, DEMOLITION CONCRETE, ASPHALT AND BASE COURSE SHOULD BE RECYCLED IF POSSIBLE.
4. ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
5. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
6. FIRE HYDRANTS SHALL BE COMPLETELY REMOVED RETURN TO OWNER AND REPLACED; TYP.
7. REMOVAL OF VALVE BOXES TO BE DEMOLISHED BELOW GRADE.
8. CONTRACTOR TO PROTECT ALL ADJACENT PROPERTIES IN PLACE WHEN COMPLETING DEMOLITION OF CONCRETE OR ASPHALT SURFACING.
9. ALL EXISTING PIPE WITHIN THE LIMITS OF THIS IS ASBESTOS-CEMENT PIPE, ANY PIPE REMOVED FROM THIS SITE SHALL BE PROPERLY REMOVED AND DISPOSED OF ACCORDING TO CDPHE STANDARDS.
10. CONTRACTOR TO PROTECT ALL EXISTING FENCES, UTILITY POLES, AND TREES ADJACENT TO WORK.
11. WHERE CONCRETE DRIVEWAYS ARE ADJACENT TO RIBBON CURB, CONTRACTOR TO SAWCUT EDGE PRIOR TO REMOVAL OF CONCRETE RIBBON CURB. PROTECT ALL ADJACENT DRIVEWAYS FROM CONSTRUCTION IMPACTS AND ACTIVITIES.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

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53283
PROFESSIONAL ENGINEER

Sheet Revisions			
No	Revisions:	By	Date
1	Addendum 1	SK	5-17-22

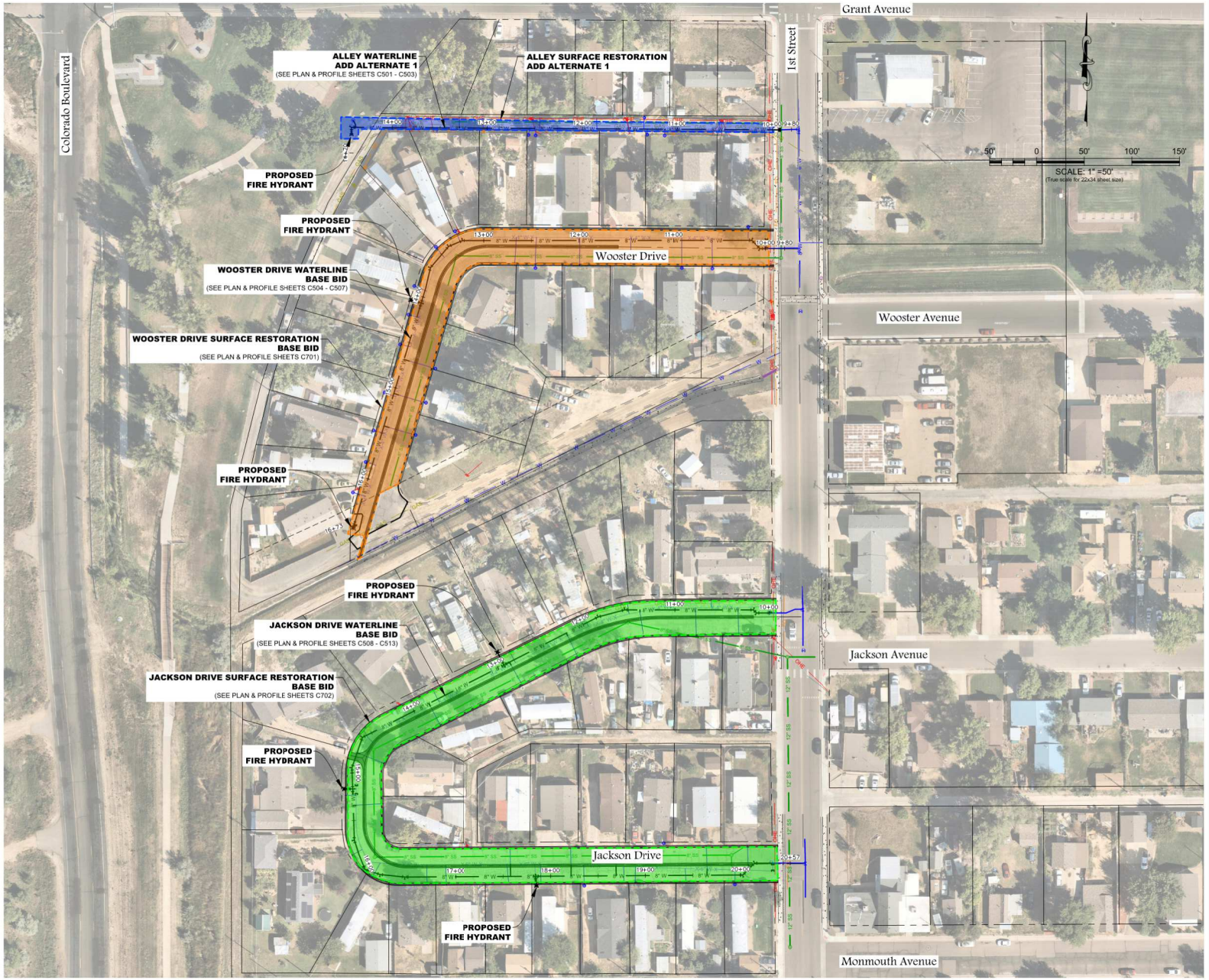
OVERALL UTILITY DEMOLITION, POTHOLE AND KEYMAP PLAN

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 50'
FILE NAME: Firestone-OA Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT NUMBER: W2021-9540
SHEET NUMBER: C102
SHEET INDEX: 4

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-OA Existing.dwg Tuesday, June 14, 2022 11:05 AM By: Rhonda Bunner



CONSTRUCTION PHASING NOTES:

1. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENCE DURING CONSTRUCTION.
2. REFERENCE SPECIFICATION SECTION 01 11 00 FOR INSTALLATION REQUIREMENTS REGARDING WORK PHASING, OUTAGES, AND COMPLETION SCHEDULE.
3. CONTRACTOR SHALL INSTALL AND BACKFILL NEW WATERLINE SUCH THAT NO MORE THAN 100LF OF TRENCH IS OPEN AT ANY GIVEN TIME. CONTRACTOR SHALL PROVIDE INSTALLATION PHASING PLAN TO BE REVIEWED WITH OWNER AND ENGINEER TO MINIMIZE DISRUPTIONS OF SERVICE AND ACCESS TO HOMES.
4. CONTRACTOR SHALL PHASE WORK SUCH THAT A WATERLINE IS INSTALLED IN ITS ENTIRETY ALONG A DESIGNATED ROADWAY PRIOR TO CONDUCTING WORK IN A SUBSEQUENT AREA. AT NO POINT MAY THE CONTRACTOR START WATERLINE WORK ON AN ADDITIONAL ROADWAY UNTIL THE PRIOR AREA HAS BEEN COMPLETELY INSTALLED, TESTED, BACKFILLED, AND OPERABLE. THE CONTRACTOR MAY PROCEED TO ADDITIONAL WORK AREAS ONLY WRITTEN APPROVAL FROM THE OWNER.
5. EXISTING WATERLINE LOCATION IS APPROXIMATE AS SHOWN ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY THE EXISTING WATERLINE LOCATIONS AND NOTIFY THE ENGINEER OF ANY POTENTIAL CONFLICTS DURING CONSTRUCTION.

NORTH ALLEY ADD ALTERNATE 1:

1. CONTRACTOR SHALL VERIFY AND CONFIRM LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. INSTALLATION SHALL BE TRADITIONAL OPEN CUT AND COVER METHOD.
2. TEMPORARY ABOVE GROUND WATER LINE WILL BE REQUIRED FOR INSTALLATION. CONTRACTOR SHALL CONNECT TEMPORARY WATERLINE TO EXISTING 8" WATERLINE LOCATED ON THE EAST SIDE OF THE ALLY AT FIRST STREET.
3. REMOVAL AND ABATEMENT OF THE EXISTING 4" ASBESTOS CEMENT LINE SHALL ONLY OCCUR AFTER THE TEMPORARY WATERLINE HAS BEEN INSTALLED, DISINFECTED, TESTED, AND OPERABLE. CONFIRM OPERATION WITH TOWN OF FIRESTONE PRIOR TO PROCEEDING.
4. INSTALL NEW 8" WATERLINE IN PLACE OF EXISTING 4" AC LINE. COMPLETE ALL DISINFECTION AND TESTING ISOLATED FROM THE EXISTING SERVICES AND TEMPORARY SERVICE LINE.
5. COORDINATE SERVICE OUTAGE. SWAB ALL FITTINGS AND CONNECT TO EXISTING 8" LINE AT THE EAST END OF THE ALLEY. TRANSFER SERVICE CONNECTIONS FROM TEMPORARY WATERLINE TO NEW 8" WATERLINE.
6. COMPLETE SURFACE RESTORATION IMMEDIATELY UPON COMPLETION. INSTALL 4" SECTION OF RECYCLED ASPHALT AT LIMITS SHOWN.

WOOSTER DRIVE BASE BID:

1. CONTRACTOR SHALL VERIFY AND CONFIRM LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. INSTALLATION SHALL BE TRADITIONAL OPEN CUT AND COVER METHOD.
2. EXISTING WATERLINE TO REMAIN IN SERVICE DURING THE COURSE OF THE NEW WATERLINE INSTALLATION. CONTRACTOR SHALL VERIFY AND CONFIRM LOCATION OF EXISTING WATERLINE AT ALL CROSSING LOCATIONS. IF ADD ALTERNATE 2 IS AWARDED CONTRACTOR SHALL INSTALL A TEMPORARY WATERLINE TO FACILITATE REMOVAL OF THE EXISTING WATERLINE WHILE INSTALLATION OF NEW WATERLINE IS OCCURRING. REFERENCE SPECIFICATIONS SECTION 33 05 00 FOR REQUIREMENTS.
3. COMPLETE NEW 8" WATERLINE INSTALLATION FROM STATION 10+00 TO 16+54.
4. COORDINATE ALL SERVICE OUTAGE DATES AND DURATIONS.
5. COMPLETE ALL DISINFECTION AND TESTING PER SPECIFICATION SECTION 33 05 03 AND TOWN OF FIRESTONE CONSTRUCTION STANDARDS.

JACKSON DRIVE BASE BID:

1. CONTRACTOR SHALL VERIFY AND CONFIRM LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. INSTALLATION SHALL BE TRADITIONAL OPEN CUT AND COVER METHOD.
2. EXISTING WATERLINE TO REMAIN IN SERVICE DURING THE COURSE OF THE NEW WATERLINE INSTALLATION. CONTRACTOR SHALL VERIFY AND CONFIRM LOCATION OF EXISTING WATERLINE AT ALL CROSSING LOCATIONS. IF ADD ALTERNATE 2 IS AWARDED CONTRACTOR SHALL INSTALL A TEMPORARY WATERLINE TO FACILITATE REMOVAL OF THE EXISTING WATERLINE WHILE INSTALLATION OF NEW WATERLINE IS OCCURRING. REFERENCE SPECIFICATIONS SECTION 33 05 00 FOR REQUIREMENTS.
3. COMPLETE NEW 8" WATERLINE INSTALLATION FROM STATION 10+00 TO 20+37.
4. COORDINATE ALL SERVICE OUTAGE DATES AND DURATIONS.
5. COMPLETE ALL DISINFECTION AND TESTING PER SPECIFICATION SECTION 33 05 03 AND TOWN OF FIRESTONE CONSTRUCTION STANDARDS.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

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Project & Construction Services
2130 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5068
www.dtescoservices.com

COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

No	Revisions	By	Date
1	Addendum 2		04-22

Sheet Revisions

OVERALL PHASING PLAN AND INSTALLATION NOTES

DESIGNED BY: J. Wooldridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 50'
FILE NAME: Firestone-Overall Phasing Plan.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER
C201

SHEET INDEX: 5

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Overall Phasing Plan.dwg Tuesday, June 14, 2022 11:03 AM By: Rhonda Bunner

NOTES:

1. SEE GRADING NOTES ON SHEET C002 AS WELL AS EROSION CONTROL DETAILS ON SHEET C302.
2. THIS EROSION CONTROL PLAN SERVES ONLY AS A GUIDELINE TO THE CONTRACTOR. STAGING / PHASING OF THE BMPs SHOWN ON THIS PLAN IS SUGGESTED. ALTERATIONS TO BMPs MAY BE NECESSARY FROM THOSE SHOWN MAY BE NECESSARY DURING CONSTRUCTION DUE TO SITE CONDITIONS. REGARDLESS OF PLAN REVIEW BY LOCAL AUTHORITIES, IN NO WAY SHALL THIS PLAN REPLACE THE CONTRACTOR'S OBLIGATIONS FOR PERMITTING (CITY, STATE EGIONAL) TO ENSURE EROSION CONTROL REQUIREMENTS ARE FOLLOWED. CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR (OR PERMIT HOLDER) TO ENSURE EROSION CONTROL REQUIREMENTS ARE FOLLOWED.
3. CONTRACTOR SHALL IMPLEMENT THE APPROPRIATE BMP DURING ACCORDING TO THE CONSTRUCTION SEQUENCING AND LEVEL OF SITE STABILIZATION.
4. THE EROSION CONTROL PLAN IS SCHEMATIC IN NATURE. AS SUCH, SYMBOLS SHOWN MAY NOT REFLECT EXACT LOCATION NOR ARE THEY NECESSARILY SHOWN IN THEIR EXACT LOCATION.
5. CONTRACTOR SHALL IMPLEMENT APPROPRIATE INLET PROTECTION FOR ALL DRAINS UNTIL SITE IS FULLY STABILIZED.
6. INLET PROTECTION SHALL BE ADAPTED, AS NECESSARY, TO THE SPECIFIC INLETS FOR CURB, GRATE, SOD, SAND BAG OR GRAVEL SOCKS FOR PAVEMENT, ETC.)

LEGEND:

- EXISTING CONTOURS — 4897 —
- EXISTING ROAD CENTERLINE
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN MANHOLE
- ROCK SOCKS PROTECTION
- VEHICLE TRACKING CONTROL (VTC)
- SILT FENCE (SF)
- RS

SCALE: 1" =50'
(True scale for 22x34 sheet size)
50' 0 50' 100' 150'

CALL UTILITY NOTIFICATION CENTER OF COLORADO
Know what's below. Call before you dig.
811
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS SIGNATURE BLOCK IS FOR ENGINEERING PLANS ONLY. IN ADDITION TO COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS, THE ENGINEERING DESIGN AND CONSTRUCTION PLANS SHALL BE REVIEWED AND APPROVED BY A LICENSED ENGINEER. MISSING STAMP AND SIGNATURE AS PER C.R.S. 12-25-518 (1)

BY: _____ TOWN ENGINEER DATE: _____

SHEET INDEX: 6	SHEET NUMBER: C301	PROJECT NUMBER: W2021-9540	TOWN OF FIRESTONE, COLORADO PROJECT #1 - HISTORIC WATERLINE REPLACEMENT FIRESTONE COLORADO

EROSION CONTROL PLAN

DESIGNED BY:	J. Wooldridge	DATE:	June 17, 2022
DRAWN BY:	R. Bunner	SCALE:	1" = 50'
APPROVED BY:	J. Burrell	FILE NAME:	Firestone-Erosion Control.dwg

Sheet Revisions

No.	Revisions:	By	Date:
1	Addendum 2	JW	7/22

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Fort Collins, Colorado 80525
Phone: 970.632.5068
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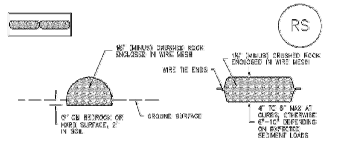
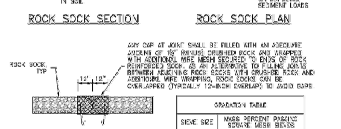
SC-5 Rock Sock (RS)



ROCK SOCK SECTION ROCK SOCK PLAN



ROCK SOCK JOINTING

GRADATION TABLE	
SIEVE SIZE	% WEIGHT PASSING SQUARE MESH SIEVES
	NO. 4
6"	100
5"	90 – 100
3"	20 – 55
¾"	0 – 15
#4	0 – 5
MATCHES GRADATIONS FOR NO. 4 COARSE AGGREGATE PER CONCRETE PIPE ASHTO M43, ALL ROCK SHALL BE TYPE SIZE 3 PER TABLE 1

ROCK SOCK INSTALLATION NOTES:

1. SEE PLAN VIEW FOR:
   –LOCATION(S) OF ROCK SOCKS.

2. CRUSHED ROCK SHALL BE ¼" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (¼" MINUS).

3. WIRE MESH SHALL BE MANUFACTURED OF NO EASILY ROTTING MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 2", RECOMMENDED MINIMUM ROLL WIDTH OF 48".

4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 8" CENTERS ON ENDS OF SOCKS.

5. SOME MANUFACTURERS MAY ALLOW THE USE OF PLASTIC FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS–1. ROCK SOCK PERIMETER CONTROL

Rock Sock (RS) SC-5

ROCK SOCK 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 RUNOFF, 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 SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.

6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

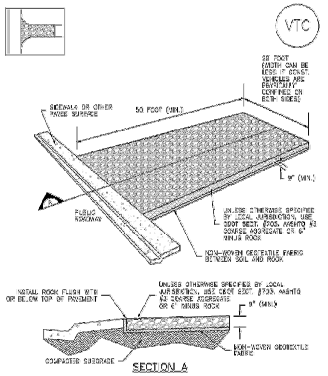
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM BOXER STANDARD DETAILS. CONTACT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY ASSEN CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET, EXPECT MANUFACTURERS' RECOMMENDED USE OF PROPRIETARY PRODUCTS PRODUCTS. HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THIS MANUAL MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

Vehicle Tracking Control (VTC) SM-4



VTC–1. AGGREGATE VEHICLE TRACKING CONTROL

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   –TYPE OF CONSTRUCTION ENTRANCE/EXIT(AGGREGATE OR PAVED/ASPHALT WHEEL WASH).
   –CONSTRUCTION NOTE OR TYPE.

2. CONSTRUCTION MAT OR "AS SHOWN ON" CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON CROSS SLOPES OR PROJECTS PHYSICALLY BARRIER FROM A NEED TO A VOLUME 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(S)/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE 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 2CT SIZE #357, ASHTO #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. BARRIER BMPS MADE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

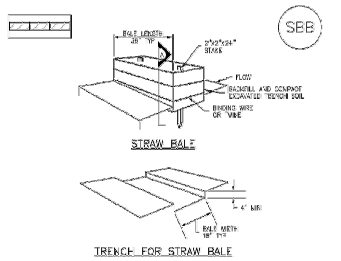
4. ROCK SHALL BE REAPPLIED OR REPAIRED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS AS 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.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM BOXER STANDARD DETAILS. CONTACT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD

SC-3 Straw Bale Barrier (SBB)



SBB–1. STRAW BALE

Straw Bale Barrier (SBB) SC-3

STRAW BALE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION(S) OF STRAW BALES.

2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.

3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 3 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.

4. WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.

5. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY DEPICTED.

6. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT ENDING TWINE IS PERPENDICULAR TO VERTICAL FACE OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.

7. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

STRAW BALE 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. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE STRAW BALE BARRIER.

6. STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

7. WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD

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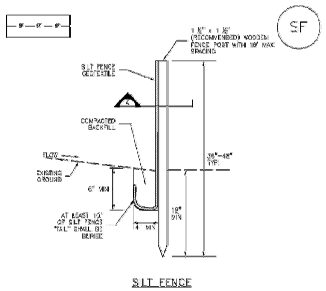
Silt Fence (SF) SC-1



SF–1. SILT FENCE

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–4 FT) FROM THE TOE OF THE SLOPE TO ALLOW POOR FOR PONDING AND DEPOSITION.

2. A UNIFORM 4" x 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, EXCAVATOR, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE INSTALLED TIGHT AS IT IS APPROPRIATE TO THE BARRIER. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN BRACES AFTER IT HAS BEEN ANCHORED TO THE BRACES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE BRACES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE BRACE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A STRAIGHT, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK". THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE 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 THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS ENDING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM BOXER STANDARD DETAILS. CONTACT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

ditesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5668
www.ditescoservices.com

COLORADO LICENSED PROFESSIONAL ENGINEER 50213 JOHN M. SCHMIDT 2-17-22

Sheet Revisions			By	Date
No.	Revisions			
1	Addendum 2		JMS	2/17/22

EROSION CONTROL DETAILS

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

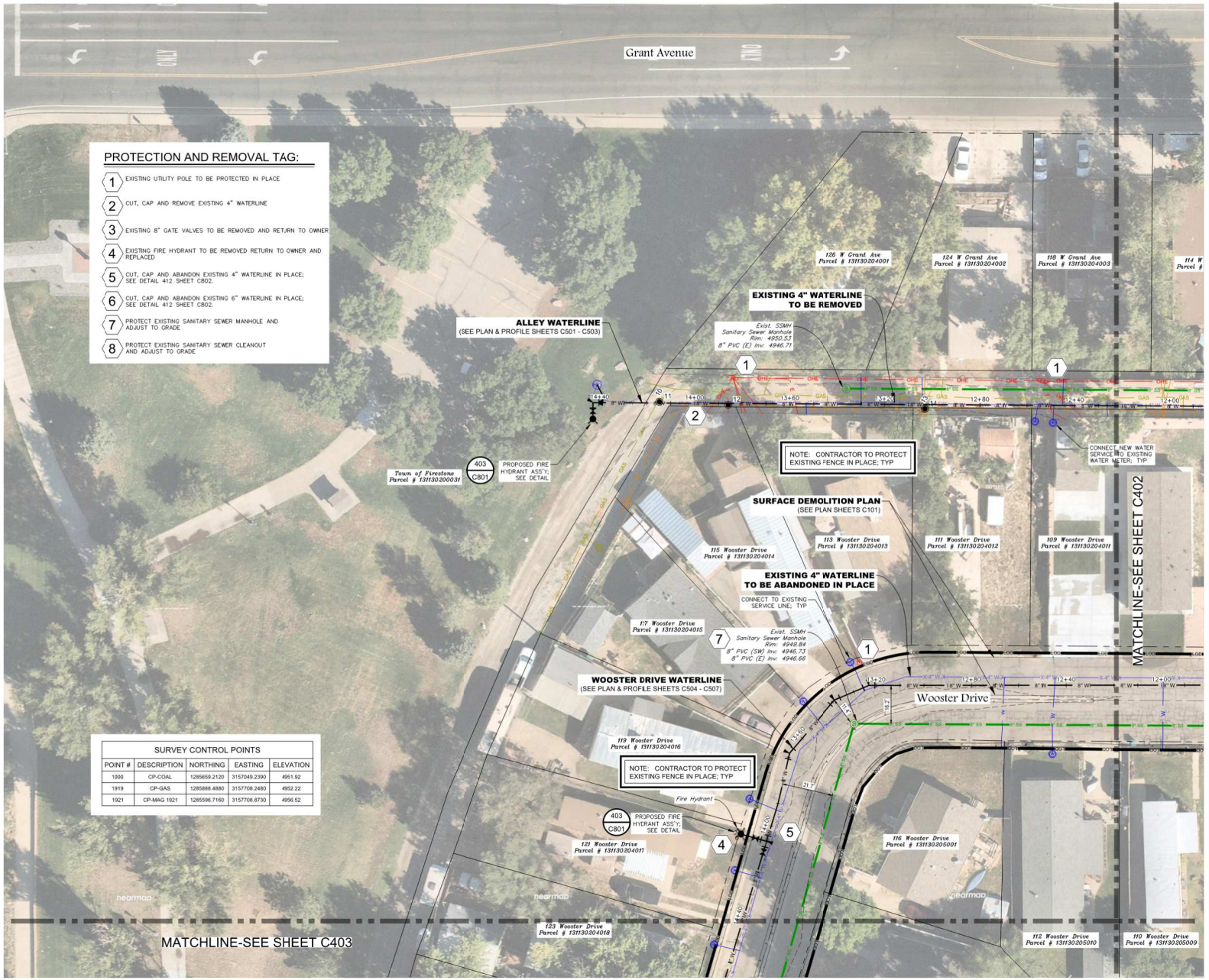
DESIGNED BY:	J. Woodbridge	DATE:	June 17, 2022
DRAWN BY:	R. Bunner	SCALE:	NTS
APPROVED BY:	J. Burrell	FILE NAME:	Firestone-Erosion Control Details.dwg

PROJECT NUMBER: W2021-9540

SHEET NUMBER C302

SHEET INDEX: 7

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Erosion Control Details.dwg Tuesday, May 31, 2022 8:43 AM By: Rhonda Bunner



SURVEY CONTROL POINTS				
POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1000	CP-COAL	1285659.2120	3157049.2390	4951.92
1919	CP-GAS	1285888.4880	3157708.2480	4952.22
1921	CP-MAG 1921	1285596.7160	3157708.8730	4956.52

20' 0 20' 40' 60'

SCALE: 1" =20'
(True scale for 22x34 sheet size)

LEGEND:

- EXISTING CONTOURS — 4987
- EXISTING WATER — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- EXISTING SANITARY SEWER — SS
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E
- EXISTING OVERHEAD UTILITY — OHU
- EXISTING FIBER OPTIC — FO
- EXISTING FIBER OPTIC — TEL
- EXISTING GAS — GAS
- LIMITS OF DISTURBANCE/CONSTRUCTION — LOD
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE — S
- EXISTING STORM DRAIN MANHOLE — D
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2
- CONTROL POINT — 100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION, REMOVAL, REPLACEMENT AND DISPOSAL OF ALL FACILITIES AND MATERIAL.
3. THE CONTRACTOR IS ENCOURAGED TO PERFORM DEMOLITION IN A MANNER THAT MAXIMIZES SALVAGE, RE-USE AND RECYCLING OF MATERIALS. THIS INCLUDES APPROPRIATE SORTING AND STORING. IN PARTICULAR, DEMOLITION CONCRETE, ASPHALT AND BASE COURSE SHOULD BE RECYCLED IF POSSIBLE.
4. ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
5. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
6. FIRE HYDRANTS SHALL BE COMPLETELY REMOVED RETURN TO OWNER AND REPLACED; TYP.
7. REMOVAL OF VALVE BOXES TO BE DEMOLISHED BELOW GRADE.
8. CONTRACTOR TO PROTECT ALL ADJACENT PROPERTIES IN PLACE WHEN COMPLETING DEMOLITION OF CONCRETE OR ASPHALT SURFACING.
9. ALL EXISTING PIPE WITHIN THE LIMITS OF THIS IS ASBESTOS-CEMENT PIPE, ANY PIPE REMOVED FROM THIS SITE SHALL BE PROPERLY REMOVED AND DISPOSED OF ACCORDING TO COPHE STANDARDS.
10. CONTRACTOR TO PROTECT ALL EXISTING FENCES, UTILITY POLES, AND TREES ADJACENT TO WORK.
11. WHERE CONCRETE DRIVEWAYS ARE ADJACENT TO RIBBON CURB, CONTRACTOR TO SAWCUT EDGE PRIOR TO REMOVAL OF CONCRETE RIBBON CURB. PROTECT ALL ADJACENT DRIVEWAYS FROM CONSTRUCTION IMPACTS AND ACTIVITIES.

