ADDENDUM NO. 4

DATE: **February 16, 2016**
FROM: **City of Grand Junction Purchasing Division**
TO: **All Offerors**
RE: **2016 Waterline Replacement Project IFB-4158-16-NJ**

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications and updates:

1. **Clarification –** The City's Water Dept. will provide all necessary equipment and materials for the Hot Taps that are 6" and larger. For example, the City will provide the tapping saddles, gate valves and all other appurtenances required for the hot tap. The Contractor shall connect to the outlet side of the gate valve for pipe installation.

2. **Replace the Bid Schedule issued in Addendum #3 with the updated Bid Schedule that is attached to Addendum #4. The updated Addendum #4 Bid Schedule is provided in both PDF and Excel format.**

3. **Replace the Construction Plans issued in Addendum #3 with the updated Construction Plans that are attached to Addendum #4.**

4. **There's concern about the possibility of scratches or gouges occurring to the pipe during the sliplining process.**

   Per Special Provision SP-1 Section 102 – Materials – Section 3.02.B states: Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the Owner or Engineer.

   During the sliplining process, there will be open trenches where the Contractor and Project Inspector can see the pipe being pulled through the existing 24" pipe. At these locations, if the 18" PVC pipe is showing signs of large scratches and/or gouges, the sliplining operation shall stop. The Contractor and Inspector/Engineer shall work to determine what's causing the damage to the pipe and remedy the problem before sliplining operations commence.

The City TV inspection completed before the sliplining starts should help identify if there are any shape edges or objects that can potentially cause damage to the pipe during sliplining.

5. **Thrustblocks –** All new thrustblocks installed along the new 18" PVC waterline shall be constructed in accordance with the area dimensions provided in the Table per City Standard Detail W-08.

   All thrustblocks will not be paid for separately, but shall be included in the cost of the project per Section 108.13 in the City of Grand Junction's Standard Specifications for the Construction of Underground Utilities.

6. **Purging out the air from within the new waterline for pressure testing –** It shall be the Contractor's responsibility to determine a plan for purging the air out of the new 18" pipe for pressure testing. The Contractor can install a tapping saddle with a corporation stop at the high point of the pipe section for air removal. After successfully passing all tests, the Contractor can remove the corporation stop and install a threaded plug insert. The cost of the tapping saddle, corporation stop and plug will not be paid for separately, but shall be included in the cost of the project.

7. **For Information Only -** Attached to Addendum #4 is a Project Profile of a successful sliplining project the City of Thornton, Colorado completed several years ago using Underground Solutions fusible PVC pipe. This Project Profile is provided to Bidders as information only and to provide an example of a similar project to the City of Grand Junction's proposed sliplining project.

8. **Question 8:** Pipe Fusion time is listed as 12 days. 3,600 feet of pipe equates to 300 feet per day. What equipment and man power will your staff require to fuse the pipe up?
   Response: Please See Addendum #3.

9. **Question 9:** Is it possible to run two fusion crews to cut the man days for fusion down?
   Response: No

10. **Question 10:** Pipe rollers, do you have any specs on rollers and what spacing do you require? Are pipe line skids acceptable as cribbing support?
    Response: We do not have any specifications on pipe rollers. I'm not sure what pipeline skids are. I don't think there's a spacing requirement for supports just as long as the contractor doesn't bend the pipe beyond the minimum bending radius.

11. **Question 11:** Understanding how your pull head fits over the outside of the 18 inch PVC, what is the OD of the pull head and the bolts that protrude out from the pull head? Do you know what the ID of the existing 24 inch is? How tight are the space tolerances?
    Response: Please See Addendum #3.

12. **Question 12:** Tail trench requirements, based on 48 inches of cover over the existing 24 inch pipe, how long does the tail trench need to be in order to stay within the bend radius of the pipe?
    Response: Please see Appendix B within the Bid Documents that shows the pit diagram. It's about the sixth page in Appendix B.

13. **Questions 13:** Pipe deflection, can the 18 inch pipe be successfully pulled through any mechanical fittings that may exist in the 24 inch pipe?
    Response: At this time, all fittings and valves will need to be removed before installation of 18" fusible pipe.

14. **Question 14:** What are the acceptable wear tolerances of the fusible PVC pipe?
    Response: Per the Fusible Pipe Specification, any scratch or gouge greater than 10% of the pipe wall thickness will be considered significant and can be rejected unless determined acceptable by the owner or engineer. We'll be able to see the pipe while it's being installed from one of the many open trench areas to see if the pipe has any larger scratches or gouges.