TOWN OF FIRESTONE DRAWING APPROVAL

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BY _____ DATE _____
TOWN ENGINEER

dtesco
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Fort Collins, Colorado 80525
Phone: 970.632.5068
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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions			
No	Revisions	By	Date
1	Addendum #2	SK	6-7-22

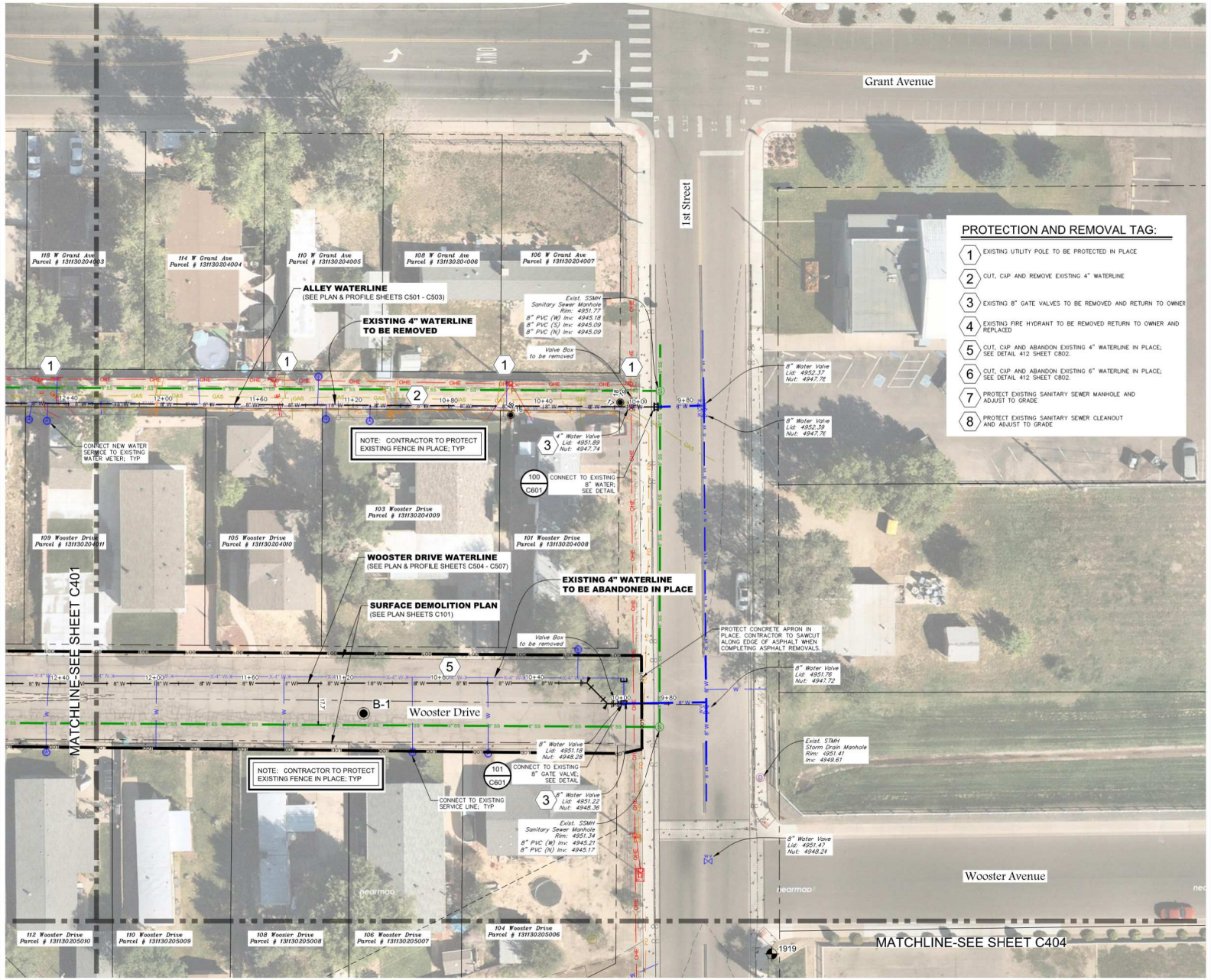
EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 20'
FILE NAME: Firestone-Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT NUMBER: W2021-9540
SHEET NUMBER C401
SHEET INDEX: 8

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Existing.dwg Tuesday, June 14, 2022 11:10 AM By: Rhonda Bunner



PROTECTION AND REMOVAL TAG:

1. EXISTING UTILITY POLE TO BE PROTECTED IN PLACE
2. CUT, CAP AND REMOVE EXISTING 4" WATERLINE
3. EXISTING 8" GATE VALVES TO BE REMOVED AND RETURN TO OWNER
4. EXISTING FIRE HYDRANT TO BE REMOVED RETURN TO OWNER AND REPLACED
5. CUT, CAP AND ABANDON EXISTING 4" WATERLINE IN PLACE; SEE DETAIL 412 SHEET C802.
6. CUT, CAP AND ABANDON EXISTING 6" WATERLINE IN PLACE; SEE DETAIL 412 SHEET C802.
7. PROTECT EXISTING SANITARY SEWER MANHOLE AND ADJUST TO GRADE
8. PROTECT EXISTING SANITARY SEWER CLEANOUT AND ADJUST TO GRADE

20' 0 20' 40' 60'

SCALE: 1" =20'
(True scale for 22x34 sheet size)

LEGEND:

- EXISTING CONTOURS
- EXISTING WATER
- EXISTING WATER TO BE ABANDONED
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING OVERHEAD UTILITY
- EXISTING FIBER OPTIC
- EXISTING FIBER OPTIC
- EXISTING GAS
- LIMITS OF DISTURBANCE/CONSTRUCTION
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE
- BORE HOLES
- CONTROL POINT

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

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53283
PROFESSIONAL ENGINEER

No	Revisions	By	Date
1	Addendum 1-2		04-7-22

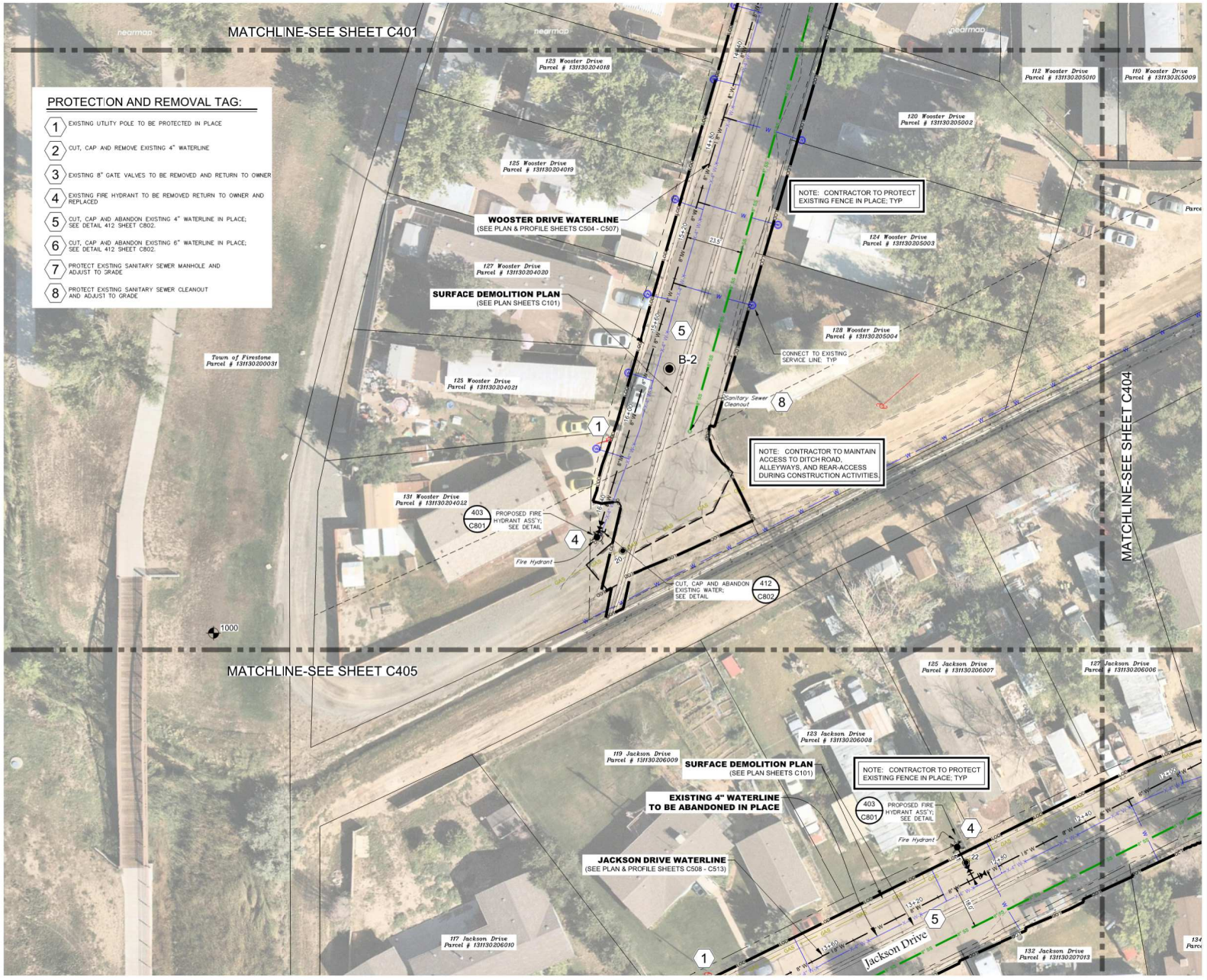
EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 20'
FILE NAME: Firestone-Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT NUMBER: W2021-9540
SHEET NUMBER C402
SHEET INDEX: 9

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Existing.dwg Tuesday, June 14, 2022 11:10 AM By: Rhonda Bunner



20' 0 20' 40' 60'

SCALE: 1" =20'
(True scale for 22x34 sheet size)

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- EXISTING CONTOURS
- EXISTING WATER
- EXISTING WATER TO BE ABANDONED
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
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- CONTROL POINT

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

NOTES:

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6. FIRE HYDRANTS SHALL BE COMPLETELY REMOVED RETURN TO OWNER AND REPLACED; TYP.
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TOWN OF FIRESTONE DRAWING APPROVAL

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BY _____ DATE _____
TOWN ENGINEER

dtesco
Project & Construction Services
2130 S. Timbers Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5068
www.dtescoservices.com

COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

No	Revisions: Sheet Revisions	By	Date
1	Addendum #2	SKT	6-7-22

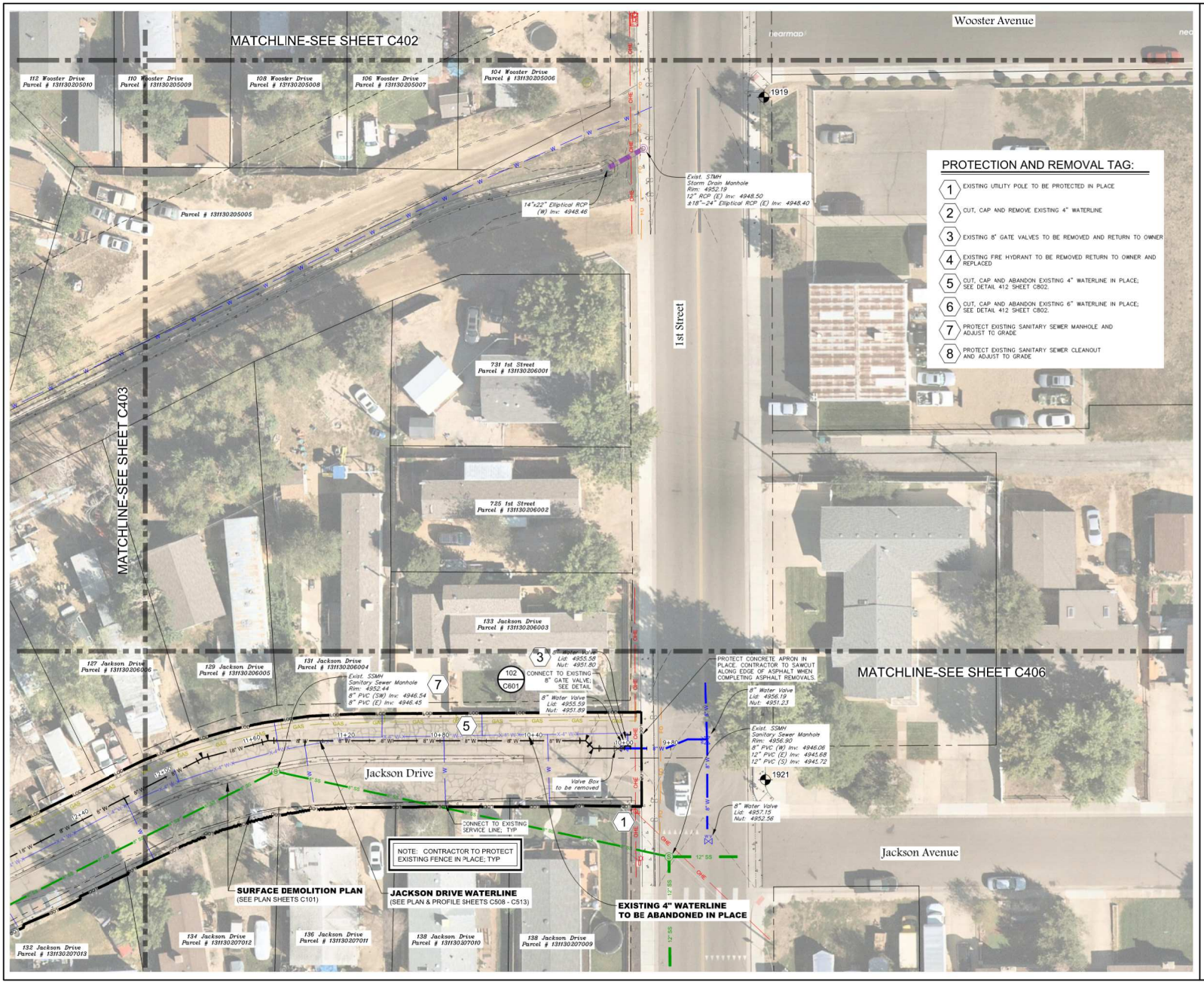
EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 20'
FILE NAME: Firestone-Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT NUMBER: W2021-9540
SHEET NUMBER: C403
SHEET INDEX: 10

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Existing.dwg Tuesday, June 14, 2022 11:10 AM By: Rhonda Bunner



PROTECTION AND REMOVAL TAG:

1. EXISTING UTILITY POLE TO BE PROTECTED IN PLACE
2. CUT, CAP AND REMOVE EXISTING 4" WATERLINE
3. EXISTING 8" GATE VALVES TO BE REMOVED AND RETURN TO OWNER
4. EXISTING FIRE HYDRANT TO BE REMOVED RETURN TO OWNER AND REPLACED
5. CUT, CAP AND ABANDON EXISTING 4" WATERLINE IN PLACE; SEE DETAIL 412 SHEET C802.
6. CUT, CAP AND ABANDON EXISTING 6" WATERLINE IN PLACE; SEE DETAIL 412 SHEET C802.
7. PROTECT EXISTING SANITARY SEWER MANHOLE AND ADJUST TO GRADE
8. PROTECT EXISTING SANITARY SEWER CLEANOUT AND ADJUST TO GRADE

20' 0 20' 40' 60'

SCALE: 1" =20'
(True scale for 22x34 sheet size)

LEGEND:

- EXISTING CONTOURS
- EXISTING WATER
- EXISTING WATER TO BE ABANDONED
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING OVERHEAD UTILITY
- EXISTING FIBER OPTIC
- EXISTING FIBER OPTIC
- EXISTING GAS
- LIMITS OF DISTURBANCE/CONSTRUCTION
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE
- BORE HOLES
- CONTROL POINT

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

No	Revisions	By	Date
1	Addendum 2	SK	7-22

Sheet Revisions

EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
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PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

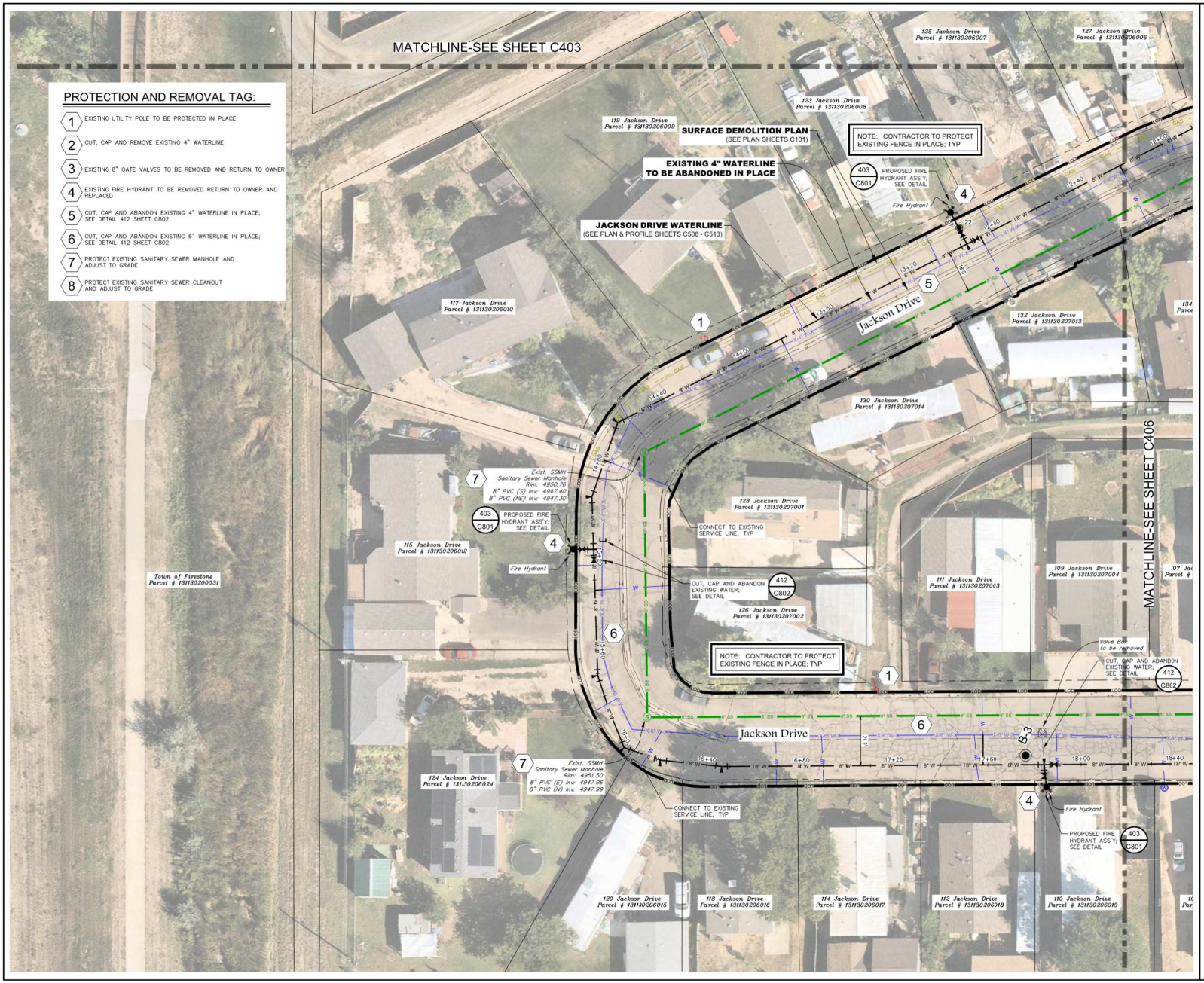
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER
C404

SHEET INDEX: 11

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Existing.dwg Tuesday, June 14, 2022 11:10 AM By: Rhonda Bunner



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- CONTROL POINT

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

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COLORADO LICENSED
Christopher Kinney
53283
PROFESSIONAL ENGINEER

No	Sheet Revisions / Revisions	By	Date
1	Addendum #2	CK	6-17-22

EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
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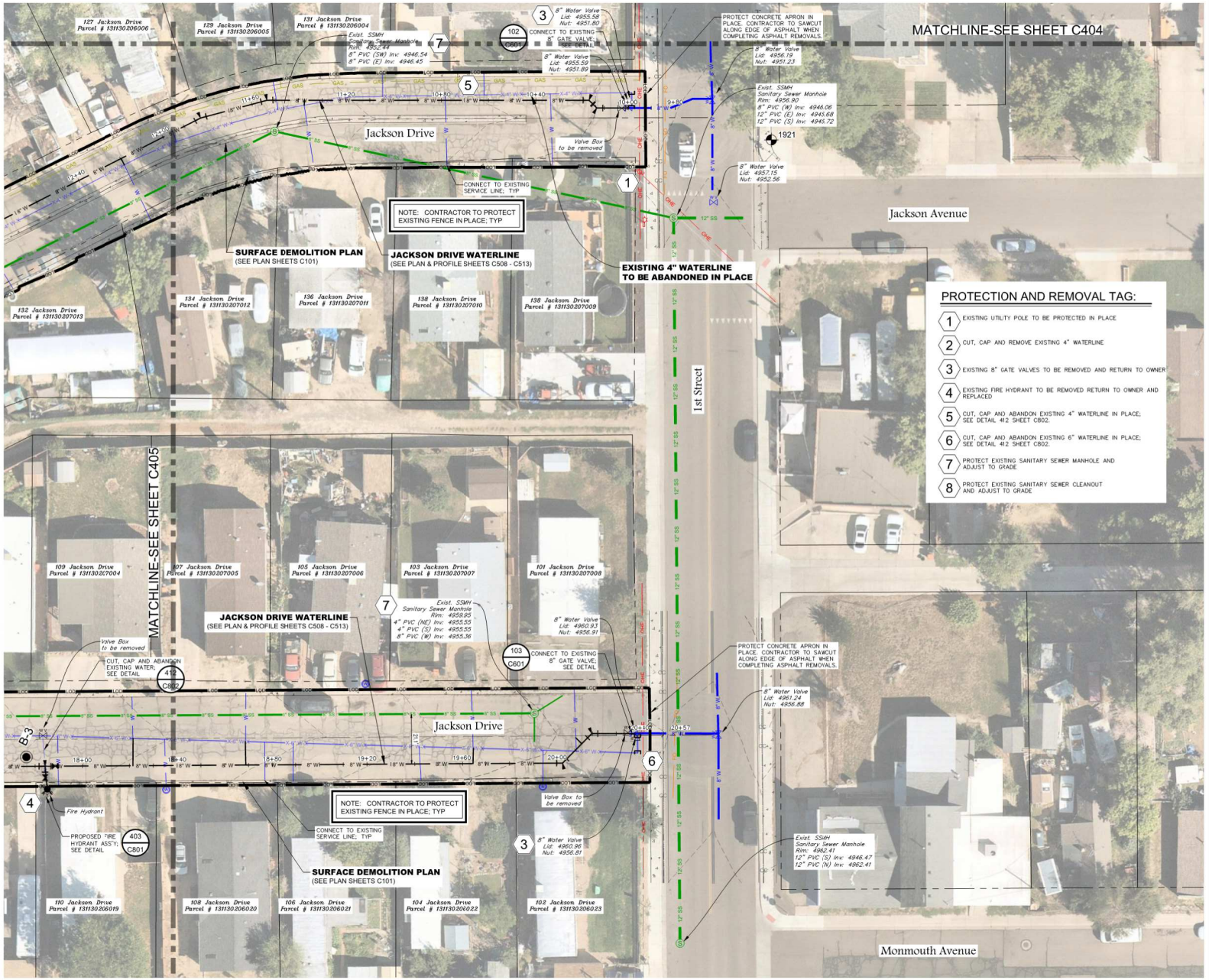
FILE NAME: Firestone-Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER: C405
SHEET INDEX: 12

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Existing.dwg Tuesday, June 14, 2022 11:10 AM By: Rhonda Bunner



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LEGEND:

- EXISTING CONTOURS — 4987
- EXISTING WATER — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- EXISTING SANITARY SEWER — SS
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E
- EXISTING OVERHEAD UTILITY — OHU
- EXISTING FIBER OPTIC — FO
- EXISTING FIBER OPTIC — TEL
- EXISTING GAS — GAS
- LIMITS OF DISTURBANCE/CONSTRUCTION — LOD
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE — S
- EXISTING STORM DRAIN MANHOLE — D
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2
- CONTROL POINT — 100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: February 2, 2022

GEOTECHNICAL EXPLORATION BY:

GROUND ENGINEERING
TOWN OF FIRESTONE HISTORIC WATERLINE PROJECT
PROJECT NO. 22-0005
DATE: APRIL 26, 2022

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COLORADO LICENSED
Jeffrey D. Woodbridge
53283
PROFESSIONAL ENGINEER

No	Sheet Revisions / Revisions	By	Date
1	Addendum 2	JW	5-17-22

EXISTING CONDITIONS, DEMOLITION AND UTILITY PLAN

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DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 20'
FILE NAME: Firestone-Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER
C406

SHEET INDEX: 13

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Existing.dwg Tuesday, June 14, 2022 11:10 AM By: Rhonda Bunner

Utility Pothole Table

Civil 3D Point No.	Pothole No.	Utility Type	Utility Size	Material Type	Depth from Surface	Surface Elevation	Northing	Easting	Notes
10	PH1A	Gas	2"	MDPE	1.29'	4950.650	1286121.897	3157237.339	
11	PH1B	Water	2"	Copper	4.58'	4950.650	1286121.897	3157237.339	
12	PH2	Electric	1"	PVC	1.92'	4950.630	1286120.553	3157266.243	
13	PH3A	Fiber	1/4"	2 Pair Com	1.58'	4951.170	1286118.917	3157349.027	
14	PH3B	Fiber	1/4"	Single Com	3.00'	4951.170	1286118.917	3157349.027	
15	PH4A	Electric	1/2"	4 Pair Elec	3.00'	4950.470	1286115.409	3157598.423	North / South
16	PH4B	Electric	1/2"	Single Elec	2.25'	4950.470	1286115.409	3157598.423	East/ West
17	PH5A	Gas	2"	MDPE	2.42'	4951.770	1286120.782	3157644.402	
18	PH5B	Unknown	2"	PVC	4.08'	4951.770	1286120.782	3157644.402	
19	PH5C	Water	4"	Asbestos Cement	5.08'	4951.770	1286120.782	3157644.402	
20	PH6	Gas	2"	MDPE	4.00'	4948.900	1285693.974	3157221.757	
21	PH7A	Gas	2"	MDPE	2.16'	4951.730	1285562.303	3157366.547	
22	PH7B	Water	4"	Asbestos Cement	4.33'	4951.730	1285562.303	3157366.547	

TOWN OF FIRESTONE
DRAWING APPROVAL

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COLORADO LICENSED
Rhonda Bunner
50283
PROFESSIONAL ENGINEER

No.	Revisions	By	Date
1	Addendum 2	JW	6/7/22

Sheet Revisions

POTHOLE TABLE

DESIGNED BY: J. Woodridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: NTS
FILE NAME: Firestone-OA Existing.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

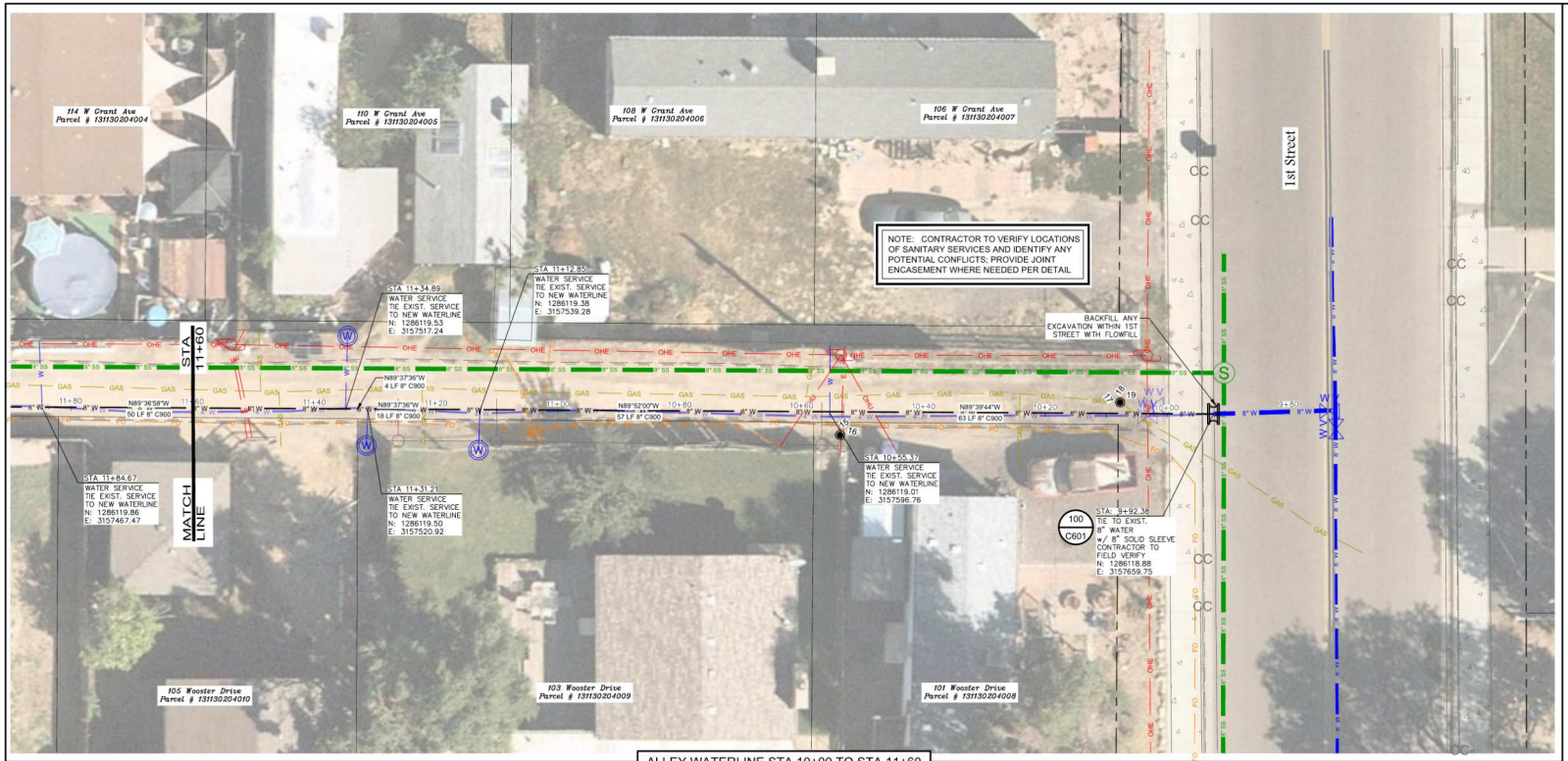
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