15. **Question 15:** Understanding the handling care given to the to the fusible pipe during the fusion process and the need to use rollers to support it during the pullback, do you have any concerns for pulling the pipe 1,750 feet through a concrete lined steel pipe as a part of the install process?
    Response: According to Underground Solutions, contractors have pulled close to 7,000 LF for a slipline project. I think the limiting factor is the size of the hydraulic pulling machine and what the machine is capable of pulling.

16. **Question 16:** Assuming that the contractor pulls the pipe in according to the plan requirements, who takes responsibility for any nicks or scars in the pipe that are outside of Underground Solutions pipe spec tolerances?
    Response: We will have to inspect the pipe from one of the open trench areas during the installation stage. If the Owner and/or Contractor sees damage being done during the installation process, operations will need to stop and we'll need to investigate what's causing the damage to the pipe. I'd think that during the TV inspection stage of the project, we should be able to identify areas that might cause damage to the pipe.

17. **Question 17:** Are there any other fusible pipe installs that are similar in design to this project? If so, is there anything documented on them? Any best practices that came as a result of those installs?
    Response: See the attachment from a sliplining project the City of Thornton completed in the past.

18. **Question 18:** Is an Excel bid schedule available for submission similar to that provided for the North Avenue Project recently bid?
    Response: Please refer to Item 2 of this Addendum 4.

19. **Question 19:** Underground Solutions, according to their brochure, does not recommend taps over 2" diameter on the 18" fusible pipe. Is there any special materials, fittings, etc. that may be required in order to complete those taps that are over 2" diameter and will the Contractor be resposible for providing them?
    Response: Please refer to Item 1 of this Addendum 4.

20. **Question 20:** We have concern about the possibility of scaring or scraping the fusible pipe when pulling into place due to the concrete pipe lining. Section 3.02B of the specifications talks about this. Has the City made allowances for this possibility is acquiring additional pipe and also additional fusion time in the trench to conduct a repair?
    Response: Please refer to Item 4 of this Addendum 4**.**

21. **Question 21:** Bid Item 28 is for plugging ends of abandoned pipe with concrete. The pay item is by the foot. How many feet is required to be plugged? Will the new PVC

pipe be required to be centered within the steel pipe prior to placing concrete plug or will it be allowed to rest on the bottom of the host pipe?
Response: Please refer to the updated bid schedule. New PVC can rest on the bottom of the host pipe.

22. **Question 22:** If item 46 is for top mat of asphalt including the T-Top, shouldn't it be larger in quantity then item 45 the bottom mat?
Response: Please refer to the updated bid schedule.

23. **Question 23:** On Sheet 11 of the "as constructed" drawings for the existing 24" steel line, there is a note refering to the detail for the "strap anchor" as shown on Sheet 12. Is Sheet 12 available for review of this detail? Due to the apparent size of this restraint and the note stating the removal is incidental to the pipe removal, this information would be helpful.
Response: Please refer to the updated construction plans.

24. **Question 24:** City Standards - W-07, Note 3 states that thrust blocks for waterlines larger than 12" shall be designed for the location. Is there a design available for bidding purposes? With the shallow cover at the abutments, it appears that some type of tie-down straps my be necessary, similar to what is shown on the as built drawings.
Response: Please refer to Item 5 of this Addendum 4.

25. **Question 25:** City Standards - W-08, Table of Values. Can this information please be provided for help in bidding process?
Response: Please refer to Item 5 of this Addendum 4.

26. **Question 26:** Sheet 6 of the drawings. Center of page showing Indian Wash Crossing detail. Note 400 states fusible 18" PVC across the wash. There is also notation with a dividing line showing fusible PVC both directions. This similar notation is also shown on Sheet 5 of the drawings in the lower right hand corner however, the note there is note 433 which is not fusible. Please clarify which type of pipe is desired to be installed across the wash and within the area of all the fittings associated with this crossing.
Response: Please refer to the updated construction plans.

27. **Question 27:** In an effort to purge all the air from the new installation for testing, disinfection and operation purposes, there appears to be a lack of an air vac on the Indian Wash crossing. Should one be installed at this location?
Response: Please refer to Item 6 of this Addendum 4.

28. **Question 28:** There is various types of existing landscape surfaces that will be disturbed during the construction process. We do not identify any restoration bid items to cover this work. How will landscape and driveway restoration be paid for?
Response: Please refer to the update bid schedule.