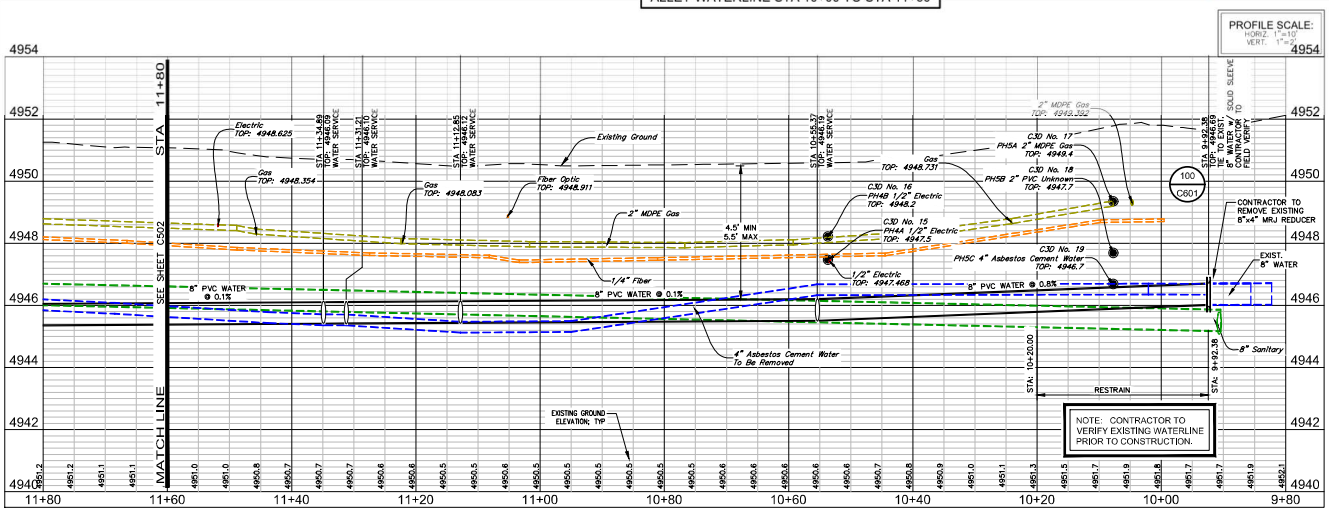
SHEET NUMBER
C407

SHEET INDEX: 14

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-OA Existing.dwg Tuesday, June 14, 2022 11:05 AM By: Rhonda Bunner



ALLEY WATERLINE STA 10+00 TO STA 11+60



ADDITIONAL WATER SERVICE NOTES:

IF AWARDED, THE ENTIRE SERVICE LINE SHALL BE REPLACED, WITH TYPE K COPPER, FROM THE MAIN WATERLINE TO THE METER PIT. A NEW CURB STOP SHALL BE INSTALLED ON THE SERVICE LINE, UPSTREAM OF THE METER PIT. CONTRACTOR SHALL CONNECT NEW TYPE K WATER SERVICE IMMEDIATELY UPSTREAM OF THE METER YOLK. METER PIT WILL NOT BE REPLACED, PROTECT IN PLACE. SEE DETAIL 416 AND 417 ON SHEET C603.

10' 0 10' 20' 30'

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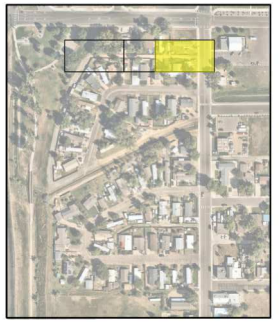

KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5', UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAIN.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO ENSURE WORK TO ALLOW RELOCATION OF HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

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Project & Construction Services
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Phone: 970.632.5968
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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions

No	Revisions:	By	Date
1	Addendum 2		04-12-22

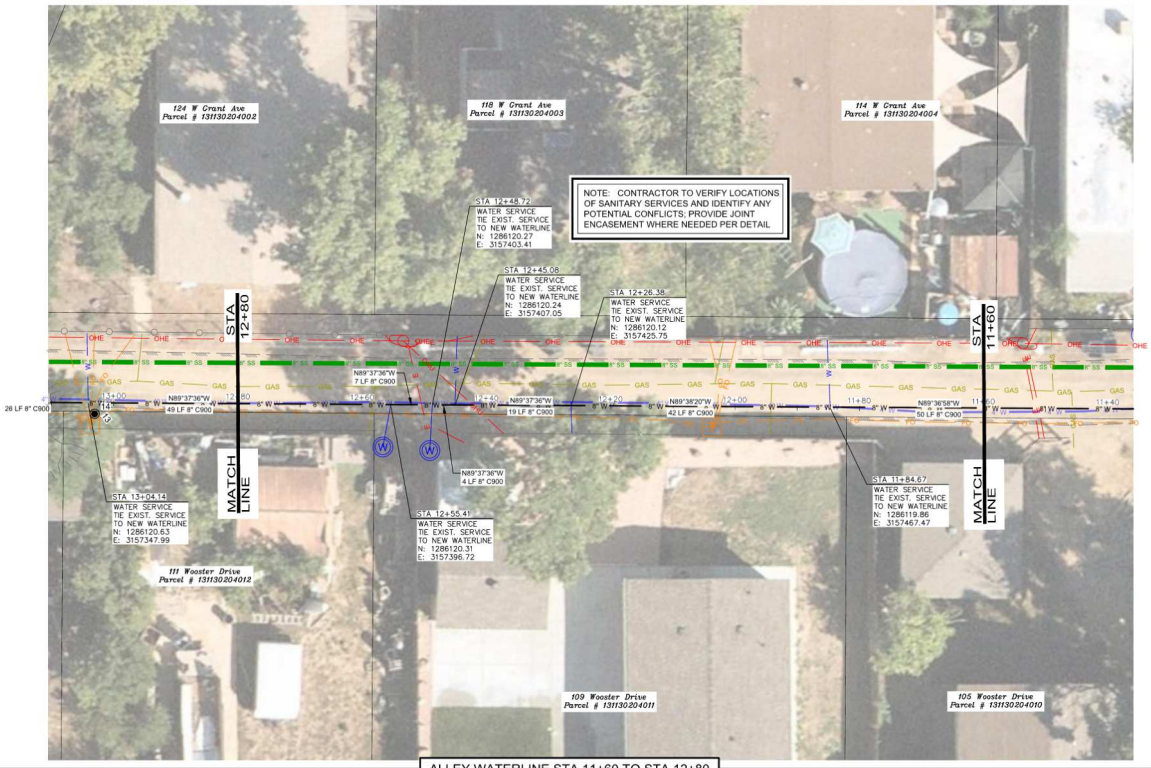
ALLEY WATERLINE
PLAN & PROFILE STA 10+00 TO STA 11+60

DESIGNED BY: J. Woodridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Waterline A P&P.dwg

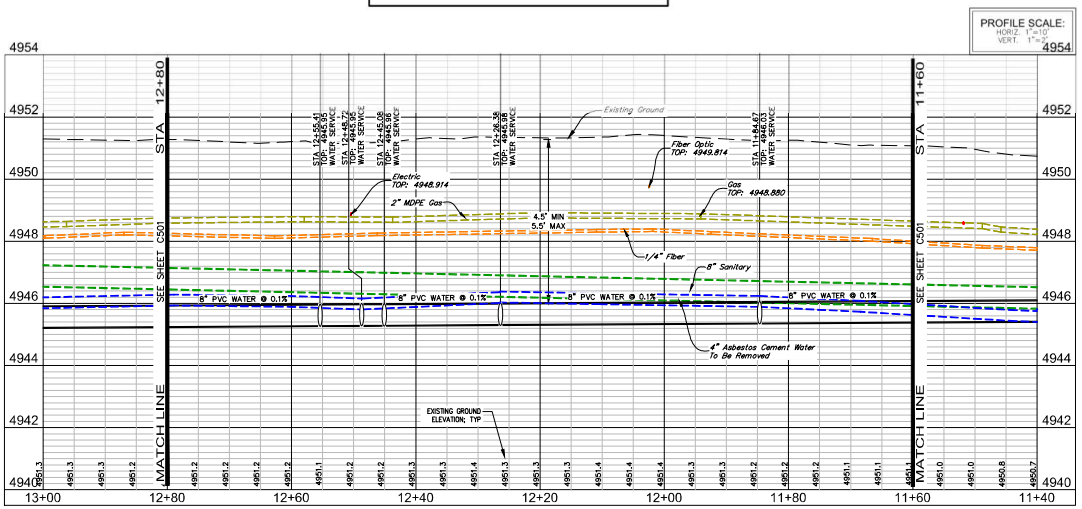
TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

PROJECT NUMBER: W2021-9540
SHEET NUMBER C501
SHEET INDEX: 15

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline A P&P.dwg Friday, July 08, 2022 9:09 AM By: Rhonda Bunner



ALLEY WATERLINE STA 11+60 TO STA 12+80

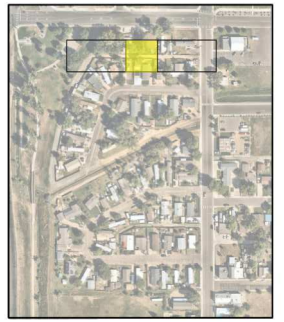


ADDITIONAL WATER SERVICE NOTES:

IF AWARDED, THE ENTIRE SERVICE LINE SHALL BE REPLACED, WITH TYPE K COPPER, FROM THE MAIN WATERLINE TO THE METER PIT. A NEW CURB STOP SHALL BE INSTALLED ON THE SERVICE LINE, UPSTREAM OF THE METER PIT. CONTRACTOR SHALL CONNECT NEW TYPE K WATER SERVICE IMMEDIATELY UPSTREAM OF THE METER YOLK. METER PIT WILL NOT BE REPLACED, PROTECT IN PLACE. SEE DETAIL 416 AND 417 ON SHEET C503.

10' 0 10' 20' 30'

SCALE: 1" =10'
(True scale for 22x34 sheet size)



KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5', UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAIN.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO ENSURE WORK TO ALLOW RELOCATION OF HYDRANT IN SAME LOCATION, ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE
DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

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1	Addendum 2		04-12-22

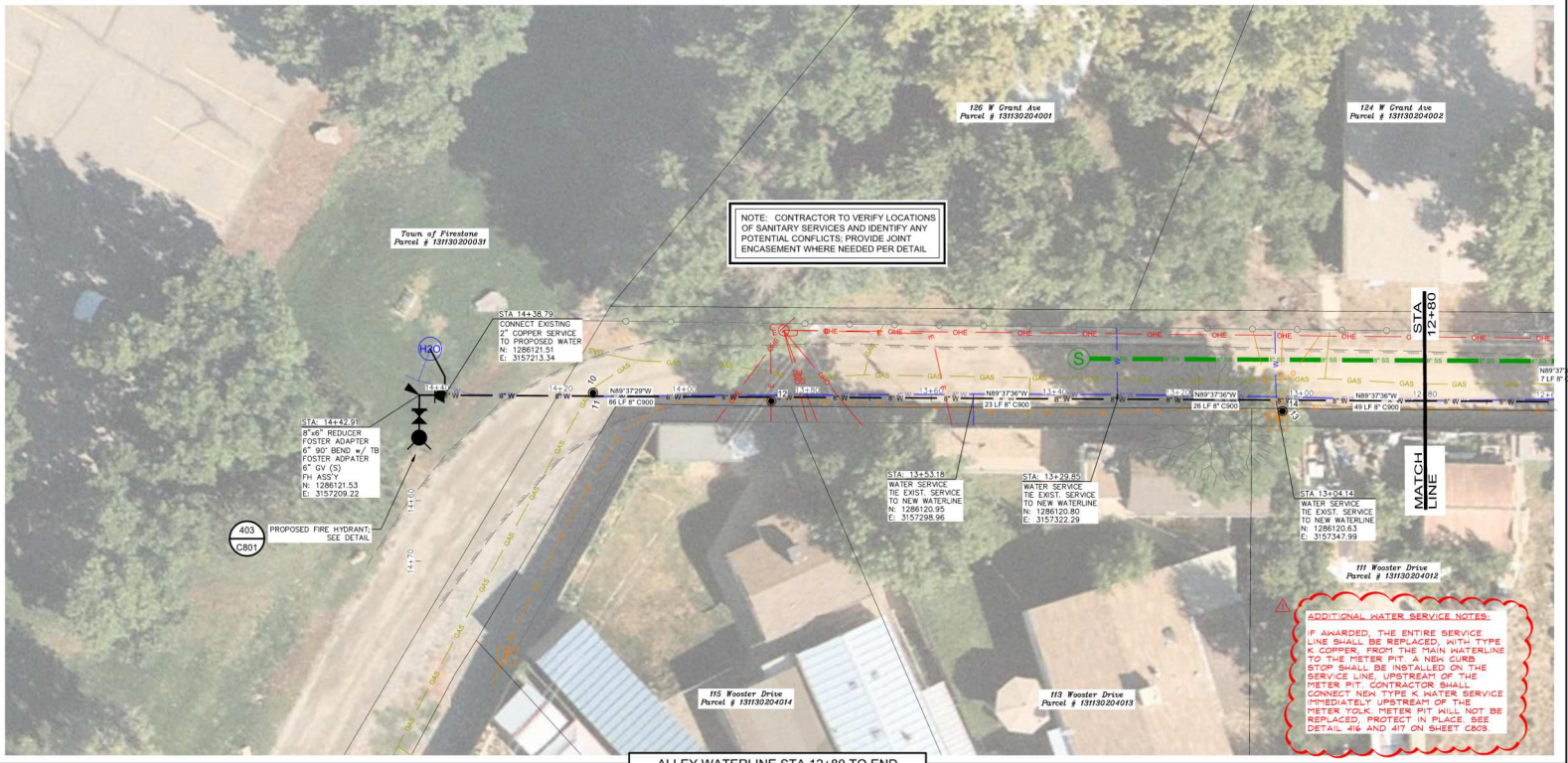
ALLEY WATERLINE
PLAN & PROFILE STA 11+60 TO STA 12+80

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Waterline A P&P.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

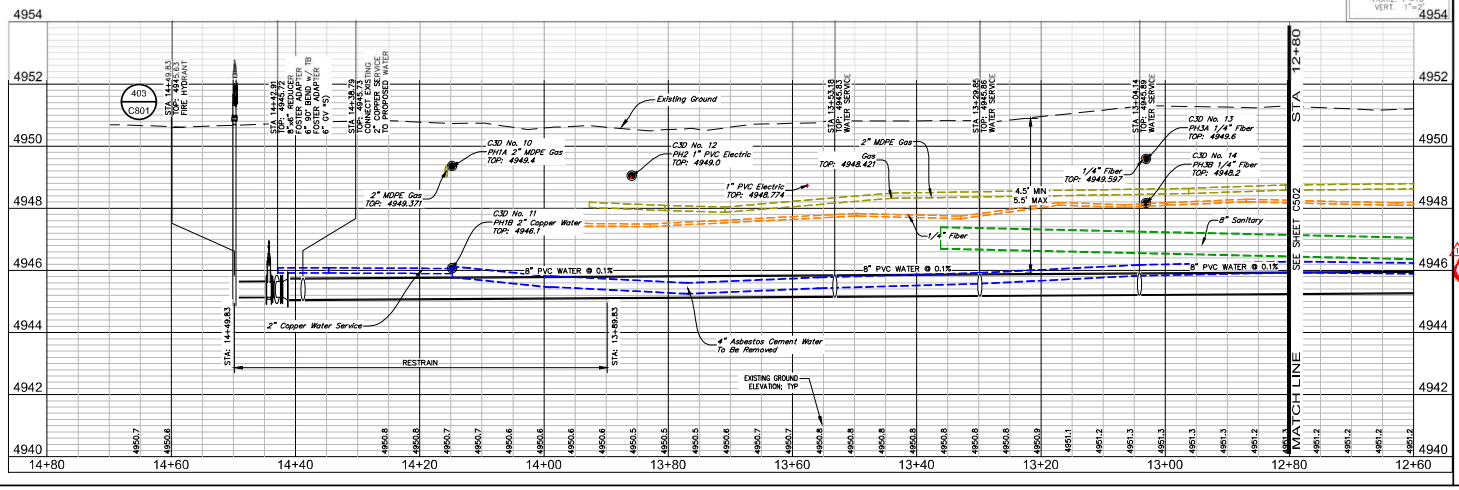
PROJECT NUMBER: W2021-9540
SHEET NUMBER C502
SHEET INDEX: 16

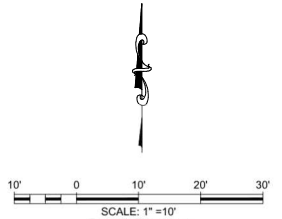
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline A P&P.dwg Friday, July 08, 2022 9:09 AM By: Rhonda Bunner



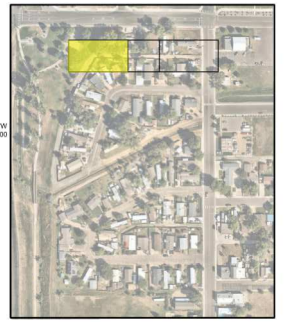
ALLEY WATERLINE STA 12+80 TO END

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'





SCALE: 1" =10'
(True scale for 22x34 sheet size)



KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W —
- EXISTING WATER TO BE ABANDONED — X-W-X
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- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

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TOWN OF FIRESTONE
DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

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1	Addendum 2	JW 7-22

ALLEY WATERLINE
PLAN & PROFILE STA 12+80 TO END

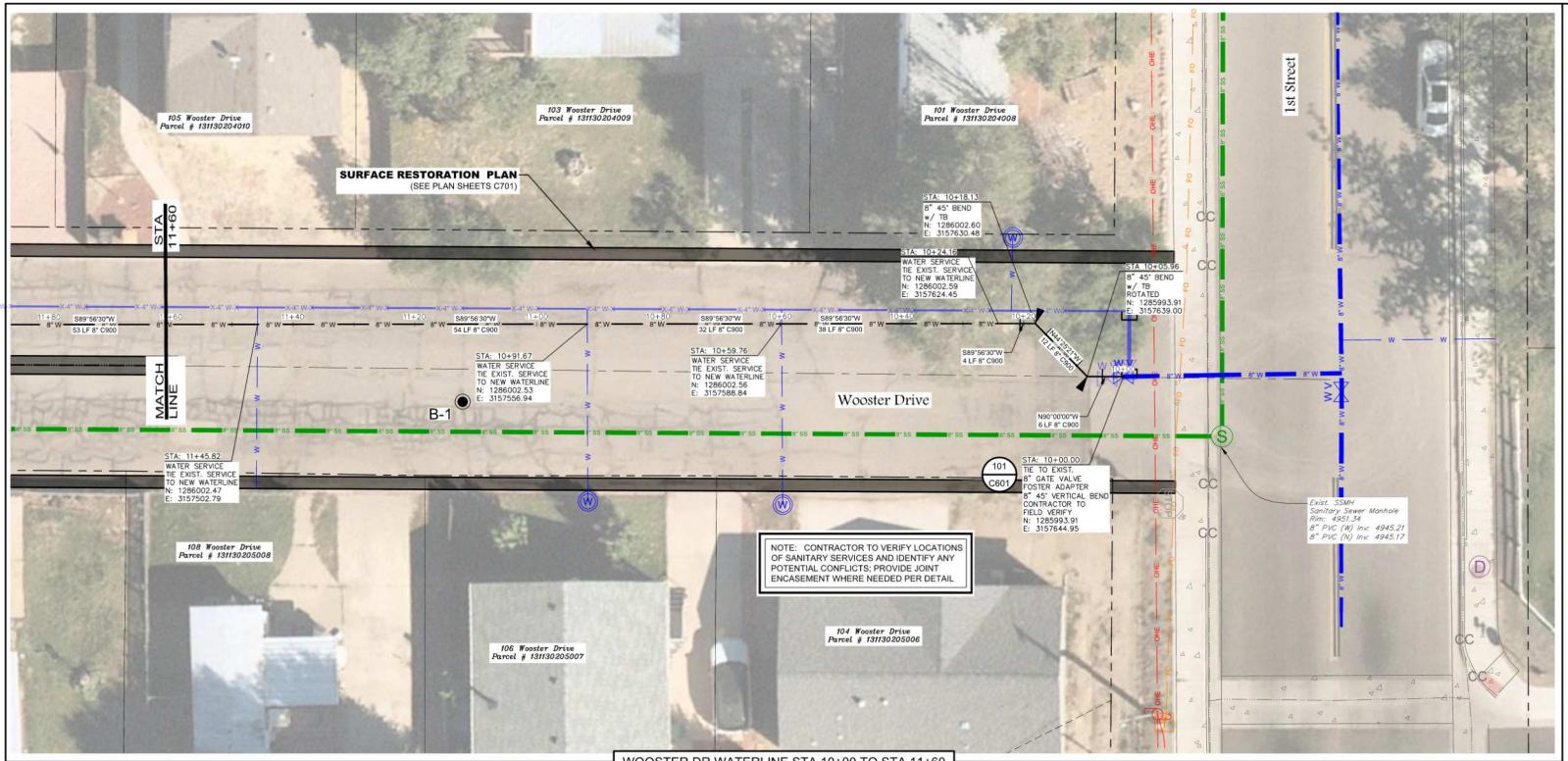
DESIGNED BY: J. Woodridge | DATE: June 17, 2022
DRAWN BY: R. Bunner | SCALE: 1" = 10'
APPROVED BY: J. Burrell | FILE NAME: Firestone-Waterline A P&P.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

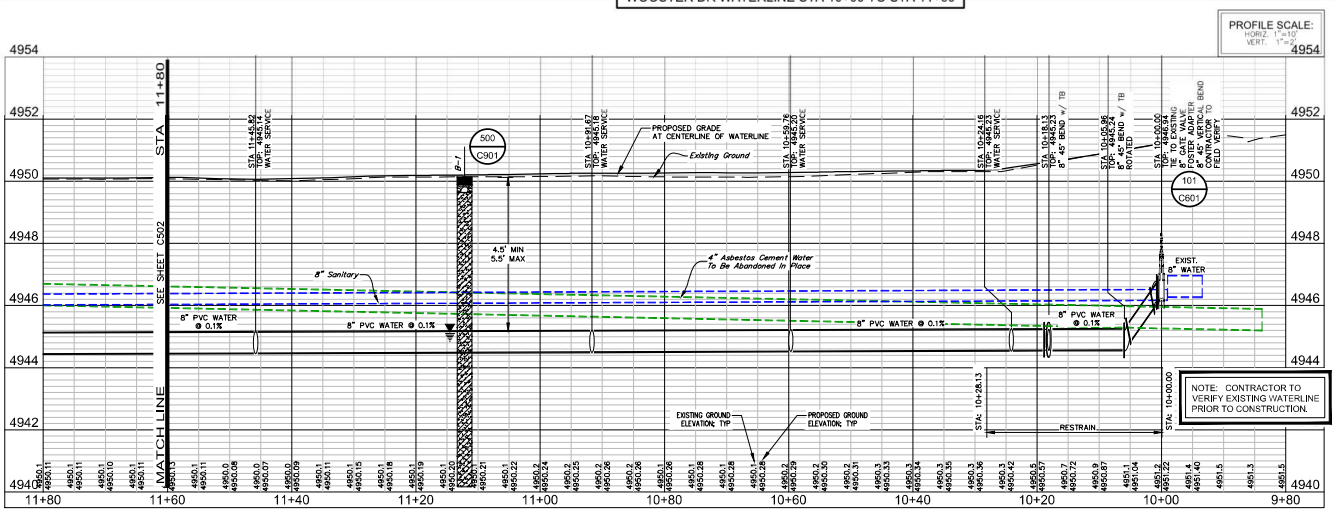
FIRESTONE COLORADO

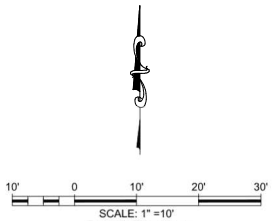
PROJECT NUMBER: W2021-9540
SHEET NUMBER: C503
SHEET INDEX: 17

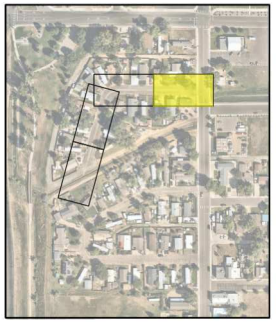
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline A P&P.dwg Friday, July 08, 2022 9:09 AM By: Rhonda Bunner



WOOSTER DR WATERLINE STA 10+00 TO STA 11+60







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NTS

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TOWN OF FIRESTONE
DRAWING APPROVAL

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PROFESSIONAL ENGINEER

Sheet Revisions	No	By	Date
Revisions:	1	JW	6/17/22
Addendum 2			

WOOSTER DRIVE WATERLINE
PLAN & PROFILE STA 10+00 TO STA 11+60

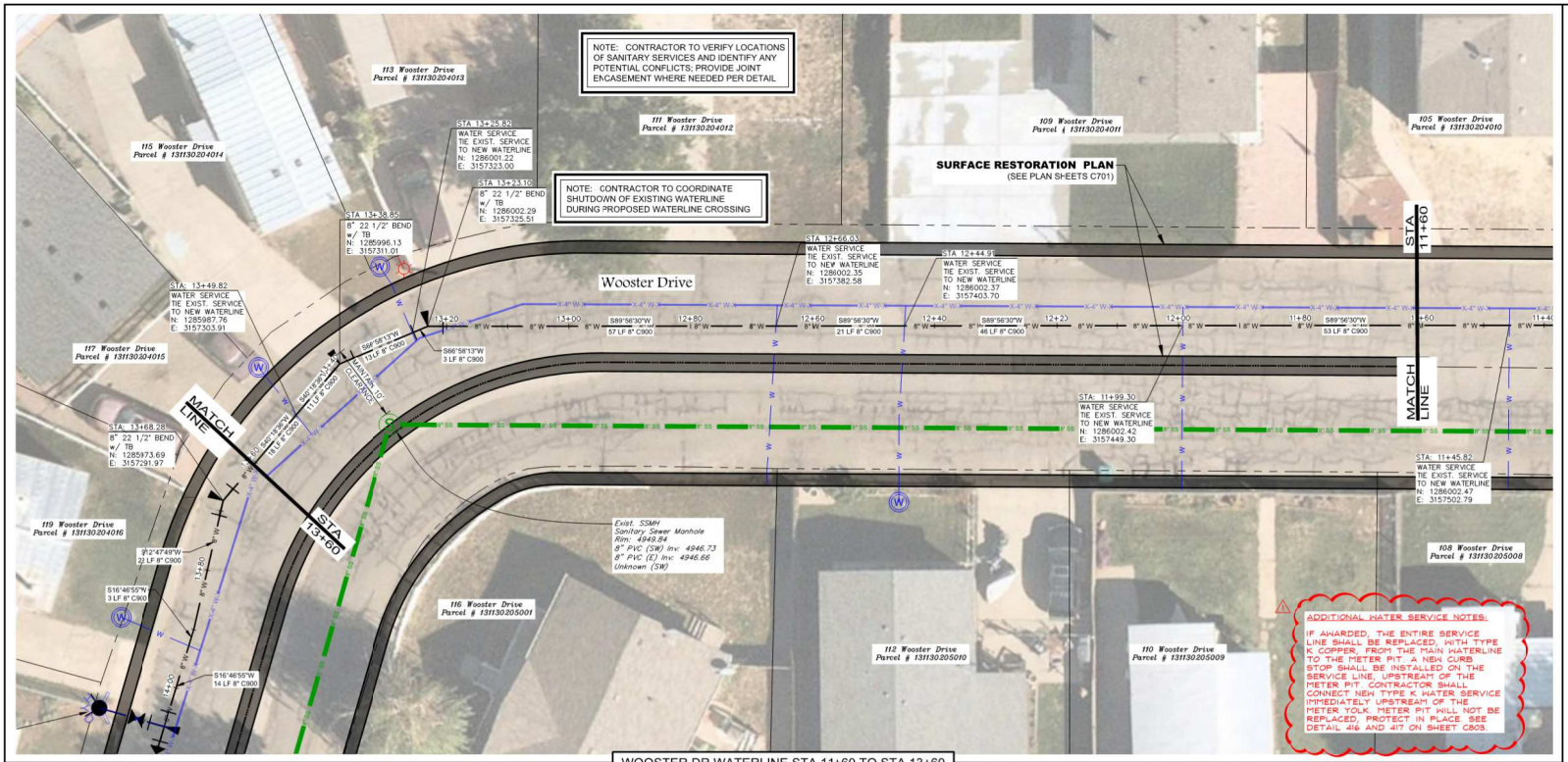
DESIGNED BY: J. Woolridge | DATE: June 17, 2022
DRAWN BY: R. Bunner | SCALE: 1" = 10'
APPROVED BY: J. Burrell | FILE NAME: Firestone-Waterline B P&P.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