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

Nicholas C Jones, Buyer
City of Grand Junction, Colorado

Bid Schedule: 2016 Waterline Replacement Project
ADDENDUM #4

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
1	108.2	Water Main (2") (HDPE) (Service Line) (If lead service line is encounter, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	10.	Lin. Ft.	$ _____	$ _____
2	108.2	Water Main (6") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	285.	Lin. Ft.	$ _____	$ _____
3	108.2	Water Main (8") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	85.	Lin. Ft.	$ _____	$ _____
4	108.2	Water Main (10") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	15.	Lin. Ft.	$ _____	$ _____
5	108.2	Water Main (18") (C-905 PVC, DR-25) (Includes cost of connection to existing waterline / valve / fitting)	230.	Lin. Ft.	$ _____	$ _____
6	108.2	Water Main (18") (Fusible C-905 PVC, DR-25) (Install Only) (Includes all equipment, labor, fuel, and materials for fusing pipe and pulling pipe through existing 24" steel pipe) (The City has already purchased the 18" Fusible pipe from Underground Solutions) The Bidder shall not include pipe material costs for this Bid Item.	3,650.	Lin. Ft.	$ _____	$ _____
7	108.2	Imported Trench Backfill (Class 3) (Includes haul and disposal of unsuitable excavated material) (Assumed Unit Weight = 133 lbs/ft^3)	300.	Ton	$ _____	$ _____
8	108.3	Gate Valve (6")	1.	Each	$ _____	$ _____
9	108.3	8" Blind Flange	1.	Each	$ _____	$ _____
10	108.3	18" x 6" Tee (MJ x FL)	1.	Each	$ _____	$ _____
11	108.3	Butterfly Valve (18")	4.	Each	$ _____	$ _____
12	108.3	Elbow (6" x 22.5 deg) (MJ)	2.	Each	$ _____	$ _____
13	108.3	Elbow (6" x 45 deg) (MJ)	8.	Each	$ _____	$ _____
14	108.3	Elbow (8" x 45 deg) (MJ)	6.	Each	$ _____	$ _____
15	108.3	Elbow (18" x 22.5 deg) (MJ)	4.	Each	$ _____	$ _____

Bid Schedule: 2016 Waterline Replacement Project
ADDENDUM #4

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
16	108.3	Elbow (18" x 45 deg) (MJ)	6.	Each	$ _____	$ _____
17	108.3	Reducer (20" x 18") (MJ)	1.	Each	$ _____	$ _____
18	108.3	18" Solid Sleeve Coupling (MJ)	7.	Each	$ _____	$ _____
19	108.3	Fire Hydrant Assembly	6.	Each	$ _____	$ _____
20	108.4	3/4" Water Service Line (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	160.	Lin. Ft.	$ _____	$ _____
21	108.4	Tapping Saddle (18" x 3/4")	19.	Each	$ _____	$ _____
22	108.4	Tapping Saddle (18" x 2")	1.	Each	$ _____	$ _____
23	108.4	Corporation Stop (3/4")	19.	Each	$ _____	$ _____
24	108.4	Corporation Stop (2")	1.	Each	$ _____	$ _____
25	108.7	Granular Stabilization Material (Type B) (Crushed Rock) (Includes haul and disposal of unsuitable excavated material) (Assumed material unit weight = 138 lbs/ft^3)	200.	Ton	$ _____	$ _____
26	202	Removal of Bush	1.	Each	$ _____	$ _____
27	202	Removal of Tree	2.	Each	$ _____	$ _____
28	202	Abandon Pipe (Abandon pipe by plugging ends with concrete)	70.	Each	$ _____	$ _____
29	202	Abandon Existing Water Valve (Close valve, remove top half of existing valve box, fill cavity to finished subgrade with flow-fill material)	9.	Each	$ _____	$ _____
30	202	Remove Existing Fire Hydrant (Return Hydrant to City Shops)	6.	Each	$ _____	$ _____
31	202	Remove Existing Pipe (Various sizes and material type)	400.	Lin. Ft.	$ _____	$ _____
32	202	Remove Existing Water Valve	7.	Each	$ _____	$ _____