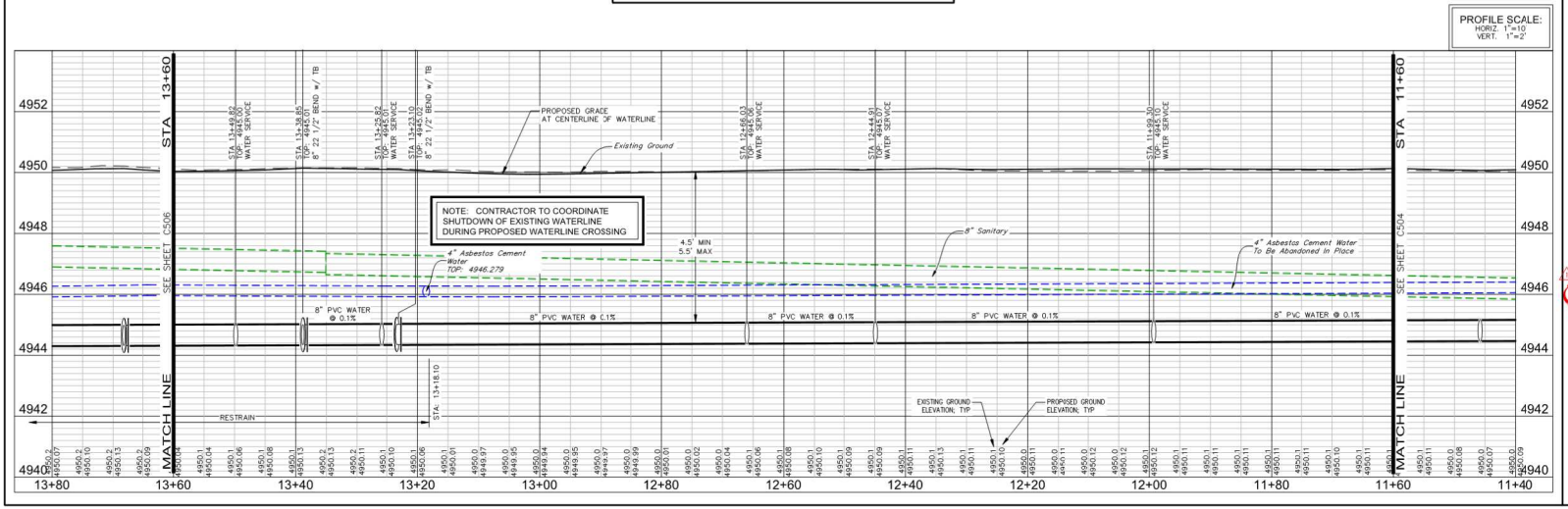
FIRESTONE COLORADO

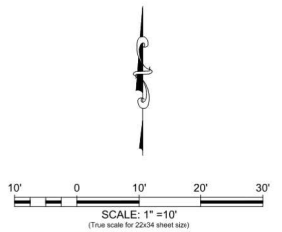
PROJECT NUMBER: W2021-9540
SHEET NUMBER: C504
SHEET INDEX: 18

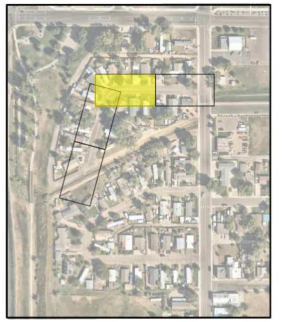
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline B P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner



WOOSTER DR WATERLINE STA 11+60 TO STA 13+60







KEYMAP
NTS

LEGEND:

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NOTES:

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11. CONTRACTOR TO PHASE WORK TO ALLOW REPLACEMENT OF HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE DRAWING APPROVAL

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CHRISTOPHER M. DUNN
53283
PROFESSIONAL ENGINEER

Sheet Revisions			
No.	Revisions:	By	Date
1	Addendum 2	JW	6-7-22

WOOSTER DRIVE WATERLINE
PLAN & PROFILE STA 11+60 TO STA 13+60

DESIGNED BY: J. Woolridge | DATE: June 17, 2022
DRAWN BY: R. Bunner | SCALE: 1" = 10'
APPROVED BY: J. Burrell | FILE NAME: Firestone-Waterline B P&P.dwg

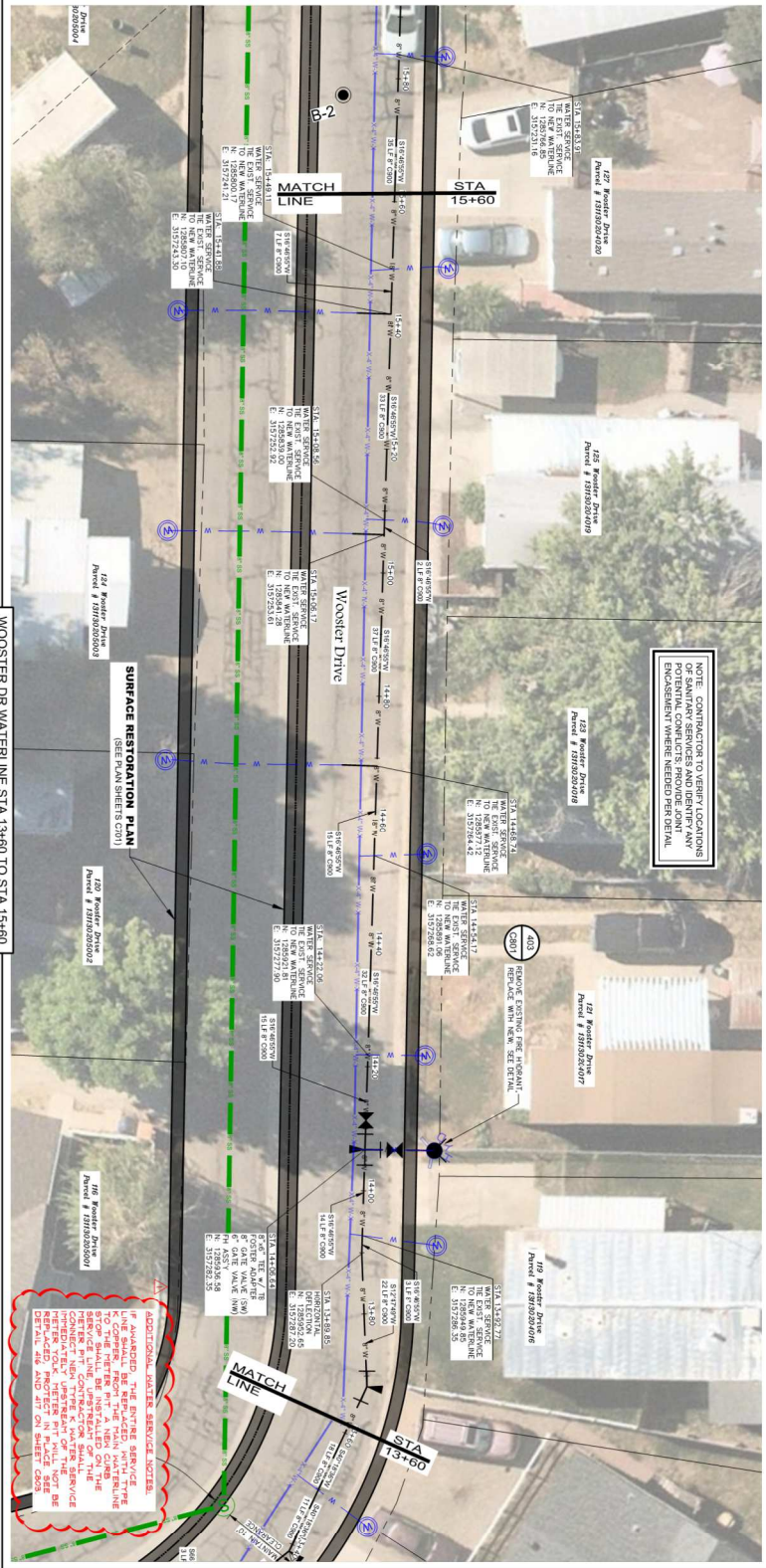
TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

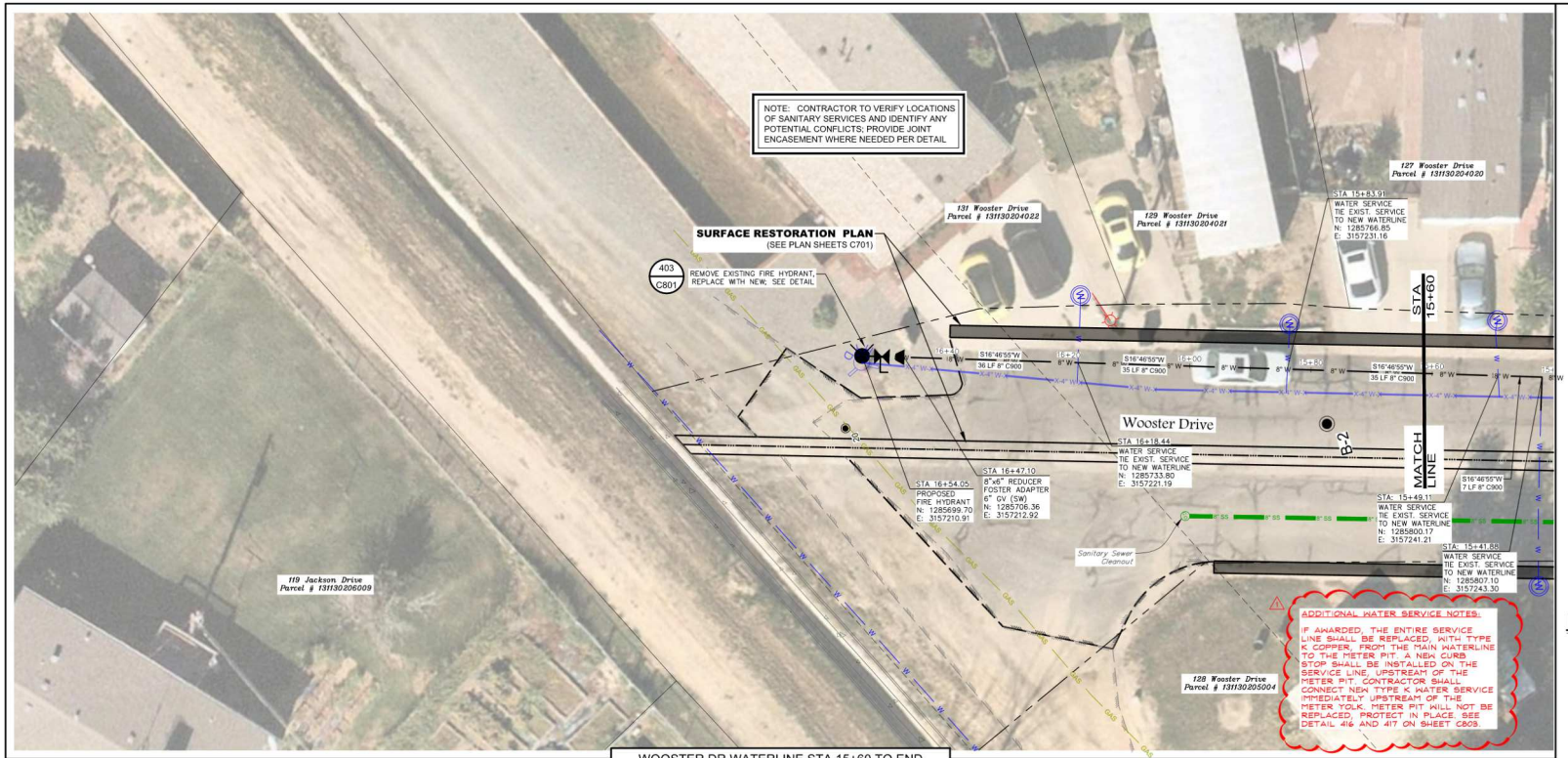
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER C505
SHEET INDEX: 19

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline B P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner

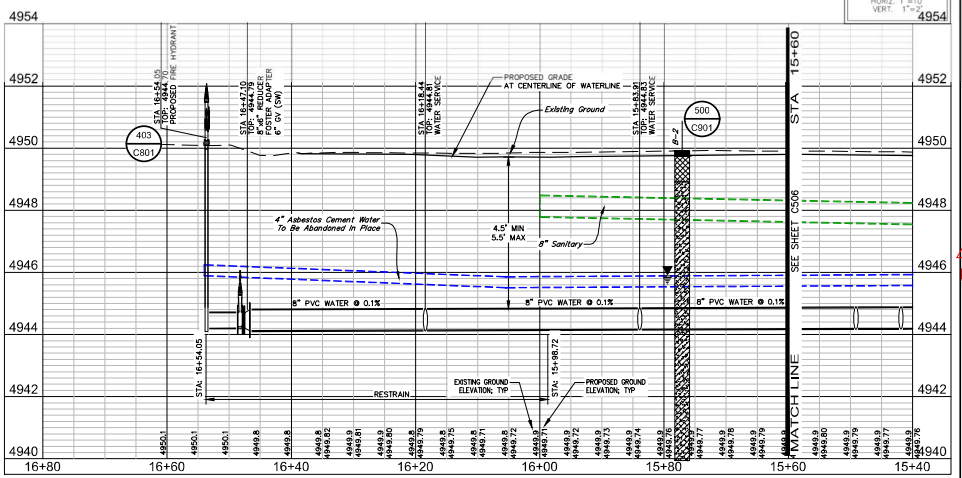
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline B P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner

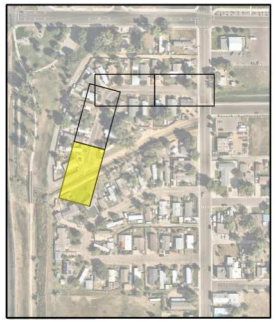

WOOSTER DR WATERLINE STA 13+60 TO STA 15+60
Wooster Drive
MATCH LINE
STA 15+60
MATCH LINE
STA 13+60
B-2
SURFACE RESTORATION PLAN
(SEE PLAN SHEET S C101)
NOTE: CONTRACTOR TO VERIFY LOCATIONS OF SANITARY SEWER MANHOLES AND ANY POTENTIAL CONFLICTS. PROVIDE JOINT ENCASEMENT WHERE NEEDED PER DETAIL
REMOVE EXISTING FIRE HYDRANT REPLACE WITH NEW, SEE DETAIL
ADDITIONAL WATER SERVICE NOTES:
IF ABANDED THE ENTIRE SERVICE LINE SHALL BE REPLACED WITH TYPE K COPPER FROM THE MAIN WATERLINE TO THE METER PIT. THE NEW CORPORATION STOP SHALL BE INSTALLED ON THE WATERLINE BY THE CONTRACTOR. CONNECT NEW TYPE K WATER SERVICE TO EXISTING METER YOKE. METER PIT WILL NOT BE REPLACED AS PART OF THIS PROJECT. SEE DETAIL #6 AND NOTE ON SHEET C505
PROFILE SCALE: VERT. 1"=2' HORZ. 1"=10'
SEE SHEET C507
SEE SHEET C505
STA 15+60
STA 13+60
8" PVC WATER @ 0.1%
8" Sanitary
Existing Ground
PROPOSED GRADE AT CENTERLINE OF WATERLINE
4.5' MIN 5.5' MAX
4" Asbestos Cement Water To Be Abandoned in Place
PROPOSED GROUND ELEVATION, TYP
RESTRAIN
STA: 14+06.64
STA 14+06.64 TOP: 4944.96 8"x6" TEE w/ TB FOSTER ADAPTER 6" GATE VALVE (SW) 6" GATE VALVE (NW) FH ASS'Y
STA 15+49.11 TOP: 4944.86 WATER SERVICE
STA 15+41.88 TOP: 4944.86 WATER SERVICE
STA 15+08.56 TOP: 4944.89 WATER SERVICE
STA 15+06.17 TOP: 4944.89 WATER SERVICE
STA 14+68.74 TOP: 4944.91 WATER SERVICE
STA 14+54.17 TOP: 4944.93 WATER SERVICE
STA 14+22.06 TOP: 4944.95 WATER SERVICE
STA 13+92.77 TOP: 4944.97 WATER SERVICE
STA 13+89.85 TOP: 4944.97 HORIZONTAL DEFLECTION
STA 13+68.28 TOP: 4944.99 8" 22 1/2° BEND w/ TB
MATCH LINE
SEE SHEET C507
STA 15+60
SEE SHEET C505
STA 13+60
8" PVC WATER @ 0.1%
RESTRAIN
PROPOSED GROUND ELEVATION, TYP
4" Asbestos Cement Water To Be Abandoned in Place
4.5' MIN 5.5' MAX
8" Sanitary
Existing Ground
PROPOSED GRADE AT CENTERLINE OF WATERLINE
STA 15+49.11 TOP: 4944.86 WATER SERVICE
STA 15+41.88 TOP: 4944.86 WATER SERVICE
STA 15+08.56 TOP: 4944.89 WATER SERVICE
STA 15+06.17 TOP: 4944.89 WATER SERVICE
STA 14+68.74 TOP: 4944.91 WATER SERVICE
STA 14+54.17 TOP: 4944.93 WATER SERVICE
STA 14+22.06 TOP: 4944.95 WATER SERVICE
STA: 14+06.64
STA 14+06.64 TOP: 4944.96 8"x6" TEE w/ TB FOSTER ADAPTER 6" GATE VALVE (SW) 6" GATE VALVE (NW) FH ASS'Y
STA 13+92.77 TOP: 4944.97 WATER SERVICE
STA 13+89.85 TOP: 4944.97 HORIZONTAL DEFLECTION
STA 13+68.28 TOP: 4944.99 8" 22 1/2° BEND w/ TB



WOOSTER DR WATERLINE STA 15+60 TO END

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'





KEYMAP
NTS

10' 0 10' 20' 30'
SCALE: 1" =10'
(True scale for 22x34 sheet size)

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5'. UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAINS.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO PHASE WORK TO ALLOW REPLACEMENT OF HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

dtesco
Project & Construction Services
2130 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5968
www.dtescoservices.com

COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions			
No.	Revisions:	By	Date
1	Addendum 2		04-12-22

WOOSTER DRIVE WATERLINE
PLAN & PROFILE STA 15+60 TO END

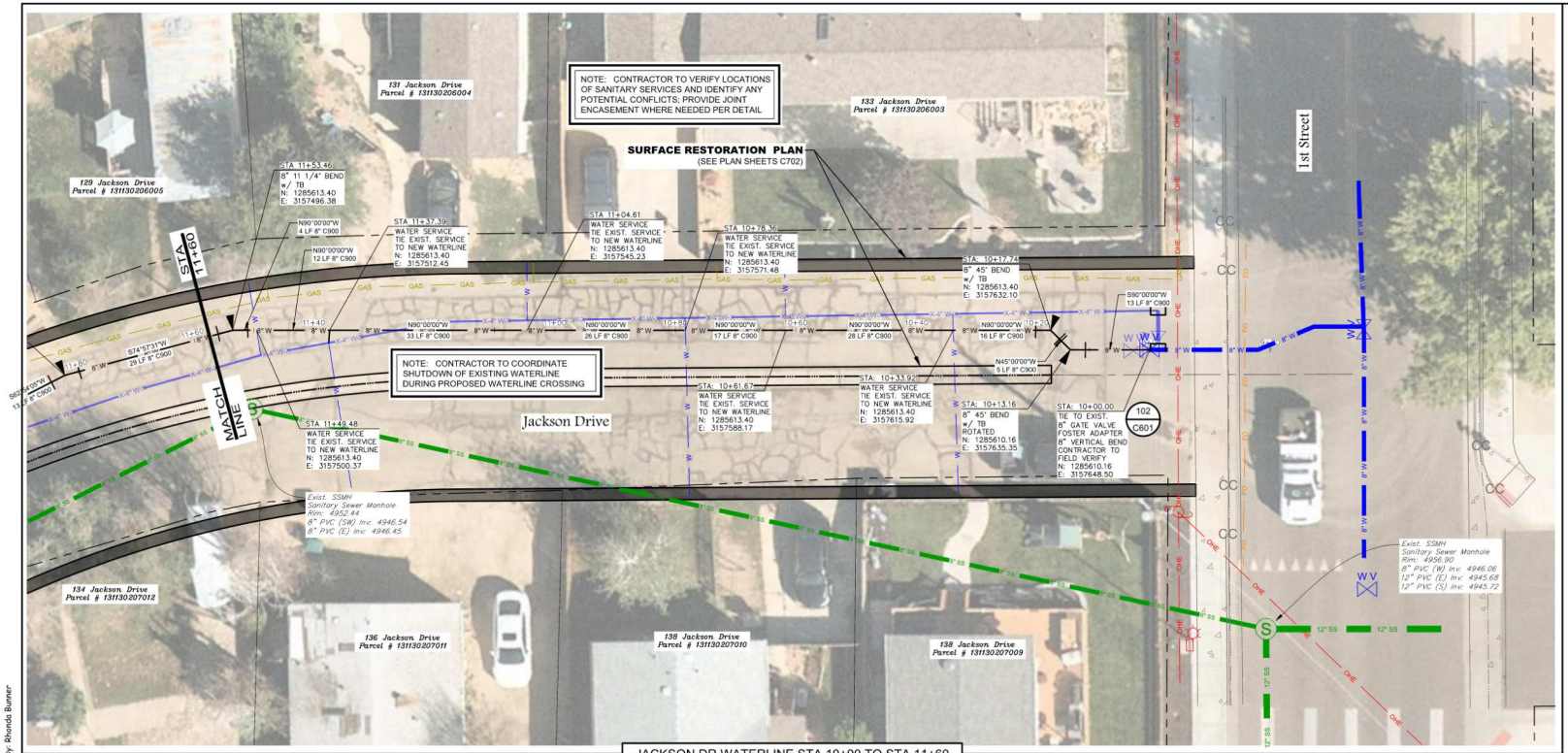
DESIGNED BY: J. Woodridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Waterline B P&P.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

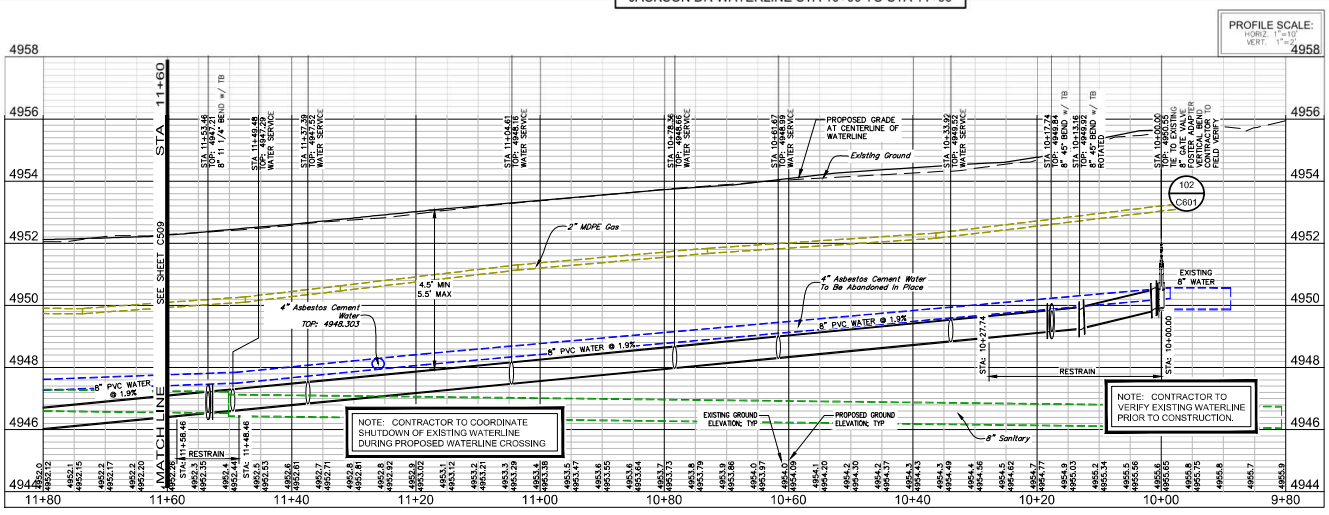
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER C507
SHEET INDEX: 21

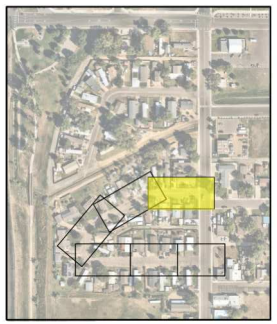
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline B P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner



JACKSON DR WATERLINE STA 10+00 TO STA 11+60







KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5', UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAIN.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO ENSURE WORK TO ALLOW REPLACEMENT OF HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

ADDITIONAL WATER SERVICE NOTES:

IF AWARDED, THE ENTIRE SERVICE LINE SHALL BE REPLACED, WITH TYPE K COPPER, FROM THE MAIN WATERLINE TO THE METER PIT. A NEW CURB STOP SHALL BE INSTALLED ON THE SERVICE LINE, UPSTREAM OF THE METER PIT. CONTRACTOR SHALL CONNECT NEW TYPE K WATER SERVICE IMMEDIATELY UPSTREAM OF THE METER YOLK. METER PIT WILL NOT BE REPLACED, PROTECT IN PLACE. SEE DETAIL 416 AND 417 ON SHEET C603.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

dtesco
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Ft Collins, Colorado 80525
Phone: 970.632.5968
www.dtescoservices.com

COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions								
No	Revisions:	By	Date					
1	Addendum 2	JW	6/17/22					

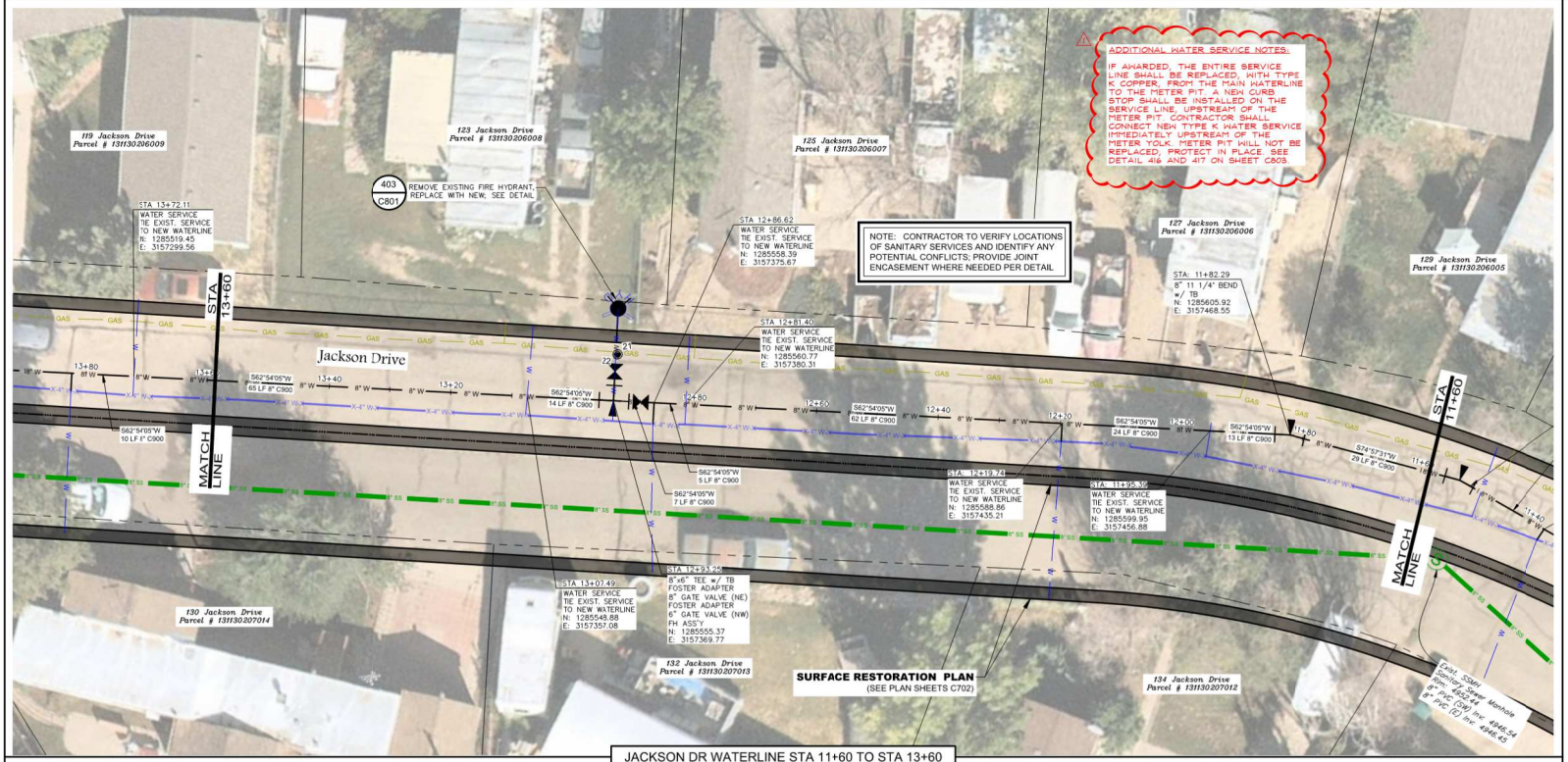
JACKSON DRIVE WATERLINE
PLAN & PROFILE STA 10+00 TO STA 11+60

DESIGNED BY: J. Woodbridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Waterline C P&P.dwg

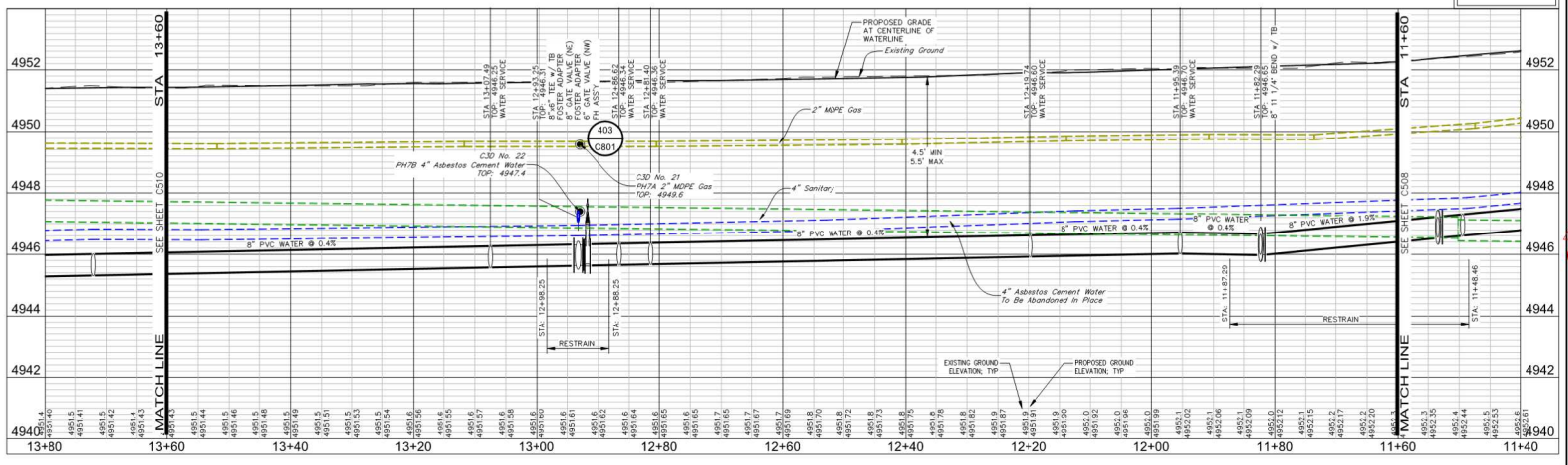
TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

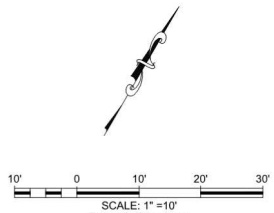
PROJECT NUMBER: W2021-9540
SHEET NUMBER C508
SHEET INDEX: 22

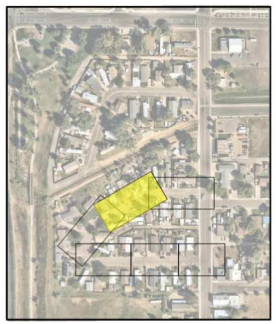
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline C P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner



JACKSON DR WATERLINE STA 11+60 TO STA 13+60







KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5', UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAINS.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO PHASE WORK TO ALLOW REPLACEMENT OF HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

dtesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5068
www.dtescoservices.com

COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions			
No.	Revisions:	By	Date
1	Addendum 2		04-7-22

JACKSON DRIVE WATERLINE
PLAN & PROFILE STA 11+60 TO STA 13+60

DESIGNED BY: J. Woolridge | DATE: June 17, 2022
DRAWN BY: R. Bunner | SCALE: 1" = 10'
APPROVED BY: J. Burrell | FILE NAME: Firestone-Waterline C P&P .dwg

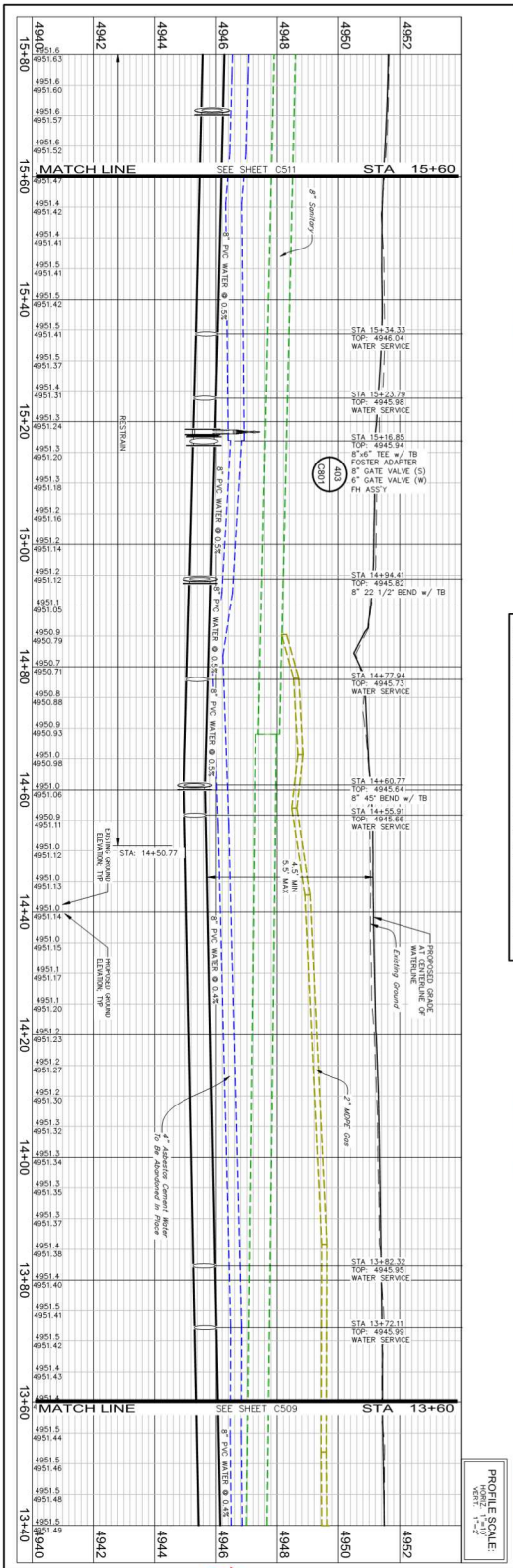
TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

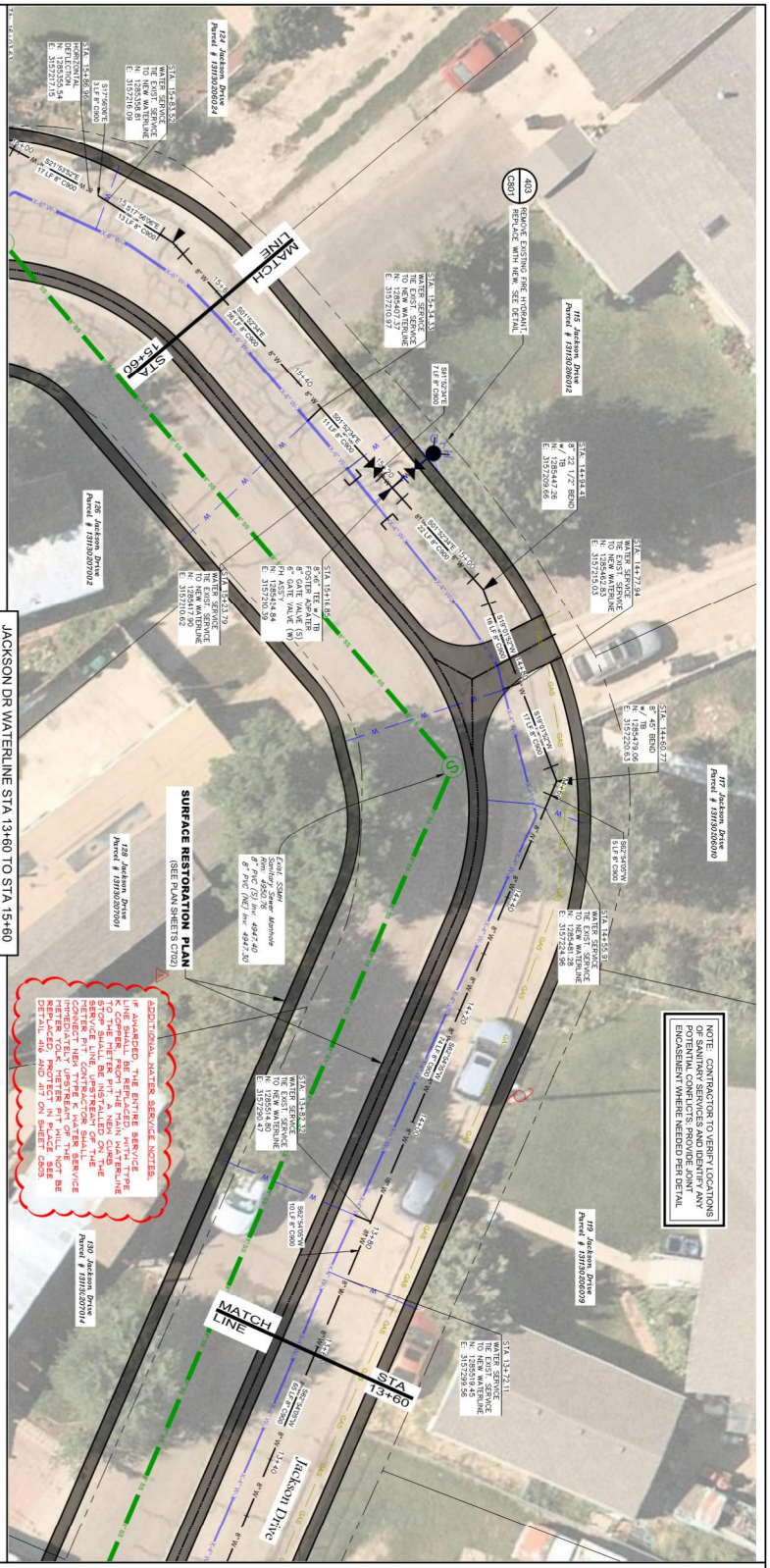
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER C509
SHEET INDEX: 23

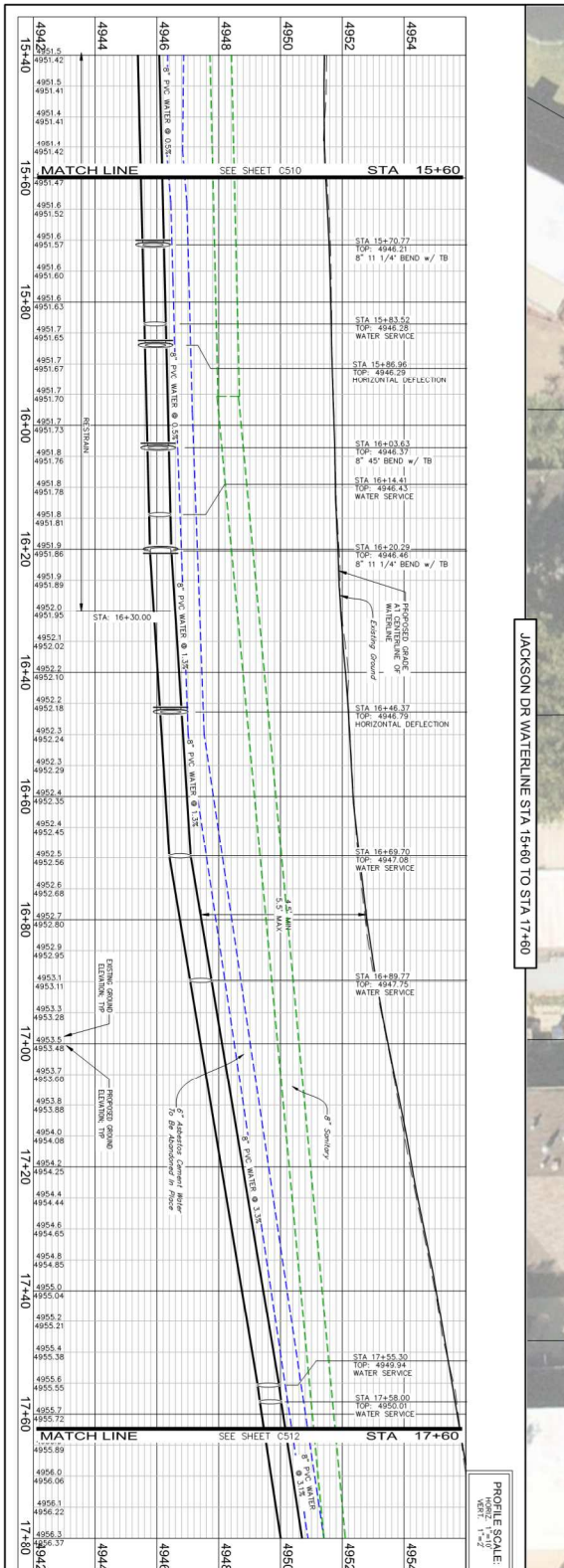
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline C P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner

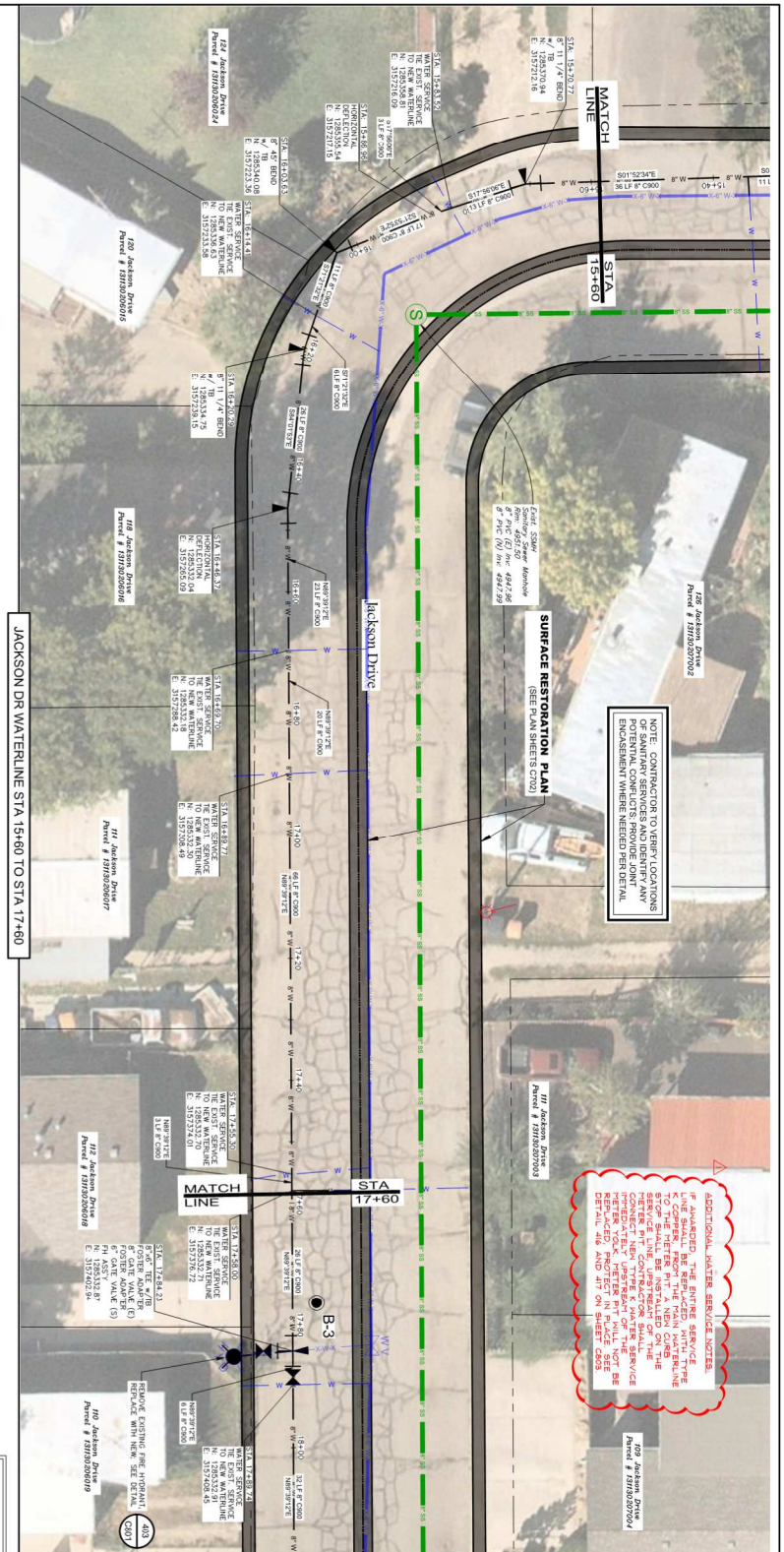
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline C P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner




JACKSON DR WATERLINE STA 13+60 TO STA 15+60
MATCH LINE
STA 15+60
MATCH LINE
STA 13+60
SURFACE RESTORATION PLAN
(SEE PLAN SHEETS C702)
NOTE: CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES AND IDENTIFY ANY POTENTIAL CONFLICTS. PROVIDE JOINT ENCASEMENT WHERE NEEDED PER DETAIL
ADDITIONAL WATER SERVICE NOTES:
IF UNLISTED TYPE ENTIRE SERVICE LINE SHALL BE REPLACED WITH TYPE K COPPER FROM THE MAIN WATERLINE TO STOP. STOP SHALL BE INSTALLED ON THE METER PIT LINE. CONTRACTOR SHALL CONNECT NEW TYPE K WATER SERVICE TO EXISTING METER PIT. PIT SHALL NOT BE REPLACED. PROTECT IN PLACE. SEE DETAIL 4W AND 4IT ON SHEET C603.
Jackson Drive
RESTRAIN
RESTRAIN
RESTRAIN

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline C P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner





LEGEND:

KEYMAP NTS

PROPOSED WATER
EXISTING WATER
EXISTING WATER TO BE ABANDONED
PROPOSED WATER VALVE
PROPOSED FIRE HYDRANT
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING WATER SERVICE SHUT-OFF
BORE HOLES
UTILITY POTHOLE
TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. SEPARATION BETWEEN ALL SANITARY SEWER MANHOLES, WATER MAINS & SERVICES, OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5' UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. FITTINGS AT HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS. SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAINS SHALL BE PROHIBITED.
10. CONTRACTOR SHALL VERIFY EXISTING WATER MAIN DOWNSTREAM OF SADDLE TAP. IF NECESSARY, INSTALL A HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS SIGNATURE BLOCK IS FOR THE PURPOSE OF APPROVING PLANS FOR COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEER OF RECORD AND ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON, SHALL BE RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN SHOWN.

BY: _____ TOWN ENGINEER DATE: _____

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

JACKSON DRIVE WATERLINE
PLAN & PROFILE STA 15+60 TO STA 17+60

DESIGNED BY:	J. Wooldridge	DATE:	June 17, 2022
DRAWN BY:	R. Bunner	SCALE:	1" = 10'
APPROVED BY:	J. Burrell	FILE NAME:	Firestone-Waterline C P&P.dwg

Sheet Revisions

No.	Revisions:	By	Date:
1	Addendum 2	JW	7/22

COLORADO LICENSED PROFESSIONAL ENGINEER 55283 JAMES M. BURRELL

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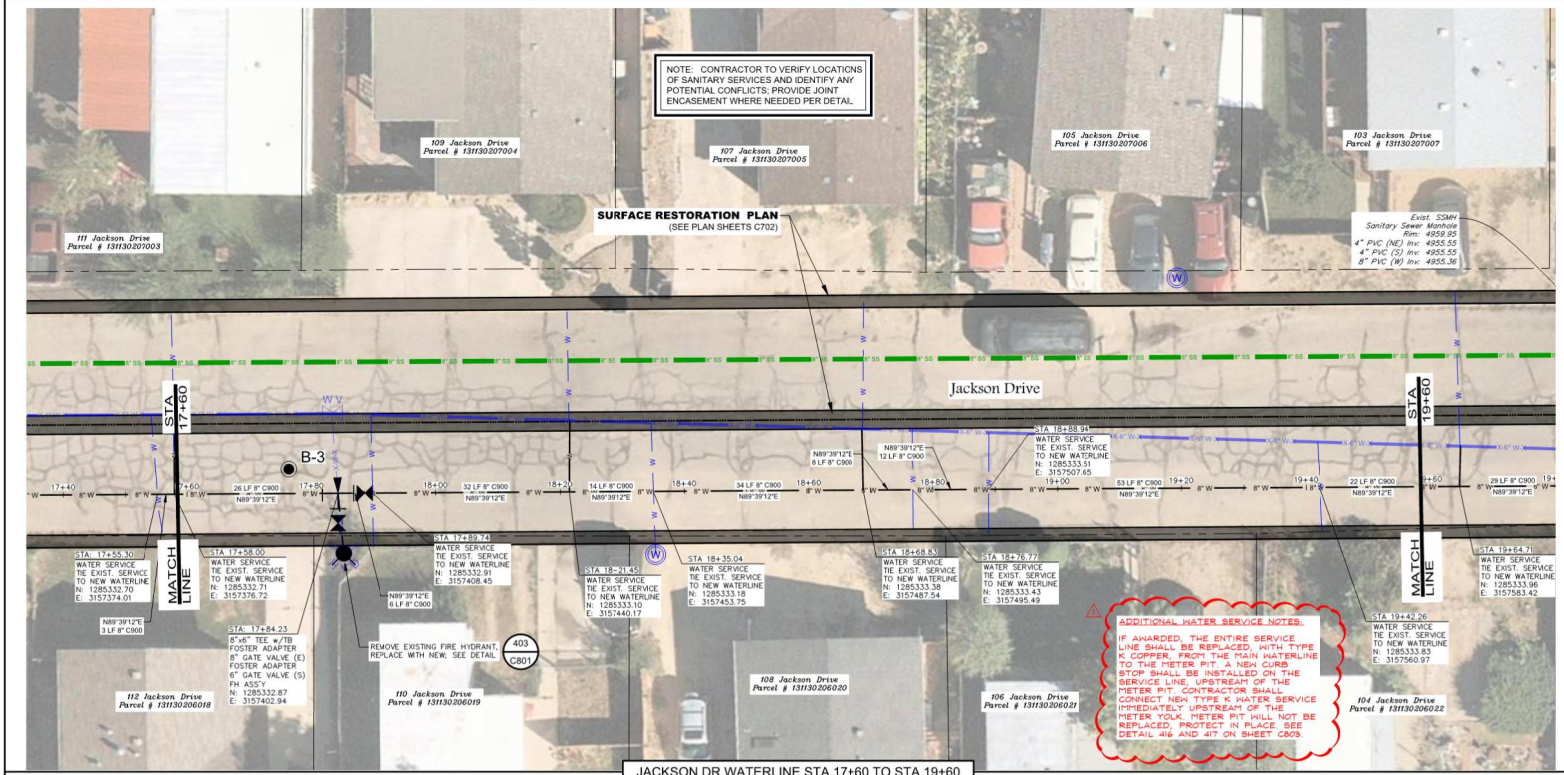
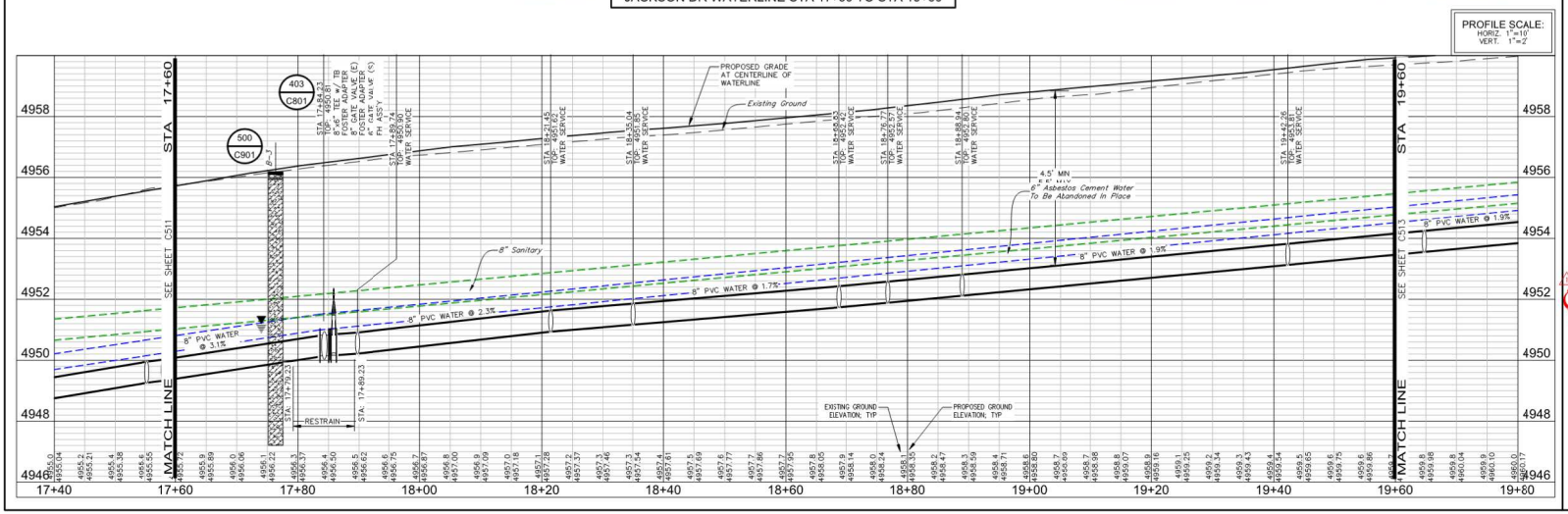
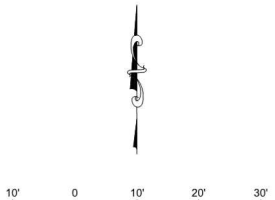
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5068
www.ditescoservices.com