Bid Schedule: 2016 Waterline Replacement Project
ADDENDUM #4

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
33	202	Removal of Asphalt Mat (Planing) (T-Top Section) (2" Depth) (North Ave., 28 Road, Orchard Ave.) (Per City Standard Detail GU-03)	430.	Sq. Yd.	$ _____	$ _____
34	202	Removal of Asphalt Mat (Full-Depth) (Per City Standard Detail GU-03)	520.	Sq. Yd.	$ _____	$ _____
35	202	Removal of Concrete (Saw cut and remove concrete as shown) (Includes but not limited to curb, gutter, sidewalk, driveway, slabs, V-pan, curb ramps, intersection corners, aprons, and concrete walls.)	210.	Sq. Ft.	$ _____	$ _____
36	203	Disposal of Radioactive Material (City Shops Location)	100.	Cu. Yd.	$ _____	$ _____
37	206	Structure Backfill (Flow-Fill)	27.	Cu. Yd.	$ _____	$ _____
38	208	Storm Drain Inlet Protection (Silt-Sack) (Includes Maintenance & Removal of Inlet Protection)	10.	Each	$ _____	$ _____
39	208	Concrete Washout Facility	1.	Lump Sum	$ _____	$ _____
40	210	Repair damage to unlocated irrigation lines, various sizes and materials (1" to 12" dia.)	3.	Each	$ _____	$ _____
41	210	Reset Guardrail	50.	Lin. Ft.	$ _____	$ _____
42	210	Reset Sprinkler System (Complete in Place)	6.	Each	$ _____	$ _____
43	212	Sod (Includes 6" Thick Imported Topsoil placed prior to sod placement)	100.	Sq. Ft.	$ _____	$ _____
44	304	Aggregate Base Course (Class 6) (15" Thick) (4' wide +/-)	520.	Sq. Yd.	$ _____	$ _____
45	401	Hot Bituminous Pavement (Patching) (4" Thick) (Grading SX, PG 64-22, GYR=75) (Two 2" Lifts) (Bottom Two Mats) (See City Standard Detail GU-03)	520.	Sq. Yd.	$ _____	$ _____
46	401	Hot Bituminous Pavement (Patching) (2" Thick) (Grading SX, PG 64-22, GYR=75) (T-Top) (See City Standard Detail GU-03) (Top Mat)	595.	Sq. Yd.	$ _____	$ _____
47	407	Emulsified Asphalt (Tack Coat)	95.	Gallon	$ _____	$ _____

Bid Schedule: 2016 Waterline Replacement Project
ADDENDUM #4

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
48	608	Concrete Curb and Gutter (Match in Kind)	100.	Lin. Ft.	$ _____	$ _____
49	608	Concrete Curb, Gutter and Sidewalk (Match in Kind)	3.	Sq. Yd.	$ _____	$ _____
50	608	Concrete Drainage Pan (Match in Kind)	6.	Sq. Yd.	$ _____	$ _____
51	608	Cap Top Half of Sewer Pipe in concrete per Std. Detail GU-04 (20' long)	2.	Each	$ _____	$ _____
52	620	Portable Sanitary Facility	1.	Each	$ _____	$ _____
53	625	Construction Surveying	1.	Lump Sum	$ _____	$ _____
54	626	Mobilization	1.	Lump Sum	$ _____	$ _____
55	630	Traffic Control Plan	1.	Lump Sum	$ _____	$ _____
56	630	Traffic Control (Complete in Place)	1.	Lump Sum	$ _____	$ _____
57	630	Flagging	100.	Hour	$ _____	$ _____
MCR		Minor Contract Revisions	- - -	- - -	- - -	$ 50,000.00

Bid Amount: **$** _____

Bid Amount:

_____ **dollars**

Contractor's Name: _____

Contractor's Address: _____

Contractor's Phone #: _____

Project Profile

underground SOLUTIONS®

www.undergroundsolutions.com

City of Thornton, Colorado Reduces Rehabilitation Impact to Residents with Trenchless Slipline Installation

The City of Thornton, Colorado was incorporated in 1956 with a population of 8,640. Over the succeeding 56 years, the population has grown to over 121,000 and the oldest portions of the City's pipeline infrastructure are nearing the end of their useful lives. In 2010, an old and deteriorating 20-inch steel transmission line under Washington Street emerged as the top candidate for rehabilitation due to its failure frequency and annual cost to maintain; so the City started investigating rehabilitation options.

Because of the location of the failing 20-inch steel waterline beneath one of the City's busiest streets, the City's management team projected that conventional dig and replace construction would require shutting down the entire street for long periods. To avoid significant inconvenience to local businesses and residents, trenchless rehabilitation was selected as the most desirable solution. Several options were considered, including cured-in-place pipe (CIPP) and sliplining with Fusible PVC™ pipe. In the end, a 16-inch DR21 Fusible C-905® slipline presented the most attractive solution for the following reasons:

- Trenchless installation allowed for relatively small pipe entrance and pull pits on either end of the slipline.
- The result would be a continuous, gasket-free, monolithic, fully-restrained and leak-free pipeline.
- The slipline was a fully structural pipeline, versus a lined host pipe.
- 16-inch DR21 Fusible C-905® pipe provided the largest inside diameter of any available thermoplastic pipe with equivalent pressure rating that would fit inside the 20-inch steel pipeline.
- Fusible PVC™ pipe has superior allowable pull-force compared with other thermoplastic pipe, resulting in longer pulls with less risk (Fusible PVC™ pipe set a new slipline record in 2012 with a single-pull, 7,000 LF slipline).
- Fusible PVC™ pipe readily connects to standard waterworks fittings with no special adaptors required.

BTrenchless was selected to perform the rehabilitation. Steve Jacques, VP of Operations, commented, "We love sliplining with Fusible PVC™ pipe and wish that more people would recognize the benefits it provides. Spoils are greatly reduced from the project, we don't have to shut down the entire street, and it's fast! If you can get away with a slightly reduced inner diameter pipe, sliplining with Fusible PVC™ pipe is a great solution."

Construction kicked-off in April 2012. Laydown room for the full 1,680 LF length of Fusible C-905® pipe presented a slight problem, so the pipe length was broken into three segments that were fused together as needed during the pull-back operation. Pull-back was accomplished with a TT Technologies hydraulic Grundoburst® 800G. Due to the ease and affordability of the project, the City of Thornton is planning a second phase in the fall of 2012.

Pipeline Details and Project Summary

Project/Location:	Washington Street Waterline Rehab/Thornton, Colorado
Pipe Details:	1,680 LF of 16" DR21 Blue
Pressure Test:	150 psi for 2 hours
Owner/Engineer:	Jason Pierce, former City of Thornton Project Engineer

*Underground Solutions (UGSI) provides infrastructure technologies for water/wastewater applications. UGSI's Fusible PVC™ products, including **Fusible C-900®, Fusible C-905® and FPVC®**, contain a patented PVC formulation that, when combined with UGSI's patented fusion process, results in a monolithic, fully-restrained, gasket-free, leak-free piping system. UGSI's **Duraliner™** is a patented, close-fit pipeline renewal system creating a stand-alone structural liner.*

Project Profile

www.undergroundsolutions.com

Fusion Operations

Fused Pipe String

Pipe Insertion – Facing South

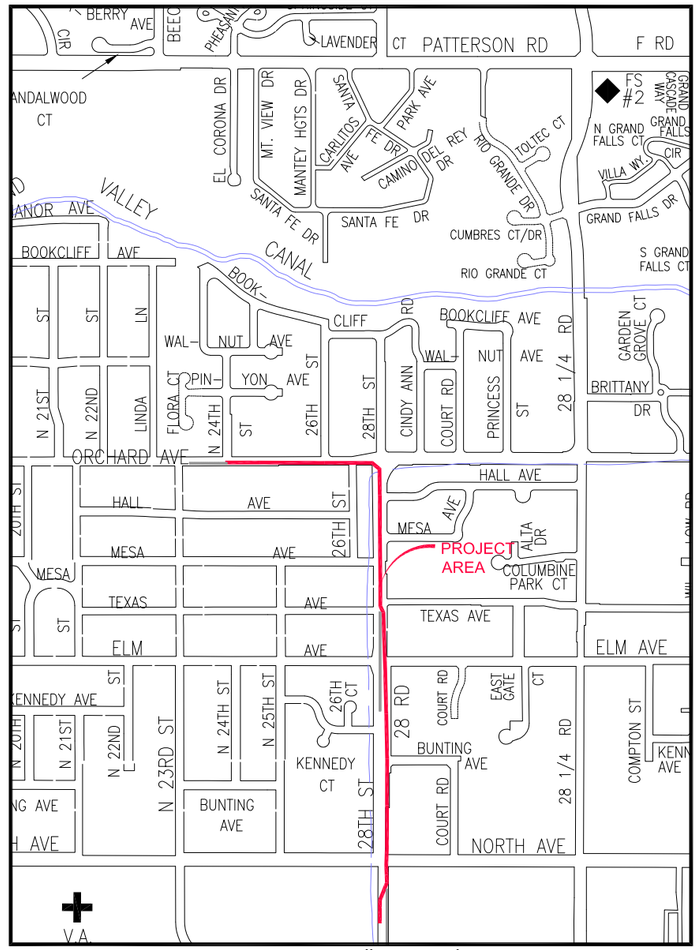
Pipe Entrance Pit – Facing North

Underground Solutions (UGSI) provides infrastructure technologies for water/wastewater applications. UGSI's Fusible PVC™ products, including ***Fusible C-900®, Fusible C-905® and FPVC®****, contain a patented PVC formulation that, when combined with UGSI's patented fusion process, results in a monolithic, fully-restrained, gasket-free, leak-free piping system. UGSI's* ***Duraliner™*** *is a patented, close-fit pipeline renewal system creating a stand-alone structural liner.*