SHEET INDEX: 25
SHEET NUMBER: C511
PROJECT NUMBER: W2021-9540



JACKSON DR WATERLINE STA 17+60 TO STA 19+60







KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W —
- EXISTING WATER TO BE ABANDONED — X-W-X —
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5', UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAINS.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO PHASE WORK TO ALLOW REPLACEMENT OF HYDRANT IN SAME LOCATION. ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

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Fort Collins, Colorado 80525
Phone: 970.632.5968
www.ditescoservices.com

COLORADO LICENSED
53283
PROFESSIONAL ENGINEER

No	Sheet Revisions	By	Date
1	Addendum 2		04-22

JACKSON DRIVE WATERLINE
PLAN & PROFILE STA 17+60 TO STA 19+60

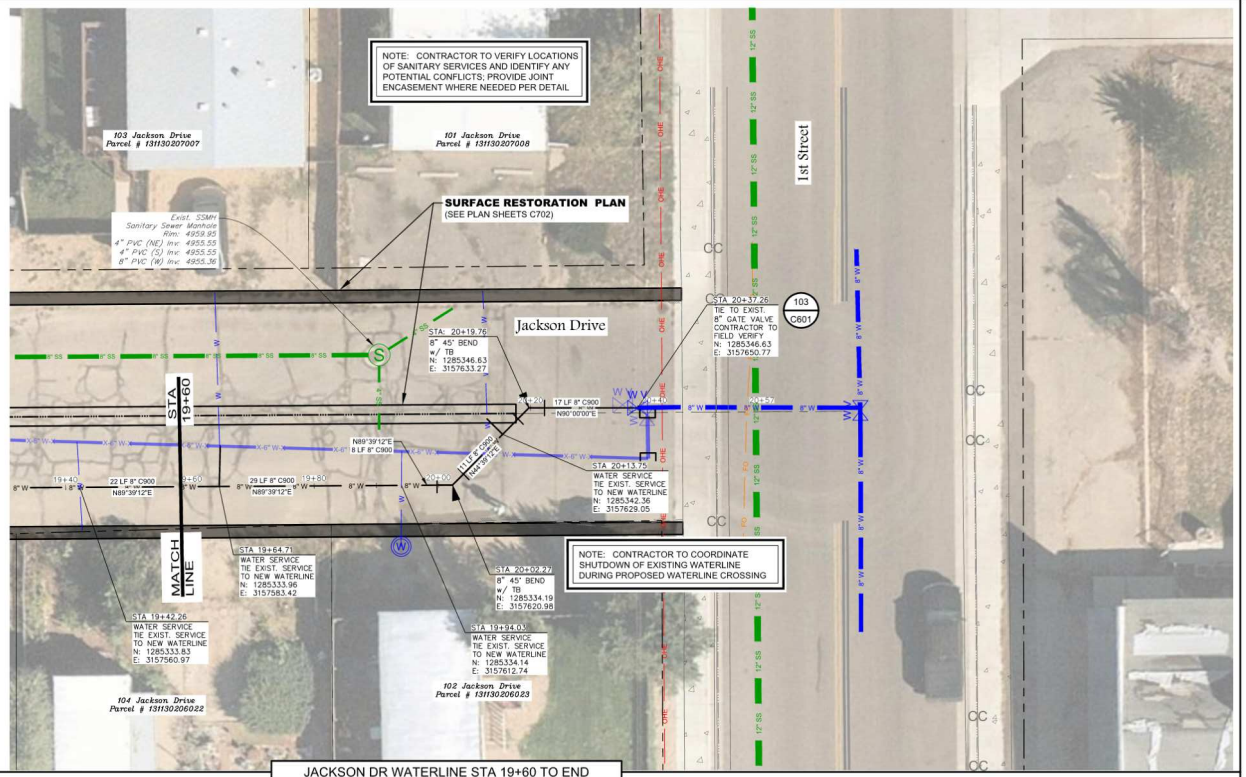
DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Waterline C P&P.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

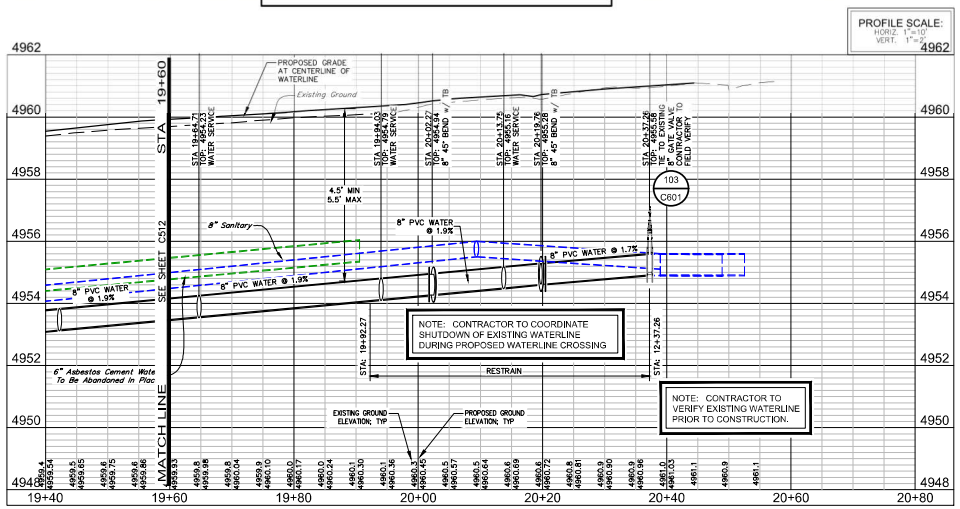
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER C512
SHEET INDEX: 26

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline C P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner



JACKSON DR WATERLINE STA 19+60 TO END

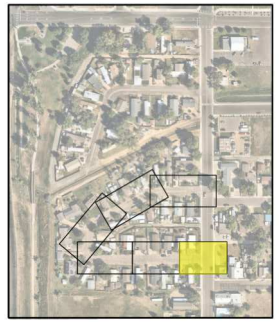


ADDITIONAL WATER SERVICE NOTES:

IF AWARDED, THE ENTIRE SERVICE LINE SHALL BE REPLACED, WITH TYPE K COPPER, FROM THE MAIN WATERLINE TO THE METER PIT. A NEW CURB STOP SHALL BE INSTALLED ON THE SERVICE LINE, UPSTREAM OF THE METER PIT. CONTRACTOR SHALL CONNECT NEW TYPE K WATER SERVICE IMMEDIATELY UPSTREAM OF THE METER YOLK. METER PIT WILL NOT BE REPLACED, PROTECT IN PLACE. SEE DETAIL 416 AND 417 ON SHEET C603.

10' 0 10' 20' 30'

SCALE: 1" =10'
(True scale for 22x34 sheet size)



KEYMAP
NTS

LEGEND:

- PROPOSED WATER — 8" W
- EXISTING WATER — W — W
- EXISTING WATER TO BE ABANDONED — X-W-X
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2

NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL SERVICE LINE SIZES. IT IS ASSUMED ALL SERVICES ARE 1-INCH COPPER.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MINIMUM DEPTH OF COVER OVER WATERLINE SHALL BE 4.5'. MAXIMUM COVER SHALL BE 5.5', UNLESS OTHERWISE NOTED.
4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
5. SEE SHEET C407 FOR POTHOLE TABLE AND NOTES.
6. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
7. UTILIZE NEW FIRE HYDRANT AS HIGH POINT WHEN FILLING NEW WATER MAIN TO BLEED OFF AIR.
8. ALL EXISTING WATERLINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG.
9. FOSTER ADAPTER SHALL BE UTILIZED BETWEEN ALL TEES AND FITTINGS; SOLID SLEEVE CONNECTIONS TO EXISTING WATER MAIN.
10. EXISTING WATER SERVICES TO BE CONNECTED TO NEW MAIN DOWNSTREAM OF SADDLE TAP; TYP. SEE ADDITIONAL WATER SERVICE NOTES.
11. CONTRACTOR TO ENSURE WORK TO ALLOW RELOCATION OF HYDRANT IN SAME LOCATION, ADJUST RISER HEIGHT TO ACCOMMODATE PROPOSED WATERLINE DEPTH.

TOWN OF FIRESTONE DRAWING APPROVAL

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BY _____ DATE _____
TOWN ENGINEER

dtesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5568
www.dtescoservices.com

COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions		
No.	Revisions:	By: Date:
1	Addendum 2	04-12-22

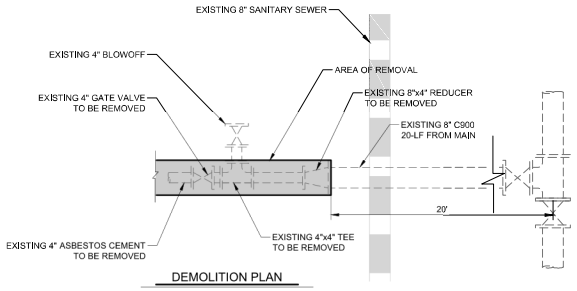
JACKSON DRIVE WATERLINE
PLAN & PROFILE STA 19+60 TO END

DESIGNED BY: J. Woodridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Waterline C P&P.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

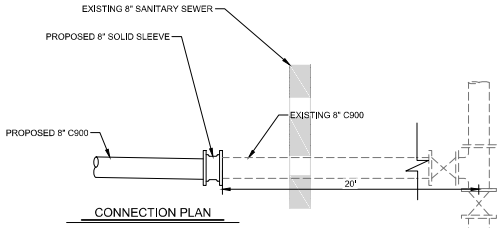
PROJECT NUMBER: W2021-9540
SHEET NUMBER C513
SHEET INDEX: 27

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline C P&P.dwg Friday, July 08, 2022 9:12 AM By: Rhonda Bunner



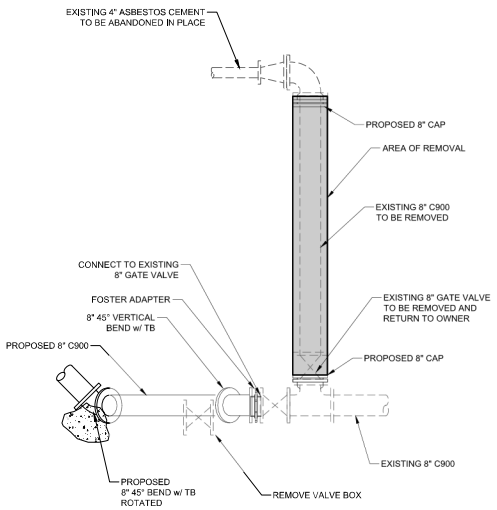
NOTES:

1. COORDINATE OUTAGE AND CONNECTION TO MAIN WITH ENGINEER. WORK TO BE PHASED TO MINIMIZE OUTAGES.
2. WATERLINE TO BE FULLY PRESSURE TESTED, CHLORINATED AND BACTERIA TESTED PRIOR TO MAKING CONNECTION.
3. CUT, CAP AND ABANDON 4" MAIN AFTER NEW CONNECTION HAS BEEN MADE TO NEW MAIN.
4. PIPE LENGTHS ARE NOT SHOWN TO SCALE.
5. AT ALL EXISTING WATERLINES TO BE ABANDONED, PLUG WITH GROUT OR CONCRETE CAP; DETAIL 412 SHEET C802.



100 / C601 ALLEY WATERLINE - STATION 10+00.00

1" = 2'



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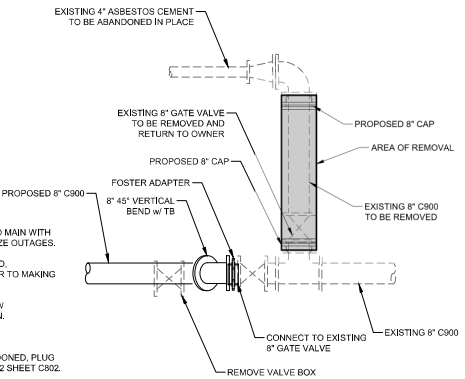
5. AT ALL EXISTING WATERLINES TO BE ABANDONED, PLUG WITH GROUT OR CONCRETE CAP, DETAIL 412 SHEET C802.

101 / C601 WOOSTER DR WATERLINE - STATION 10+00.00

1" = 2'



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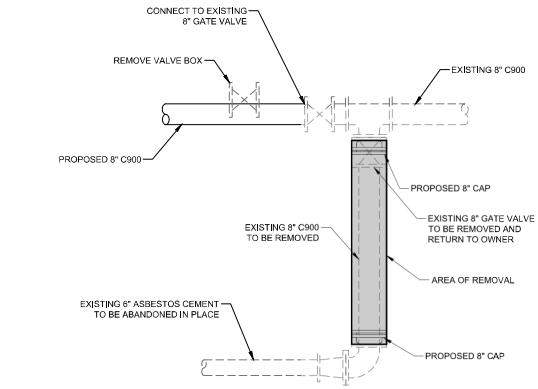
102 / C601 JACKSON DR WATERLINE - STATION 10+00.00

1" = 2'



NOTES:

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103 / C601 JACKSON DR WATERLINE - STATION 20+37.26

1" = 2'

CALL UTILITY NOTIFICATION CENTER OF COLORADO

811

Know what's **below.** **Call** before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

TOWN OF FIRESTONE
DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

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TOWN ENGINEER

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Fort Collins, Colorado 80525
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53283
PROFESSIONAL ENGINEER

No.	Sheet Revisions / Revisions	By	Date
1	Addendum 2	JW	6-17-22

WATERLINE CONNECTIONS DETAILS

DESIGNED BY: J. Wooldridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 2'
FILE NAME: Firestone-Waterline Connection.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

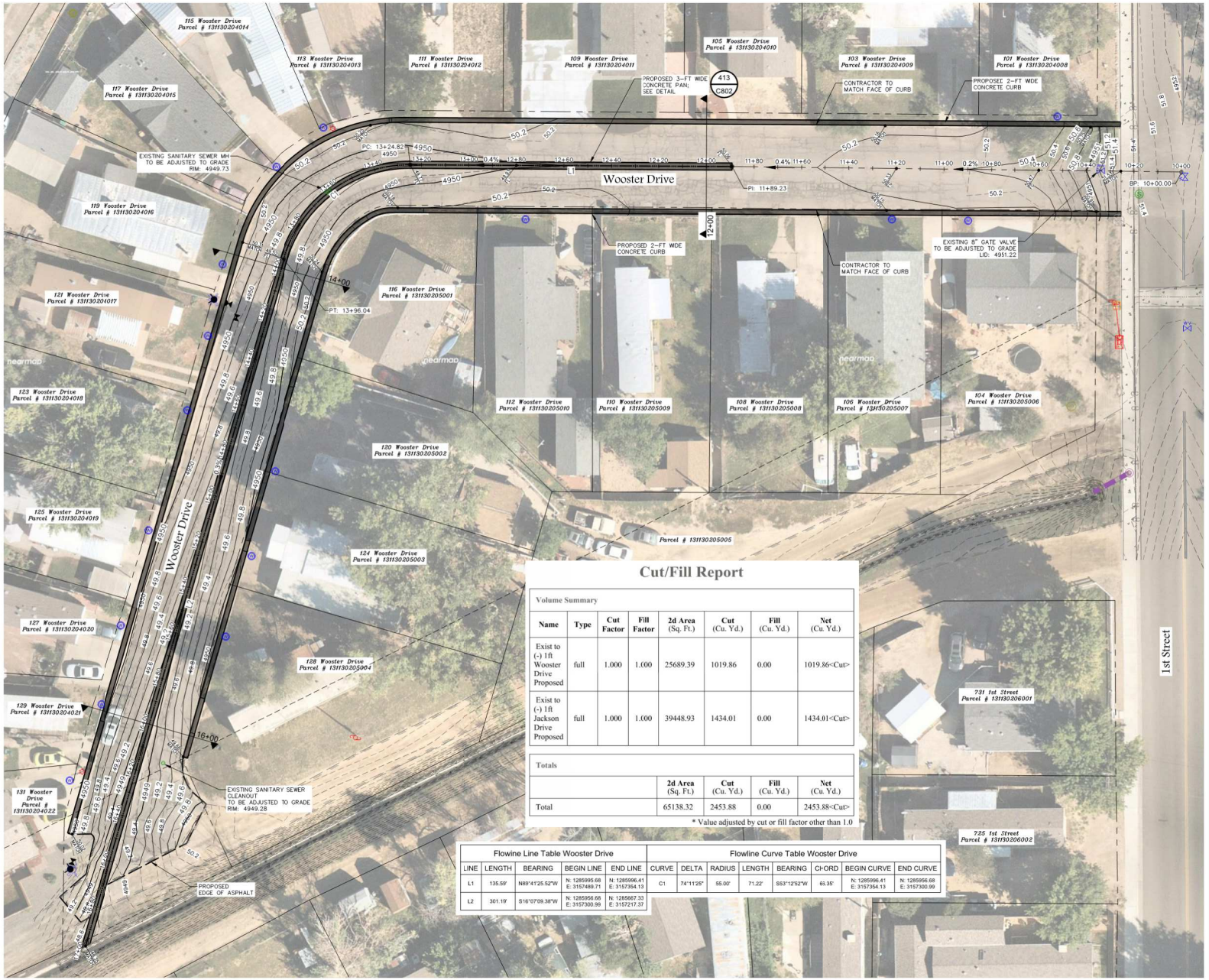
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER
C601

SHEET INDEX: 28

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline Connection.dwg Tuesday, June 14, 2022 11:30 AM By: Rhonda Bunner



Cut/Fill Report

Volume Summary

Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Exist to (-) 1ft Wooster Drive Proposed	full	1.000	1.000	25689.39	1019.86	0.00	1019.86<Cut>
Exist to (-) 1ft Jackson Drive Proposed	full	1.000	1.000	39448.93	1434.01	0.00	1434.01<Cut>

Totals

	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	65138.32	2453.88	0.00	2453.88<Cut>

* Value adjusted by cut or fill factor other than 1.0

Flowine Line Table Wooster Drive				
LINE	LENGTH	BEARING	BEGIN LINE	END LINE
L1	135.59'	N89°41'25.52"W	N: 1285995.68 E: 3157489.71	N: 1285996.41 E: 3157354.13
L2	301.19'	S16°07'09.38"W	N: 1285956.68 E: 3157300.99	N: 1285667.33 E: 3157217.37

Flowline Curve Table Wooster Drive								
CURVE	DELTA	RADIUS	LENGTH	BEARING	CHORD	BEGIN CURVE	END CURVE
C1	74°11'25"	55.00'	71.22'	S53°12'52"W	66.35'	N: 1285996.41 E: 3157354.13	N: 1285956.68 E: 3157300.99

20' 0 20' 40' 60'

SCALE: 1" =20'
(True scale for 22x34 sheet size)

KEYMAP
NTS

LEGEND:

- EXISTING CONTOUR — 4987
- PROPOSED CONTOUR — 4944
- EXISTING ROAD CENTERLINE
- EXISTING CONCRETE PAN
- PROPOSED FLOWLINE ELEVATION — 33.42 FL
- PROPOSED ELEVATION MATCH EXISTING — 33.42 MATCH
- PROPOSED SLOPES — 2.0%

NOTES:

1. ALL ASPHALT PATCHING AND CONCRETE CURB AND GUTTER QUANTITIES WILL BE MEASURED AND PAID FOR AS UNIT-PRICE QUANTITIES. CONTRACTOR TO NOTE FIELD-MARKINGS TO CONFIRM LAYOUT IN FIELD.
2. REMOVAL OF CONCRETE SHALL EXTEND TO THE NEAREST JOINT.
3. ALL EXISTING VALVES, MANHOLE, ETC SHALL BE PROTECTED IN PLACE. NEW VALVES SHALL BE ADJUSTED TO GRADE.
4. REMOVE LOOSE AND FOREIGN MATERIAL FROM SURFACE IMMEDIATELY BEFORE APPLICATION OF PAVING. CLEAN SURFACE WITH MECHANICAL SWEEPER, BLOWER OR HAND BROOMS UNTIL SURFACES ARE FREE FROM DUST.
5. ASPHALT GRADE S AND Sx FOR BASE AND TOP LIFT RESPECTIVELY.
6. REPLACEMENT OF CONCRETE SHALL EXTEND TO THE NEAREST JOINT.
7. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI WITH 1.5 LBS/CU °D FIBERMESH.
8. SEE SHEET C703 FOR CROSS SECTIONS.

TOWN OF FIRESTONE DRAWING APPROVAL

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TOWN ENGINEER

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Fort Collins, Colorado 80525
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PROFESSIONAL ENGINEER

No	Revisions:	By	Date
1	Addendum 2		04-27-22

WOOSTER DRIVE
SURFACE RESTORATION PLAN

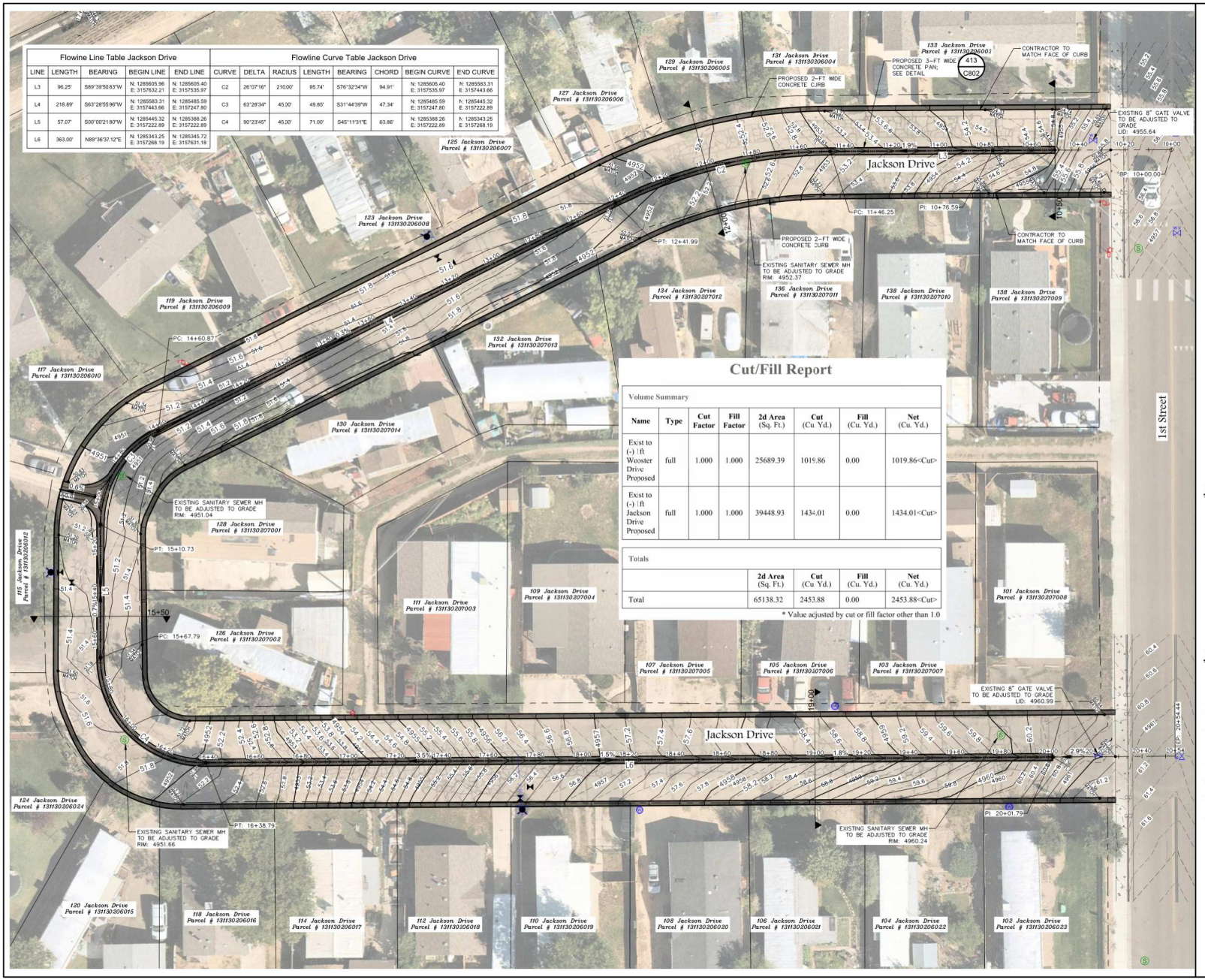
DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 20'
FILE NAME: Firestone-Grading Plan.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540
SHEET NUMBER: C701
SHEET INDEX: 29

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Grading Plan.dwg Tuesday, June 14, 2022 11:31 AM By: Rhonda Bunner



Flowline Line Table Jackson Drive				
LINE	LENGTH	BEARING	BEGIN LINE	END LINE
L3	96.25'	S89°39'50.83"W	N: 1285605.96 E: 3157632.21	N: 1285605.40 E: 3157535.97
L4	218.89'	S63°28'55.96"W	N: 1285583.31 E: 3157443.66	N: 1285485.59 E: 3157247.80
L5	57.07'	S00°00'21.80"W	N: 1285445.32 E: 3157222.89	N: 1285388.26 E: 3157222.89
L6	363.00'	N89°36'37.12"E	N: 1285343.25 E: 3157268.19	N: 1285345.72 E: 3157631.18

Flowline Curve Table Jackson Drive							
CURVE	DELTA	RADIUS	LENGTH	BEARING	CHORD	BEGIN CURVE	END CURVE
C2	26°07'16"	210.00'	95.74'	S76°32'34"W	94.91'	N: 1285605.40 E: 3157535.97	N: 1285583.31 E: 3157443.66
C3	63°28'34"	45.00'	49.85'	S31°44'39"W	47.34'	N: 1285485.59 E: 3157247.80	h: 1285445.32 E: 3157222.89
C4	90°23'45"	45.00'	71.00'	S45°11'31"E	63.86'	N: 1285388.26 E: 3157222.89	h: 1285343.25 E: 3157268.19

Cut/Fill Report

Volume Summary

Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Exist to (-) Ift Wooster Drive Proposed	full	1.000	1.000	25689.39	1019.86	0.00	1019.86<Cut>
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Totals

	2d Area (Sq. Ft.)	Cut (Cu Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	65138.32	2453.88	0.00	2453.88<Cut>

* Value adjusted by cut or fill factor other than 1.0

20' 0 20' 40' 60'

SCALE: 1" =20'
(True scale for 22x34 sheet size)



KEYMAP
NTS

LEGEND:

EXISTING CONTOUR 4987
PROPOSED CONTOUR 4944
EXISTING ROAD CENTERLINE
EXISTING CONCRETE PAN
PROPOSED FLOWLINE ELEVATION 33.42
PROPOSED ELEVATION MATCH EXISTING 33.42 MATCH
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TOWN OF FIRESTONE DRAWING APPROVAL

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Sheet Revisions			
No	Revisions:	By	Date
1	Addendum 2	DT	6-17-22

JACKSON DRIVE
SURFACE RESTORATION PLAN

DESIGNED BY: J. Woodridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 20'
FILE NAME: Firestone-Grading Plan.dwg

TOWN OF FIRESTONE, COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

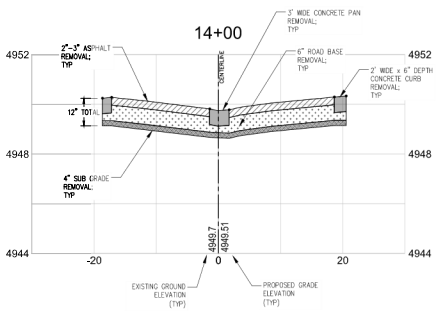
FIRESTONE COLORADO

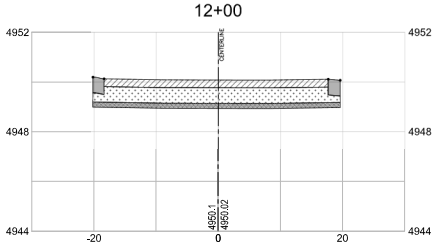
PROJECT NUMBER: W2021-9540
SHEET NUMBER C702
SHEET INDEX: 30