PROJECT NO. 301-F000522

2016 WATERLINE REPLACEMENT PROJECT
28 ROAD & ORCHARD AVENUE
JANUARY, 2016

VICINITY MAP



SCALE 1"=1000'

UTILITIES AND AGENCIES								
AGENCY	NAME	POSITION	ROLE	MAILING ADDRESS	STREET ADDRESS	CITY, STATE	VOICE-WK	FAX
GRAND JUNCTION, CITY OF	LEE COOPER	PROJECT ENGINEER	PROJECT ENGINEER	250 N. 5th STREET	250 N. 5th STREET	GRAND JCT., CO 81501	(970) 256-4155	(970) 256-4022
GRAND JUNCTION, CITY OF	BRET GUILLORY	UTILITY ENGINEER		250 N. 5th STREET	250 N. 5th STREET	GRAND JCT., CO 81501	(970) 244-1590	(970) 256-4022
GRAND JUNCTION, CITY OF	RON KEY	WATERLINE SUPERVISOR		250 N. 5th STREET	250 N. 5th STREET	GRAND JCT., CO 81501	(970) 270-6446	
CHARTER	JEFF VALDEZ	CONST. SUPERVISOR	CABLE TV	2502 FORESIGHT CIRCLE	2502 FORESIGHT CIRCLE	GRAND JCT., CO 81504	(970) 263-2314	
CENTURY LINK	CHRIS JOHNSON	ENGINEER	TELEPHONE/FIBER	2524 BLICHMANN AVE	2524 BLICHMANN AVE	GRAND JCT., CO 81504	(970) 244-4311	(970) 240-4349
XCEL ENERGY	JON PRICE	PLANNER	GAS, ELECTRIC	2538 BLICHMANN AVE	2538 BLICHMANN AVE	GRAND JCT., CO 81506	(970) 244-2693	

NOTE: NOTIFY AFFECTED UTILITY VENDOR 48 HOURS PRIOR TO EXCAVATIONS THAT WILL EXPOSE UTILITY LINES. THE COVER SHEET WILL HAVE A LISTING OF UTILITY VENDORS AND TELEPHONE NUMBERS.

	DESCRIPTION	DATE
REVISION ⚠1	ADDENDUM #3	2/10/16
REVISION ⚠2	ADDENDUM #4	2/16/16
REVISION ⚠3		
REVISION ⚠4		

CITY OF Grand Junction COLORADO

Public Works & Utilities
Engineering Division

811 Know what's **below.** **Call** before you dig.

DRAWING STATUS:
- ○ PROGRESS
- ● FINAL CONSTRUCTION DRAWINGS
- ○ ASBUILT

DESIGNED BY:
LEE COOPER, PROJECT ENGINEER — DATE

REVIEWED BY:
BRET GUILLORY, UTILITY ENGINEER — DATE

AUTHORIZED FOR CONSTRUCTION
TRENTON C. PRALL, CITY ENGINEER — DATE

ACCEPTED AS CONSTRUCTED
LEE COOPER, PROJECT ENGINEER — DATE

N:\Landproj\2015 Waterline Replacement Project\DWG\2015 Waterline Replacement.dwg, 2/16/2016 2:48:24 PM

PROJECT NO. 301-F000522

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
ABC	AGGREGATE BASE COURSE
AC	ASBESTOS CEMENT
AP	ANGLE POINT
ASB	ANCHORED STRAW BALES
ASP	ALUMINIZED STEEL PIPE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BACK OF CURB
BF	BUTTERFLY VALVE
BOW	BACK OF WALK
BCR	BEGIN CURB RETURN
BOT	BOTTOM
BSWMP	BETTER STORM WATER MANAGEMENT PRACTICES
CH	CHORD
CAP	CORRUGATED ALUMINUM PIPE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CI	CAST IRON
C,G,& SW	CURB, GUTTER & SIDEWALK
℄	CENTER LINE
CL	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMB	COMBINATION (AS IN STORM SEWER AND SANITARY SEWER)
CONC	CONCRETE
CSM	CITY SURVEY MONUMENT
CSP	CORRUGATED STEEL PIPE
CU	COPPER
DI	DUCTILE IRON
DWY	DRIVEWAY
E	ELECTRIC
ECR	END CURB RETURN
EG	EDGE OF GUTTER
EL	ELEVATION
EP	EDGE OF PAVEMENT
EX	EXISTING
FB	FULL BODY
FC	FACE OF CURB
FG	FINISHED GRADE
℄	FLOW LINE
FL	FLANGE
FM	FORCE MAIN
FO	FIBER OPTICS
FS	FAR SIDE
FTG	FOOTING
G	GAS
GB	GRADE BREAK
GM	GAS METER
GV	GATE VALVE
HBP	HOT BITUMINOUS PAVEMENT
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
IRR	IRRIGATION
L	LENGTH OF ARC
LC	LONG CHORD
LF	LINEAR FEET
LL	LONG ARC
LS	SHORT ARC
LT	LEFT
MB	MAILBOX
MCSM	MESA COUNTY SURVEY MONUMENT
MH	MANHOLE
MJ	MECHANICAL JOINT
MW	MILL WRAP
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOP	NO ONE PERSON
NRCP	NON-REINFORCED CONCRETE PIPE
NS	NEAR SIDE
NTS	NOT TO SCALE
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIP	PLASTIC IRRIGATION PIPE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PR	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RG	RESTRAINED GLANDS
RL	LONG RADIUS
ROW	RIGHT OF WAY
RP	RADIUS POINT
RR	RAIL ROAD
RS	SHORT RADIUS
RT	RIGHT
S	SLOPE
SAN	SANITARY
SC	SHORT CHORD
SCD	STANDARD CONTRACT DOCUMENTS
SCH	SCHEDULE
SF	SILT FENCE
SL	SECTION LINE
SSRB	STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION
SSUU	STANDARD SPECIFICATIONS FOR CONSTRUCTION OF UNDERGROUND UTILITIES
STA	STATION
STL	STEEL
STM	STORM
T	TELEPHONE
TAN	LENGTH OF TANGENT
TC	TOP OF CURB
TH	TEST HOLE
TV	TELEVISION
(TYP)	TYPICAL
UU	UNDERGROUND UTILITIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VPC	VERTICAL POINT OF CURVATURE
VPCC	VERTICAL POINT OF COMPOUND CURVATURE
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
△	DELTA ANGLE

LEGEND

BSWMP DRAINAGE BASIN BOUNDARY

BSWMP ANCHORED STRAW BALES — ASB ASB ASB ASB ASB ASB ASB

BSWMP SILT FENCE — SF SF SF SF SF SF SF

BUILDING

CONCRETE CURB AND GUTTER — 2' CURB AND GUTTER

7' C, G, & SW

CONCRETE CURB,GUTTER, & SIDEWALK

CONCRETE DITCH — CONCRETE

CONCRETE SIDEWALK — 4' SW

CULVERT — 18" RCP

EARTH DITCH — EARTH EARTH EARTH

EDGE OF GRAVEL

EDGE OF PAVEMENT

FENCE (BARBED WIRE)

FENCE (CHAIN LINK)

FENCE (IRON)

FENCE (PLASTIC)

FENCE (TEMPORARY CONSTRUCTION)

FENCE (WOOD)

FENCE (WOVEN WIRE)

GUARD RAIL — 9' 9'

HATCHING: INDICATES ASPHALT REMOVAL

HATCHING: INDICATES CONCRETE REMOVAL

HATCHING: INDICATES STAGING AREA — ~STAGING AREA~

LINE (CENTER OF IMPROVEMENTS) — CENTERLINE

LINE (CITY LIMITS) — CITY LIMITS

LINE (CONTROL) — CONTROL LINE

LINE (EASEMENT)

LINE (MONUMENT/SECTION) — MONUMENT/SECTION LINE

LINE (PROPERTY)

LINE (RIGHT OF WAY)

MATCH LINE — MATCH LINE SEE SHEET NO ?