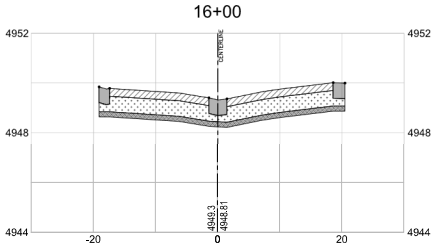
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Grading Plan.dwg Tuesday, June 14, 2022 11:31 AM By: Rhonda Bunner

WOOSTER DRIVE DEMO CROSS SECTION

SCALE : 1" = 10' HORIZONTAL 1" = 2' VERTICAL

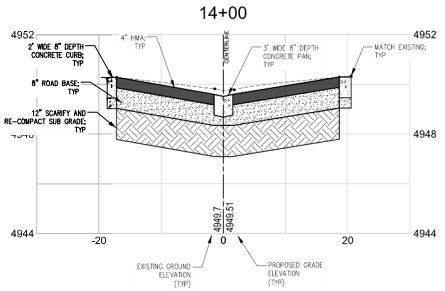


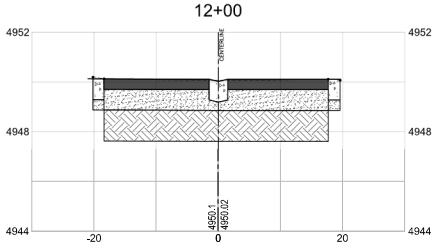


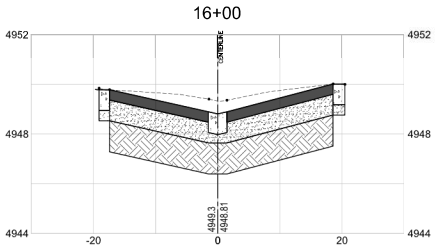


WOOSTER DRIVE PROP. CROSS SECTION

SCALE : 1" = 10' HORIZONTAL 1" = 2' VERTICAL

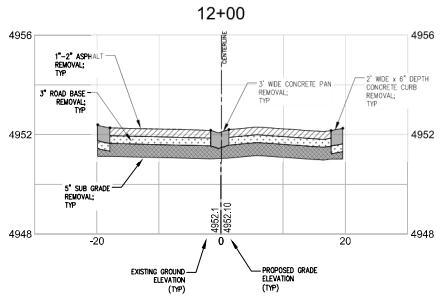


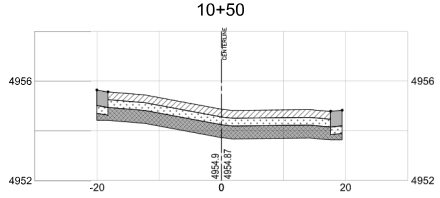


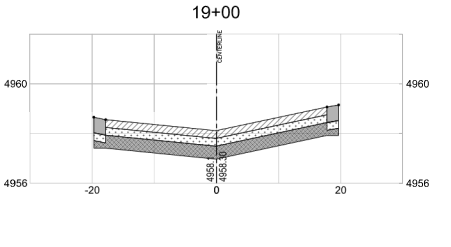


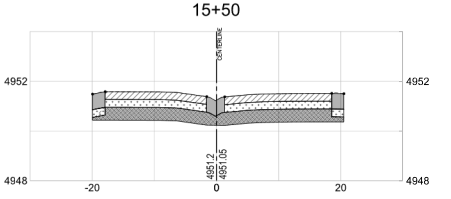
JACKSON DRIVE DEMO CROSS SECTION

SCALE : 1" = 10' HORIZONTAL 1" = 2' VERTICAL



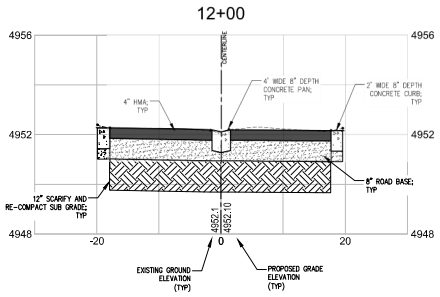


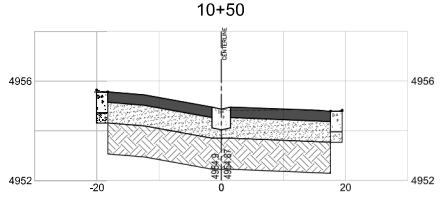


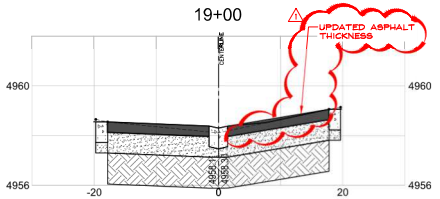


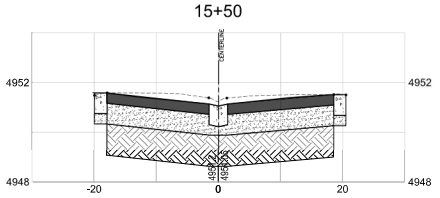
JACKSON DRIVE PROP. CROSS SECTION

SCALE : 1" = 10' HORIZONTAL 1" = 2' VERTICAL









TOWN OF FIRESTONE DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____

TOWN ENGINEER

dtesco
Project & Construction Services
2130 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5968
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COLORADO LICENSED PROFESSIONAL ENGINEER 53283

No	Sheet Revisions	By	Date
1	Addendum 2	AK	7-22

WOOSTER DRIVE & JACKSON DRIVE
TYPICAL CROSS SECTIONS

DESIGNED BY: J. Woolridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: 1" = 10'
FILE NAME: Firestone-Cross Sections.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

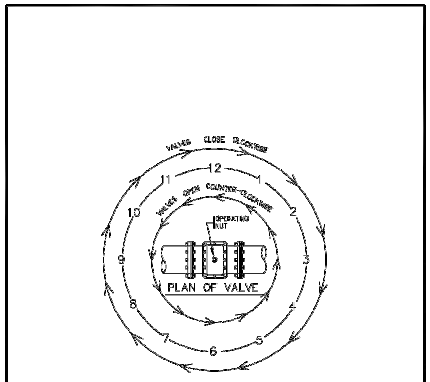
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER C703

SHEET INDEX: 31

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Cross Sections.dwg Friday, July 08, 2022 9:05 AM By: Rhonda Bunner

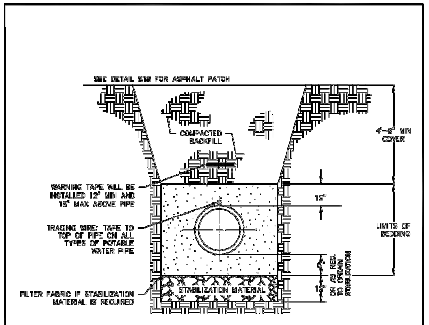


NOTES:
1. NORMALLY VALVES WITH A BLOCK OPERATING NUT INDICATE A STANDARD PENTAGONE WRENCH (OPENS LEFT).

VALVE OPERATION

FIRESTONE COLORADO	WATER CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: W1

400 C801 VALVE OPERATION — NOT TO SCALE

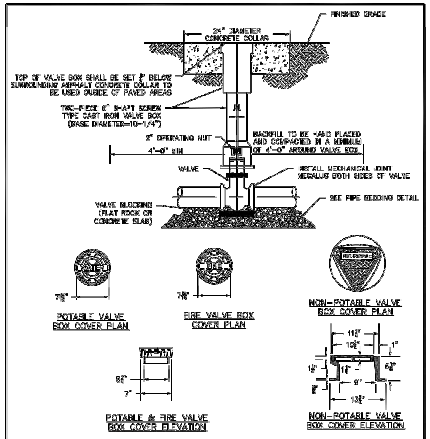


NOTES:
1. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
2. #12 AWG, SINGLE STRAND INSULATED COPPER WIRE SHALL BE INSTALLED AS TRACING WIRE ABOVE ALL POTABLE WATER PIPES. THE WIRE SHALL BE CONNECTED AND COME TO THE SURFACE BEHIND THE FIRE HYDRANTS IN A TESTBOX.
3. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
4. TRENCH TO BE SHORED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
5. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
6. TRENCH WIDTH SHALL NOT BE MORE THAN 24" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.

WATER TRENCH DETAIL

FIRESTONE COLORADO	WATER CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: W2

401 C801 WATER TRENCH DETAIL — NOT TO SCALE

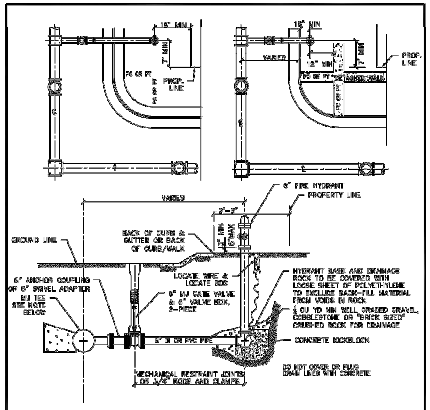


NOTES:
1. POTABLE & FIRE VALVE BOX I.D. BEING MARKED "WTR" UPPER VALVE BOX SECTION.
2. NON-POTABLE VALVE BOX LID IS SIZED OVER THE TOP OF THE LOWER VALVE BOX SECTION.
3. NON-POTABLE, WATER OR FIRE CAST IN TOP OF APPROPRIATE VALVE BOX COVER.
4. VALVE BOX SHALL NOT BE SUPPORTED BY WATER LINE.
5. VALVE BOX TO BE PLUMB AND CENTERED OVER NUT.
6. UTILIZING A VALVE BOX ADJUSTMENT RISER IS OPTIONAL.
7. IF 2" OPERATING NUT IS MORE THAN 18" BELOW FINISHED GRADE, A VAULT NUT EXTENDER SHALL BE INSTALLED TO PUT THE VALVE NUT AT AN ELEVATION OF 6" BELOW FINISHED GRADE.

STANDARD VALVE AND BOX

FIRESTONE COLORADO	WATER CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: W3

402 C801 STANDARD VALVE AND BOX — NOT TO SCALE

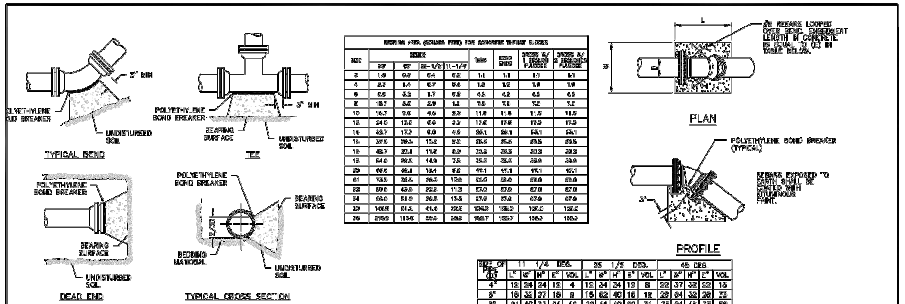


NOTES:
1. ALTERNATE TO THE ABOVE: FASTEN MJ VALVE DIRECTLY TO A MJ ANCHOR TEE (ALSO CALLED SWIVEL TEE)
2. NO HORIZONTAL OR VERTICAL BENDS ARE ALLOWED IN FIRE HYDRANT BRANCH ON SPRINKLER LINES
3. MAXIMUM OF ONE FIRE HYDRANT EXTENSION
4. CONTRACTOR TO TAKE CARE NOT TO BLOCK WEEP HOLES
5. ALL DUCTILE IRON PIPE TO BE POLYETHYLENE WRAPPED

FIRE HYDRANTS, MAINS AND VALVES

FIRESTONE COLORADO	WATER CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: W6

403 C801 FIRE HYDRANTS, MAINS AND VALVES — NOT TO SCALE



SIZE	BEND 22½°	BEND 45°	BEND 90° (11-1/4")	TEE	CROSS	BEARING AREA (SQ. FT.) FOR 2,000 PSF SOIL	BEARING AREA (SQ. FT.) FOR 4,000 PSF SOIL
3	1.0	0.2	0.4	0.2	1.1	1.1	0.1
4	0.2	1.1	0.7	0.4	1.2	1.2	1.0
6	0.5	2.3	1.7	0.8	4.5	4.2	4.5
8	10.7	5.2	2.9	1.2	7.5	7.5	7.2
10	16.7	9.5	4.5	2.2	11.9	11.5	11.5
12	24.0	13.5	6.4	3.2	17.0	16.8	17.2
14	49.7	17.2	8.9	4.5	86.1	86.9	84.1
16	37.5	20.5	11.2	5.2	85.0	85.2	87.5
18	49.7	27.4	11.6	6.2	23.3	23.3	23.3
20	64.0	35.5	14.9	7.5	25.3	25.5	23.9
24	90.5	45.2	19.1	9.5	43.1	47.3	45.1
30	143.5	70.5	29.2	15.0	63.5	63.6	61.9
36	206.5	103.5	42.2	21.3	87.0	87.0	87.0
54	464.0	231.0	96.0	47.5	87.0	87.0	87.0
72	1408	411.5	170.5	84.5	87.0	87.0	87.0
96	2150	1134	470.5	233	87.0	87.0	87.0

SIZE OF PIPE (IN)	11 1/4° DEG.					22 1/2° DEG.					45 DEG				
	L'	W'	H'	I'	VOL	L'	W'	H'	I'	VOL	L'	W'	H'	I'	VOL
4"	18	24	24	15	4	18	24	24	15	6	22	37	33	20	15
6"	19	36	27	18	8	19	52	30	18	22	24	36	36	22	23
8"	21	40	33	21	16	23	51	40	22	31	36	64	38	26	56
12"	24	50	36	24	33	30	86	48	26	69	48	72	56	40	90
18"	31	38	39	31	36	36	70	48	32	72	60	90	90	45	126

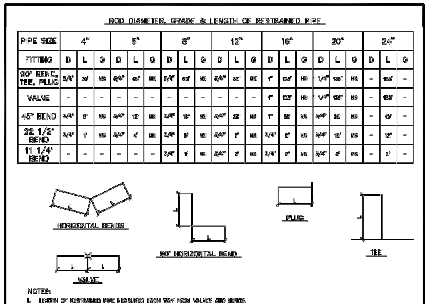
NOTES:
1. REFER TO CONCRETE THRUST BLOCK TABLE FOR MINIMUM BEARING SURFACE AREAS.
2. ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE.
3. PIPE INSTALLED UNDER CONDITIONS DIFFERENT FROM THOSE NORMALLY ENCOUNTERED SHALL REQUIRE THRUST BLOCKS DESIGNED FOR THOSE PARTICULAR CONDITIONS.
4. THRUST BLOCKS ON PIPE LARGER THAN 12" SHALL BE DESIGNED FOR CONDITIONS EXISTING AT THE INSTALLATION SITE.
5. REFER TO SECTION C0005 FOR CONCRETE REQUIREMENTS.
6. CALCULATION MADE FOR TI-95 TABLE ASSUME:
   150 P.S.I. INTERNAL STATIC PRESSURE
   1,000 P.S.F. SOIL BEARING CAPACITY
   1.5 FACTOR OF SAFETY
7. FOR STATIC PRESSURES GREATER THAN 150 P.S.I. AND/OR SOIL BEARING CAPACITY LESS THAN 1,000 P.S.F., THE DESIGN ENGINEER SHALL PROVIDE SPECIFIC CALCULATIONS FOR REVIEW AND APPROVAL.
8. ALL CONCRETE SHALL BE 4000 P.S.I. MINIMUM.

VERTICAL THRUST BLOCK NOTES:
1. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED EARTH. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND SHOULD NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.
2. VOLUME IS IN CUBIC FEET.
3. ALL CONCRETE TO BE MIXED FULL MIX.
4. BLOCKS TO BE CENTERED HORIZONTALLY ON THE BEND.
5. DESIGN BASED ON A TEST PRESSURE OF 150 P.S.I. AND SAFETY FACTOR (S_F) OF 1.5
6. $V_B = S_F \times PR \times \sin\theta$
   γ_m
7. γ_m= 140 # / FT^3
8. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING THE ACTUAL SITE CONDITIONS WITH RESPECT TO THE ASSUMPTIONS LISTED ABOVE.

CONCRETE THRUST BLOCK DETAIL

FIRESTONE COLORADO	WATER CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: W16

404 C801 CONCRETE THRUST BLOCK — NOT TO SCALE



ROD DIAMETERS, GRADE & LENGTH OF RESTRAINED PIPE

PIPE SIZE	4"			6"			8"			12"			16"			20"			24"		
FITTING	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G
90° BEND OR TEE, PLUG	3/4"	30'	HR	3/4"	40'	HR	3/4"	50'	HR	3/4"	60'	HR	1"	60'	HR	1"	100'	HR	-	-	-
VALVE	-	-	-	-	-	-	-	-	-	-	-	-	1"	60'	HR	1-1/4"	100'	HR	-	-	-
45° BEND	3/4"	0'	HR	3/4"	12'	HR	3/4"	16'	HR	3/4"	22'	HR	1"	22'	HR	1-1/4"	36'	HR	-	-	-
22 1/2° BEND	3/4"	0'	HR	3/4"	6'	HR	3/4"	8'	HR	3/4"	11'	HR	3/4"	8'	HR	1"	18'	HR	-	-	-
11 1/4° BEND	-	-	-	-	-	-	-	-	-	3/4"	5'	HR	3/4"	4'	HR	1"	9'	HR	-	-	-

NOTES:
1. LENGTH OF RESTRAINED PIPE DESIGNED FROM VALVE AND BENDS.
2. FLANGE AND BOLT NOT ALLOWED FOR 24" & LARGER PIPE.
3. R=RESISTOR, L=LENGTH, C=CHAIR, HR=HOT ROLL, HS=HIGH STRENGTH.
4. USE 4.5" OUTSIDE CONES FOR:
5. RODS ON BELL INTERNAL PRESSURE.
6. HR = HOT ROLL STEEL, SAE AISI A 36.
7. HS = HIGH STRENGTH SAE AISI A 193 GRADE B7.
8. MAIN SIGNAL BLOCKS & TOP STRUT & ON 8 INCHES HEAVY MORE, NO BOTH SIDE. ADHERE TO SIZE.
9. LENGTH REFERS TO THE AMOUNT OF PIPE WHICH ARE RESTRAINED TOGETHER.
10. LENGTH OF RESTRAINED PIPE GIVEN IS ALSO FOR THE LENGTH OF JOINT RESTRAINT FOR EXPANSION.
11. TWICE A GREATER SIZE BE RESTRAINED IN ALL APPLICABLE DIRECTIONS.
12. 90° AND SMALLER BENDS VALVES AND TEES MAKE USE A DIAMETRICAL JOINT RESTRAINT SHOWN ON SIZE SIDE OF THE FITTING OR VALVE.
13. A SECOND VALVE WILL BE NEED TO BE CLOSED WHEN ENCOUNTER NEXT TO A JOINT VALVE.
14. ROD DIAMETERS AND SIZES OF BOLTS, NUTS AND LUGS FOR THE LENGTH OF RESTRAINT SHALL BE SHOWN ON THE ENDS OF THE PIPE NOT BY THE SIZE OF THE VALVE.
15. ALL MECHANICAL/SWIVEL JOINTS SHALL HAVE MECHANICAL RESTRAINT MEANS ON EACH SIDE OF FITTING.
16. ROD JOINT RESTRAINT MAY BE ACCOMPLISHED WITH HARNESS RODS, MECHANICAL JOINT RESTRAINT OR RESTRAINED JOINT PIPE AND FITTINGS.
17. ALL ANALYSES OF THE NECESSARY RESTRAINT LENGTH FOR PIPE LARGER THAN 24" SHALL BE SUBMITTED TO THE TOWN ENGINEER FOR REVIEW AND APPROVAL OR A WAIVER BY-CASE BASIS.

RESTRAINED PIPE LENGTHS

FIRESTONE COLORADO	WATER CONSTRUCTION DRAWINGS	BY: JME SCALE: NTS DATE: 1/2020	DRAWING: W20

405 C801 RESTRAINED PIPE LENGTHS — NOT TO SCALE

TOWN OF FIRESTONE DRAWING APPROVAL

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BY _____ DATE _____
TOWN ENGINEER — NOT TO SCALE

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Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5668
www.ditescoservices.com

COLORADO LICENSED
Jeffrey M. Eckert
PROFESSIONAL ENGINEER

No.	Sheet Revisions / Revisions	By: Date
1	Addendum 2	JME 3/17/22

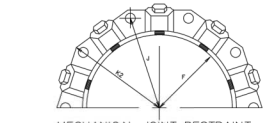
GENERAL DETAILS

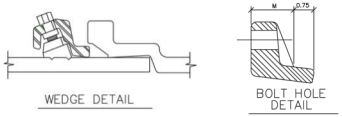
TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

DESIGNED BY: J. Woodbridge
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: NTS
FILE NAME: FirestoneWaterline Details.dwg

PROJECT NUMBER: W2021-9540
SHEET NUMBER: C801
SHEET INDEX: 32

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline Details.dwg Friday, July 08, 2022 2:43 PM By: Rhonda Bunner





DIMENSIONS

	NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES	
PVC	4"	2	2					PVC
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	
DI	4"	4	2					DI
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	

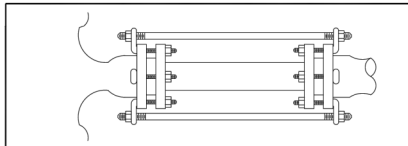
NOTES:
1. DIMENSIONS FOR 16" AND 20" D.I. PIPE NOT SHOWN.
2. OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.

MECHANICAL JOINT RESTRAINT DETAIL

FIRESTONE COLORADO | WATER CONSTRUCTION DRAWINGS | BY: JME | SCALE: NTS | DATE: 1/2020 | DRAWING: W23

406 C802 MECHANICAL JOINT RESTRAINT

NOT TO SCALE



DIMENSIONS

ALLOWABLE PIPE DIAMETER INCHES	BOLT SIZE	NO . OF BOLTS REQUIRED
4	3/4"	2
6	3/4"	2
8	3/4"	2
10	3/4"	4
12	3/4"	6

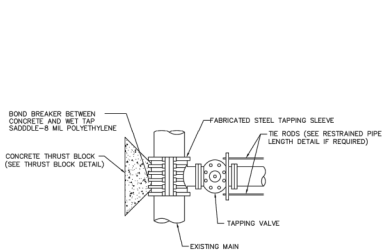
NOTES:
1. THE BOLT SHALL BE MANUFACTURED OF "COR-TEN" OR APPROVED EQUAL.
2. THE BOLT MAY BE HEAT TREATED.

JOINT RESTRAINT DETAIL

FIRESTONE COLORADO | WATER CONSTRUCTION DRAWINGS | BY: JME | SCALE: NTS | DATE: 1/2020 | DRAWING: W25

407 C802 JOINT RESTRAINT DETAIL

NOT TO SCALE



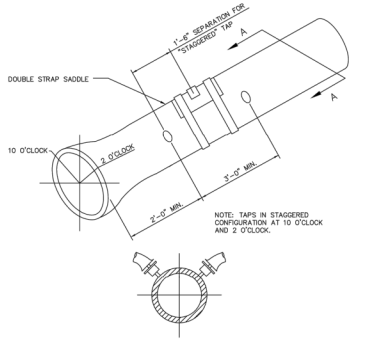
NOTES:
1. FABRICATED STEEL TAPPING SLEEVE SHALL BE:
ROMAC FTS419 OR APPROVED EQUAL TO BE USED FOR PVC UP TO 75% OF EXISTING MAIN
ROMAC FTS420 OR APPROVED EQUAL TO BE USED FOR DIP UP TO 75% OF EXISTING MAIN
ROMAC FTS425 OR APPROVED EQUAL TO BE USED ON ALL AC PIPE AND ANYTIME A BRANCH LINE IS GREATER THAN 75% OF EXISTING MAIN

TAPPING TEE AND VALVE

FIRESTONE COLORADO | WATER CONSTRUCTION DRAWINGS | BY: JME | SCALE: NTS | DATE: 1/2020 | DRAWING: W27

408 C802 TAPPING TEE AND VALVE

NOT TO SCALE



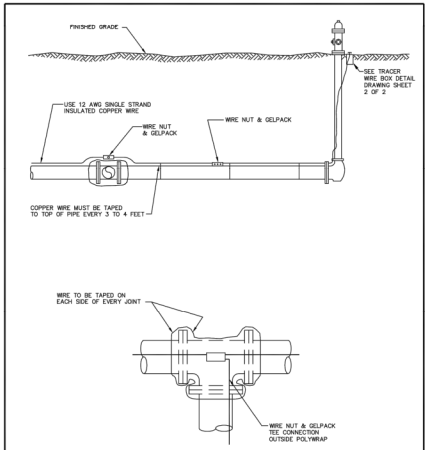
NOTE:
SERVICE TAP – WATER SERVICE TAP SHALL BE MADE AT EITHER THE 2 O'CLOCK OR THE 10 O'CLOCK POSITION ON THE CIRCUMFERENCE OF A WATER MAIN. THE MINIMUM DISTANCE BETWEEN A TAP MADE AT THE 2 O'CLOCK POSITION AND THE ONE MADE A THE 10 O'CLOCK POSITION SHALL BE 18" MEASURED ALONG THE PIPE. THE MINIMUM DISTANCE BETWEEN SUCCESSIVE TAPS MADE EITHER AT THE 2 O'CLOCK OR THE 10 O'CLOCK POSITION SHALL BE 3'. THE MINIMUM DISTANCE FROM EITHER THE BELL OR SPIGOT END OF A PIPE TO TAP SHALL BE 2'. A MAXIMUM OF 4 WATER SERVICE TAPS SHALL BE ALLOWED PER LENGTH OF PIPE. DOUBLE STRAP SADDLE (ROMAC 202B OR APPROVED EQUAL) SHALL BE USED FOR ALL SERVICE TAPS.

DOMESTIC WATER TAPPING DETAIL

FIRESTONE COLORADO | WATER CONSTRUCTION DRAWINGS | BY: JME | SCALE: NTS | DATE: 1/2020 | DRAWING: W28

409 C802 DOMESTIC WATER TAPPING

NOT TO SCALE

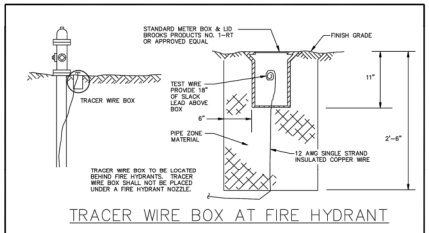


TRACER WIRE (1 OF 2)

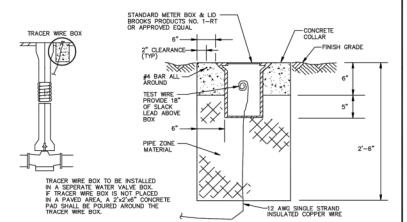
FIRESTONE COLORADO | WATER CONSTRUCTION DRAWINGS | BY: JME | SCALE: NTS | DATE: 1/2020 | DRAWING: W33A

410 C802 TRACER WIRE 1 OF 2

NOT TO SCALE



TRACER WIRE BOX AT FIRE HYDRANT



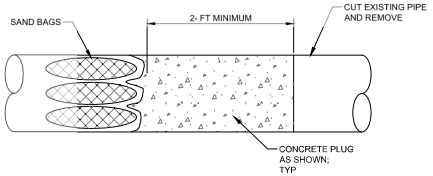
TRACER WIRE BOX FOR AREA WITH NO FIRE HYDRANT

TRACER WIRE (2 OF 2)

FIRESTONE COLORADO | WATER CONSTRUCTION DRAWINGS | BY: JME | SCALE: NTS | DATE: 1/2020 | DRAWING: W33B

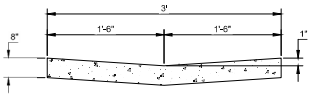
411 C802 TRACER WIRE 2 OF 2

NOT TO SCALE



412 C802 PIPE ABANDONMENT DETAIL

NOT TO SCALE



413 C802 3-FT CONCRETE PAN

NOT TO SCALE

TOWN OF FIRESTONE
DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

dtesco
Project & Construction Services
2130 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5968
www.dtescoservices.com

COLORADO LICENSED PROFESSIONAL ENGINEER 53283

Sheet Revisions

No	Revisions:	By	Date
1	Addendum 2	JME	6-17-22

GENERAL DETAILS

DESIGNED BY: J. Woodridge | DATE: June 17, 2022
DRAWN BY: R. Bunner | SCALE: NTS
APPROVED BY: J. Burrell | FILE NAME: Firestone-Waterline Details.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

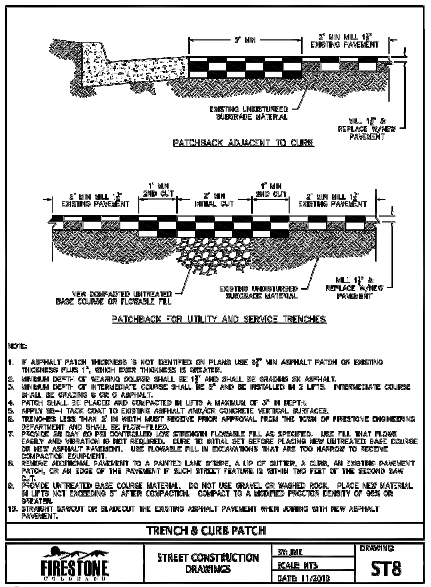
FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER C802

SHEET INDEX: 33

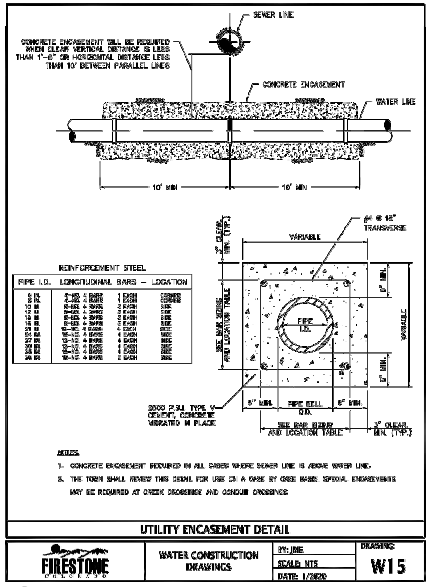
Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline Details.dwg Friday, July 08, 2022 2:43 PM By: Rhonda Bunner



414 C803

TRENCH & CURB PATCH

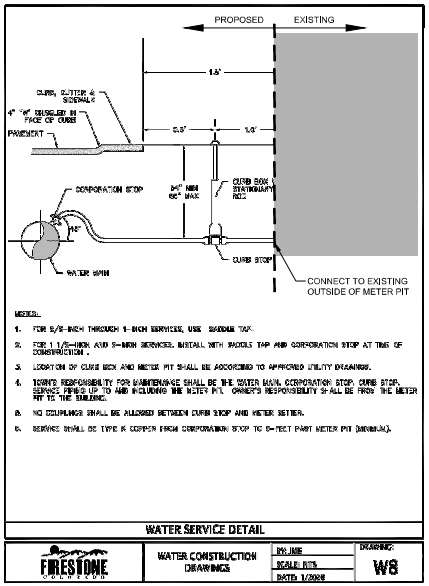
NOT TO SCALE



415 C803

UTILITY ENCASEMENT DETAIL

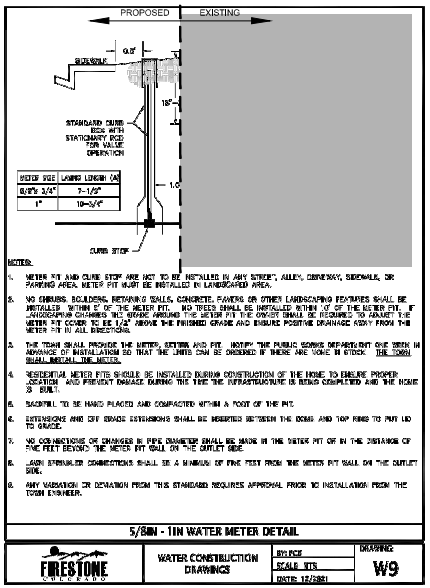
NOT TO SCALE



416 C803

WATER SERVICE DETAIL

NOT TO SCALE



417 C803

5/8IN - 1IN WATER METER DETAIL

NOT TO SCALE

TOWN OF FIRESTONE
DRAWING APPROVAL

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BY _____ DATE _____
TOWN ENGINEER

ditesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5668
www.ditescoservices.com

COLORADO LICENSED
Christina Lee Bunnell
30082
PROFESSIONAL ENGINEER

No.	Sheet Revisions / Revisions	By	Date
1	Addendum 2	JB	3/7/22

GENERAL DETAILS

DESIGNED BY: A. Woodridge
DRAWN BY: R. Bunker
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: NTS
FILE NAME: FirestoneWaterline Details.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER: W2021-9540

SHEET NUMBER
C803

SHEET INDEX: 34

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Waterline Details.dwg Friday, July 08, 2022 2:43 PM By: Rhonda Bunner

GROUND ENGINEERING

LOGS OF THE TEST HOLES

CLIENT: Ditesco Services
JOB NO: 22-0005
PROJECT NAME: Town of Firestone Waterlines
PROJECT LOCATION: Firestone, CO

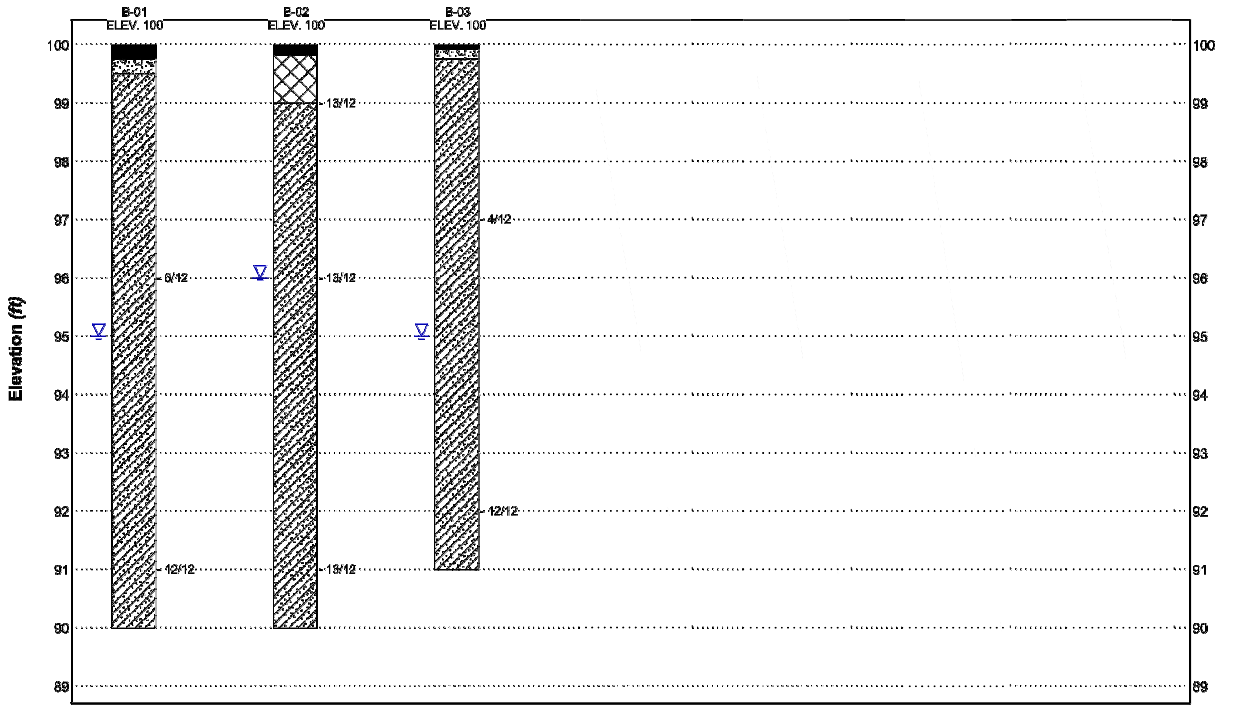

Figure #2

500
C901
EXPLORATORY BORING LOGS
NTS

TOWN OF FIRESTONE
DRAWING APPROVAL

ALL WORK SHALL BE CONSTRUCTED TO TOWN OF FIRESTONE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND SPECIFICATIONS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

BY _____ DATE _____
TOWN ENGINEER

ditesco
Project & Construction Services
2120 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5968
www.ditescoservices.com

COLORADO LICENSED
CERTIFIED
PROFESSIONAL ENGINEER
20213
CHRISTOPHER M. GOETZ

Sheet Revisions

No.	Revisions	By	Date
1	Addendum 2		5/17/22

SUMMARY LOGS OF
EXPLORATORY BORINGS

DESIGNED BY: A. Woodbridge
DRAWN BY: R. Bulmer
APPROVED BY: J. Burrell
DATE: June 17, 2022
SCALE: NTS
FILE NAME: Firestone-Geotech Details.dwg

TOWN OF FIRESTONE COLORADO
PROJECT #1 - HISTORIC WATERLINE REPLACEMENT

FIRESTONE COLORADO

PROJECT NUMBER:
W2021-9540

SHEET NUMBER
C901

SHEET INDEX: 35

Drawing Name: D:\Projects\Firestone Waterline\Dwg\Sheets\Firestone-Geotech Details.dwg Tuesday, May 31, 2022 3:31 PM By: Rhonda Bulmer

AGENDA INFORMATION MEMORANDUM

FIRESTONE
TOWN BOARD OF TRUSTEES

AIM#: 8.g

Discussion/Action

Meeting Date: July 27, 2022

Initiated By: Nate Haasis

Dept: Engineering - Town

AGENDA TITLE

Resolution 22-92: A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING AN AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND DITESCO LLC FOR PRE-CONSTRUCTION BIDDING ASSISTANCE AND CONSTRUCTION ADMINISTRATION SERVICES FOR THE HISTORIC FIRESTONE WATER LINE REPLACEMENT PROJECT NO. 1

SUMMARY

On February 9th, 2022, the Board approved a professional services agreement with Ditesco to design water and surface infrastructure improvements in Historic Firestone. Project #1 of those plans was advertised in a Request for Bids that was issued on June 21, 2022. After reviewing the bids, staff determined Northern Colorado Constructors to be the lowest responsible bidder and to accept Base Bid, Alternate #1, and Alternate #4 for a total not to exceed the amount of $1,337,158.50.

Ditesco worked as the design engineer on the project and submitted a proposal for construction management to assist the Town during construction. That proposal is $55,906.00. Ditesco will provide full project documentation of the deliverables listed below:

- Bid Documents and Addenda
- Bid Phase Meeting Agendas
- Construction Phase Correspondence
- Construction Phase Meeting Agendas & Minutes
- Field Inspection Reports
- Review Contractor Pay Applications
- Approve Submittals and Request for Information
- Contractor Punch Lists
- Record Drawings
- Materials Testing

HISTORY AND PREVIOUS BOARD ACTION

On February 9th, 2022, the Board Approved Resolution 22-22, approving an agreement with Ditesco for the design of the water line and street replacement in Historic Firestone. On July 15, bids were received for the construction of the project. Resolution 22-94, presented to the board tonight and will award construction of the project to Northern Colorado Constructors if approved.

RECOMMENDATION

Staff recommends that the Board approve Resolution 22-92, a resolution approving the professional services agreement between the Town of Firestone and Ditesco for construction management for the Historic Waterline Replacement project.

ALTERNATIVES

The Board may choose not to approve Resolution 22-92 and provide Staff with additional direction.

ATTACHMENTS

1. Reso 22-92 Historic Firestone Waterline Project No 1 Bidding and Construction Contract Admn Ditesco
2. Contract_W2021-9540.02

FINANCIAL CONSIDERATIONS

This agreement includes an amount of $55,906.00 for construction management. Sufficient funds have been budgeted and appropriated from the Capital Projects Fund and Water Fund. The 2022 Budget included $1,401,500 for the Historic Firestone Water Line and Street Replacement. The total amount of this contract and the construction contract is $1,393,064.50.

RESOLUTION NO. 22-92

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO, APPROVING AN AGREEMENT BETWEEN THE TOWN OF FIRESTONE AND DITESCO LLC FOR PRE-CONSTRUCTION BIDDING ASSISTANCE AND CONSTRUCTION ADMINISTRATION SERVICES FOR THE HISTORIC FIRESTONE WATER LINE REPLACEMENT PROJECT NO. 1

WHEREAS, the Town of Firestone ("Town") is in need of professional services for pre-construction bidding and administration of the construction contract in connection with the Historic Firestone Water Lines Replacement Project No. 1 (the "Project"); and

WHEREAS, Ditesco LLC, which was awarded the bid for designing the Historic Firestone Water Lines Replacement Project No. 1, has the requisite skill, knowledge, and expertise to assist the Town in pre-construction bidding services and contract administration services during the construction phase of the Project.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

The Professional Services Agreement between the Town of Firestone and Ditesco LLC for Pre-Construction Bidding and Construction Contract Administration Services in connection with the Historic Firestone Water Lines Replacement Project No. 1 is approved in substantially the same form as the copy attached hereto and made a part of this resolution. The Mayor is authorized to execute the Agreement on behalf of the Town.

INTRODUCED, READ AND ADOPTED this 27th day of July, 2022.

TOWN OF FIRESTONE, COLORADO

_____
Drew Alan Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT FOR PROFESSIONAL SERVICES (the "Agreement") is made and entered into this _____ day of _____, 2022 (the "Effective Date"), by and between the **TOWN OF FIRESTONE**, a Colorado municipal corporation with an address of 151 Grant Avenue, P.O. Box 100, Firestone, Colorado 80520 (the "Town"), and **DITESCO**, an independent contractor with a principal place of business at 2133 s. Timberline Road, Unit 110, Fort. Collins, Colorado 80525 ("Contractor") (each a "Party" and collectively the "Parties").

WHEREAS, the Town requires professional services; and

WHEREAS, Contractor has held itself out to the Town as having the requisite expertise and experience to perform the required professional services.

NOW, THEREFORE, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. SCOPE OF SERVICES

A. Contractor shall furnish and perform all bidding assistance services and materials testing services which are described or reasonably implied from the Scope of Services set forth in **Exhibit A**, attached hereto and incorporated herein by this reference and known as: **Historic Waterline Bidding and Construction Phase Scope of Services (W2021-9540.02)**

B. A change in the Services shall not be effective unless authorized as an amendment to this Agreement. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum merit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

II. TERM AND TERMINATION

A. This Agreement shall commence on the Effective Date and shall continue until Contractor completes the Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

III. COMPENSATION

In consideration for the completion of the Services by Contractor, the Town shall pay Contractor on a time, materials and expenses basis, pursuant to the rate schedule set forth in Exhibit A, but in no event shall the total compensation to Contractor under this Agreement exceed $55,906.00. This amount shall include all fees, costs and expenses incurred by Contractor, and no additional amounts shall be paid by the

Town for such fees, costs and expenses. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

IV. PROFESSIONAL RESPONSIBILITY

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law. The work performed by Contractor shall be in accordance with generally accepted professional practices and the level of competency presently maintained by other practicing professional firms in the same or similar type of work in the applicable community. The work and services to be performed by Contractor hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations.

B. The Town's review, approval or acceptance of, or payment for any services shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

C. Because the Town has hired Contractor for its professional expertise, Contractor agrees not to employ subcontractors to perform any work except as expressly set forth in the Scope of Services.

V. OWNERSHIP

Any materials, items, and work specified in the Scope of Services, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Services constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change such work without providing notice to or receiving consent from Contractor.

If the Town reuses or makes any modification to Contractor's designs, documents or work product without the prior written authorization of Contractor, the Town agrees, to the fullest extent permitted by law, to release the Contractor, its officers, directors, employees and sub-consultants from all claims and causes of action arising from such uses, and shall indemnify and hold them harmless from all costs and expenses, including the cost of defense, related to claims and causes of action to the extent such costs and expenses arise from the Town's modification or reuse of the documents.

The Town expressly acknowledges and agrees that the documents and data to be provided by Contractor under the Agreement may contain certain design details, features and concepts from the Contractor's own practice detail library, which collectively may form portions of the design for the Project, but which separately, are, and shall remain, the sole and exclusive property of Contractor. Nothing herein shall be construed as a limitation on the Contractor's right to re-use such component design details, features and concepts on other projects, in other contexts or for other clients.

VI. INDEPENDENT CONTRACTOR

Contractor is an independent contractor. Notwithstanding any other provision of this Agreement, all personnel assigned by Contractor to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

VII. INSURANCE

A. 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 Contractor pursuant to this Agreement. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

3. Professional liability insurance with minimum limits of $1,000,000 each claim and $2,000,000 general aggregate.

B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Agreement.

VIII. INDEMNIFICATION

A. Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, 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 Agreement if such injury, loss, or damage is caused in whole or in part by, the act, omission, error, professional error, mistake, negligence, or other fault of Contractor, any subcontractor of Contractor, or any

officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor. Contractor's liability under this indemnification provision shall be to the fullest extent of, but shall not exceed, that amount represented by the degree or percentage of negligence or fault attributable to Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor.

B. If Contractor is providing architectural, engineering, surveying or other design services under this Agreement, the extent of Contractor's obligation to indemnify and hold harmless the Town may be determined only after Contractor'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).

IX. WORKERS WITHOUT AUTHORIZATION

A. Certification. By entering into this Agreement, Contractor hereby certifies that, at the time of this certification, it does not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who will perform work under this Agreement and that Contractor will participate in either the E-Verify Program administered by the United States Department of Homeland Security and Social Security Administration or the Department Program administered by the Colorado Department of Labor and Employment to confirm the employment eligibility of all employees who are newly hired to perform work under this Agreement.

B. Prohibited Acts. Contractor shall not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, to perform work under this Agreement, or enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, to perform work under this Agreement.

C. Verification.

1. If Contractor has employees, Contractor has confirmed the employment eligibility of all employees who are newly hired to perform work under this Agreement through participation in either the E-Verify Program or the Department Program.

2. Contractor shall not use the E-Verify Program or Department Program procedures to undertake pre-employment screening of job applicants while this Agreement is being performed.

3. If Contractor obtains actual knowledge that a subcontractor performing work under this Agreement knowingly employs or contracts with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Agreement, Contractor shall: notify the subcontractor and the Town within 3 days that Contractor has actual knowledge that the subcontractor is employing or contracting with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Agreement; and terminate the subcontract with the subcontractor if within 3 days of receiving the notice required pursuant to subsection 3 hereof, the subcontractor does not stop employing or contracting with the worker without authorization who is performing work under this Agreement; except that Contractor shall not terminate the subcontract if during such 3 days the subcontractor

provides information to establish that the subcontractor has not knowingly employed or contracted with a worker without authorization, as that term is defined in C.R.S. § 8-17.5-101(9), as amended, who is performing work under this Agreement.

D. Duty to Comply with Investigations. Contractor shall comply with any reasonable request by the Colorado Department of Labor and Employment made in the course of an investigation conducted pursuant to C.R.S. § 8-17.5-102(5)(a) to ensure that Contractor is complying with the terms of this Agreement.

X. MISCELLANEOUS

A. Governing Law and Venue. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Weld County, Colorado.

B. No Waiver. Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

C. Integration. This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. Third Parties. There are no intended third-party beneficiaries to this Agreement.

E. Notice. Any notice under this Agreement shall be in writing and shall be deemed sufficient when directly presented or sent pre-paid, first class United States Mail to the Party at the address set forth on the first page of this Agreement.

F. Severability. If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. Modification. This Agreement may only be modified upon written agreement of the Parties.

H. Assignment. Neither this Agreement nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. Governmental Immunity. The Town and its officers, attorneys and employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities or protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. Rights and Remedies. The rights and remedies of the Town under this Agreement are in addition to any other rights and remedies provided by law. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. Subject to Annual Appropriation. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual

appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

L. Representative Authority. Each person signing this Agreement represents and warrants that he or she is duly authorized and has the legal capacity to execute the Agreement.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

TOWN OF FIRESTONE, COLORADO

_____

Drew Peterson, Mayor

ATTEST:

_____
Jessica Koenig, CMC, Town Clerk

APPROVED AS TO FORM:

_____
William P. Hayashi, Town Attorney

CONTRACTOR

By: _____

Exhibit A
Historic Firestone Waterline
Bidding & Construction Phase
Scope of Services

Project Understanding

The Town of Firestone (Town) recently took ownership of water utility service within the Town of Firestone and is looking to replace approximately 2,200 lineal-feet of waterline within the Historic Downtown. This will be the firest of many projects planned to replace over 21,000 lineal-feet of deteriorated waterline within the Historic Downtown. The existing waterlines within the downtown are asbestos-cement pipe, varying between three to four inches in diameter. Project 1 consists of waterline replacement in Jackson Drive, Wooster Drive, and the alleyway north of Wooster Drive, west of First Street. Improvements include installation of a new 8-inch C900 PVC watermain and full depth road restoration.

The Town desires to construct this waterline in summer 2022. To support this waterline project, our proposed scope of services includes bidding assistance and engineering services during construction for the installation of these waterlines.

Phase: Bidding

- Ditesco staff will work with Firestone staff to assemble front-end bid documents. These documents will be included with the project manual and Project 1 Construction Drawings prepared during the design phase.
- Ditesco will attend one pre-bid meeting. It is anticipated this meeting will be held in the field for prospective contractors.
- Our team will work with the Town to prepare answers to questions during the bidding phase.

Phase: Construction

- Our team will manage and attend one (1) preconstruction meeting. This meeting is anticipated to be held in the field with the Owner and Contractor. For this meeting we will prepare meeting agendas and minutes.
- Ditesco staff will manage weekly construction phase progress meetings. For these meetings we will prepare agendas and meeting minutes. We have anticipated these meetings will be held via Microsoft Teams or another virtual meeting platform. We have assumed one meeting per week for fifteen (15) weeks.
- We will provide part time resident engineering/field inspection services, as requested, during construction. The construction duration is anticipated to last approximately 12 weeks. For this effort, we have anticipated two field visits per month at approximately five-hours per visit. During field visits, Ditesco will inspect construction work for conformance with the Contract Documents, discuss project and quality with the Contractor, provide clarifications and/or coordinate with the Owner's construction inspector, and photograph construction progress. We will document the progress of work during each field visit and provide a summary document to the Owner and Contractor.
- It is anticipated construction files will be managed on Ditesco's Procore site. For this effort, Ditesco will generate and maintain the project Procore site, provide access to the Contractor and Town for construction.
- During this phase our team will review RFIs and submittals. For this project, we are anticipating eighteen (18) submittals and six (6) RFIs. Submittals are anticipated for waterline components and surface restoration elements.
- We will subcontract with Ground Engineering to provide materials testing services during construction. These tests are anticipated to include soils proctors, soils gradation and compaction, concrete testing and

compressive strength cylinder creation, asphalt compaction, asphalt gradation and specific gravity laboratory testing. These quantities are based upon the Field Testing summary table included in Project Manual Specification Section 01 45 00, Section 1.13.

- Our staff will coordinate with the Contractor to schedule materials testing throughout the construction duration.

- Our team will provide contract administration including review of Contractor Pay Applications to ensure conformance with work completed to date. Upon completion of review, we will provide to the Town for processing and approval. As necessary, our team will review Contractor change orders and provide recommendations to the Town for approval.

- Ditesco staff will review Contractor-generated construction schedules on a monthly basis. Comments on the schedule and construction progression will be provided to the Contractor and Town.

- We will assist Firestone with project close out activities including the final punch list inspection. Our team has anticipated one (1) punch list walk per project street – Jackson Drive, Wooster Drive, and alleyway. We will generate a punch list for each location noting items that do not conform with the Contract Documents with photographs and narrative descriptions.

- Ditesco will provide final record drawings of the completed work. These record drawings will be generated from Contractor-provided redlined documents, following construction completion.

Deliverables:

Deliverables will include full project documentation furnished electronically as listed below.

- Bid Documents and Addenda
- Bid Phase Meeting Agendas
- Construction Phase Correspondence
- Construction Phase Meeting Agendas & Minutes
- Field Inspection Reports
- Contractor Pay Applications
- Approved Submittals and RFIs
- Construction Punch Lists
- Record Drawings

Schedule

The anticipated schedule is as follows.

Bidding/Contracting Phase	June – July 2022
Construction Phase	August – November 2022

Fee Estimate

We have based our fee estimate on the following assumptions of the project schedule.

- Materials testing to be provided according to specification section 01 45 00, Section 1.13.
- Field inspection and daily Contractor oversight by others.
- Bi-weekly site inspections.
- Other assumptions as stated within this document.

Bidding Phase:	**$ 2,594.00**
Construction Phase:	**$51,876.00**
ODCs:	**$ 1,436.00**
Total:	**$55,906.00**

A detailed task breakdown is included. Please find this on page 6 of this scope of work proposal.

The fee shown above is to be billed on a time and material basis based on the rates shown in the table on page 5 and 6 of this proposal. All reimbursable expenses will be billed at direct cost.

ditesco
Project & Construction Services

Ditesco
Town of Firestone
Engineering Services

2021-2022 Wage Rate Schedule

Principal:	$180.00 - $195.00 per hour
Project Manager:	$123.00 - $150.00 per hour
Construction Manager/Resident Engineer:	$97.00 - $123.00 per hour
Project/Design Engineer:	$90.00 - $135.00 per hour
Inspector:	$90.00 to $124.00 per hour
CAD Design:	$69.00 - $95.00 per hour
GIS Technician:	$70.00 – $85.00 per hour
Administrative:	$58.00 - $75.00 per hour
Mileage Reimbursement:	IRS Rate
Subconsultant Markup	5% of cost
All other costs at direct expense	
Terms	30 days net

ditesco
Project & Construction Services

Town of Firestone

Historic Firestone Waterlines Project - Project 1 Construction Services

5/26/2022

Phase/Task Description	Classification					Task Total	Comments
	Keith Meyer	Jill Burrell	D. Egger J. Wooldridge	Rhonda Bunner	Crystal Bidwell		
	Principal (hrs)	Senior Project Manager (hrs)	Design Engineer (hrs)	CAD Design (hrs)	Admin (hrs)		
	$190	$145	$120	$92	$70		
Bid Assistance						**$2,594**	
1.04 Bid Assistance							
- Bid Document Assembly	0	4	0	0	0	$580	
- Pre-bid meeting attendance	0	4	4	0	0	$1,060	
- Addenda Creation	0	2	4	2	0	$954	
Construction Management						**$51,876**	
1.02 Construction Progress Meetings							
- Preconstruction Meeting	0	4	4	0	0	$1,060	On-site Preconstruction meeting and site walk
- Weekly Construction Meetings	0	30	30	0	0	$7,950	Weekly meetings with Owner and Contractor
2.01 Resident Engineering							
- Document Management	0	2	10	0	2	$1,630	Setup and management of Procore Site
- Bi-weekly site inspection	0	8	40	0	0	$5,960	Anticipate two visits per month
- Review material test reports	0	2	10	0	0	$1,490	Compaction, Concrete, Asphalt test reports
2.02 Submittal Review	0	6	36	0	0	$5,190	Anticipate 18 submittals
2.03 Contract Management	0	4	8	0	4	$1,540	Contract Management, Contractor Pay App Review
2.04 RFI Response	0	6	14	0	0	$2,550	Anticipate 6 RFIs
2.05 Schedule Review	0	2	6	0	0	$1,010	
2.07 Project Close Out	0	4	10	12	0	$2,884	Record Drawings & Punch List
Materials Testing (Ground Engineering)						$20,612	Ground Engineering per Section 01 45 00
Other Direct Costs						**$1,436**	
Mileage & ODCs at 1.5%						$1,436	Assumes approximately 900 miles and 1.5% ODCs
Work Effort Total	**0**	**78**	**176**	**14**	**6**	**$54,470**	
ODCs						**$1,436**	
Cost per labor category	**$0**	**$11,310**	**$21,120**	**$1,288**	**$420**		
Effort (days)	**0**	**10**	**22**	**2**	**1**		
Effort (weeks)	**0**	**2**	**4**	**0**	**0**		
Hours per day	**0.0**	**1.0**	**2.3**	**0.2**	**0.1**		

Total Contract Value:	**$55,906**

Assumptions:

- Bidding/Contractor Contracting Phase June-July 2022
- Construction from August to November 2022 (4 months)
- Other assumptions as stated within this fee proposal and scope of work
- Materials testing provided per Specification Section 01 45 00
- Construction inspection and primary oversight by Firestone