PIPE (IRRIGATION) — 4" IRR

PIPE (SIPHON) — 4" SIPHON

PROPOSED CONCRETE CURB AND GUTTER

PROPOSED CONCRETE CURB,GUTTER,& SIDEWALK

PROPOSED CONCRETE SIDEWALK

PROPOSED "WET" UTILITIES (CONSTRUCTION NOTE WILL INDICATE TYPE, SIZE, AND MATERIAL OF NEW MAIN) — 8" PVC SANITARY SEWER

ALL PROPOSED FEATURES NOT SHOWN IN LEGEND WILL BE SHOWN THE SAME AS THEIR EXISTING COUNTERPART, BUT INDICATED BY BOLDER LINETYPE

RAIL ROAD

RETAINING WALL — 1' RETAINING WALL

STRIPING (CONTINUOUS WHITE) — WHITE

STRIPING (DASHED WHITE) — WHITE

STRIPING (CONTINUOUS YELLOW) — YELLOW

STRIPING (DASHED YELLOW) — YELLOW

4570

TOP OF SLOPE — 4580

CONTOUR LINES (SHOWN BETWEEN TOP & TOE)

TOE OF SLOPE — 4570

TRAFFIC DETECTOR LOOP

UTILITY LINE (ABANDON) (THIS CASE A WATER LINE) — W (ABANDONED) 8" W

UTILITY LINE (CABLE TV) — TV TV

UTILITY LINE (ELECTRIC) — E E

UTILITY LINE (FIBER OPTIC) — FO QWEST FO

UTILITY LINE (GAS) — G 1 1/4" MW G

UTILITY LINE (HIGH VOLTAGE OVERHEAD POWER) — HVOHP

UTILITY LINE (OVERHEAD POWER) — OHP

UTILITY LINE (OVERHEAD TELEPHONE) — OHT

UTILITY LINE (SANITARY SEWER) — 8" SAN

UTILITY LINE (SANITARY SEWER FORCE MAIN) — 6" FM

UTILITY LINE (SANITARY SEWER SERVICE) — SS

UTILITY LINE (STORM SEWER) — 8" STM

UTILITY LINE (STORM SEWER, PERFORATED) — 6" PERF

UTILITY LINE (STORM/SANITARY SEWER SEWER COMBINATION) — 18" COMB

UTILITY LINE (TELEPHONE) — T T

UTILITY LINE (WATER) — W 8" W

SYMBOLS

BENCH MARK — A

CATCH BASIN

CLEAN OUT — SSCO

CURB STOP

FIRE HYDRANT

GUY WIRE ANCHOR

HEADGATE

IRRIGATION PUMP — P

MAILBOX — MB

MANHOLE (ELECTRIC) — E

MANHOLE (GAS) — G

MANHOLE (SANITARY/STORM)

MANHOLE (TELEPHONE) — T

MANHOLE (TV) — tv

MANHOLE (WATER) — W

METER (GAS) — GM

METER (WATER)

PEDESTAL (TELEPHONE)

PEDESTAL (TV) — TV

PROPERTY PIN

PULL BOX

REDUCER FITTING

SIGN OR POST (SIGN TYPE NOTED) — STOP

SPRINKLER HEAD

STREET LIGHT

SURVEY MONUMENT (CITY) — CSM

SURVEY MONUMENT (TYPE NOTED) — MCSM

TEST HOLE — TH #1

TRAFFIC PAINT MARKING

TRAFFIC SIGNAL POLE AND MAST ARM

UTILITY POLE

VALVE (GAS) — GV

VALVE (IRRIGATION) — IRR

VALVE (WATER)

VEGETATION (HEDGE OR BUSH)

VEGETATION (TREE STUMP)

VEGETATION (TREE) (CALIPER SIZE NOTED) — 6"

WATER HYDRANT — WH

WEIR

YARD LIGHT

NORTH ARROW:

BAR SCALE:

GRAPHIC SCALE

10 0 20 40

(IN FEET)
1 inch = 20 ft.

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY	JCS	DATE	4-02
DESIGNED BY		DATE	
CHECKED BY		DATE	
APPROVED BY		DATE	

SCALE

PLAN	PROFILE
HORIZ. 1"=20'	HORIZ.
	VERT.

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

CITY OF GRAND JUNCTION
STANDARD ABBREVIATIONS, LEGEND, AND SYMBOLS SHEET

2

Item No.	CDOT, City Ref.	Description	Quantity	Units
1	108.2	Water Main (2") (HDPE) (Service Line) (If lead service line is encounter, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	10.	Lin. Ft.
2	108.2	Water Main (6") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	285.	Lin. Ft.
3	108.2	Water Main (8") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	85.	Lin. Ft.
4	108.2	Water Main (10") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	15.	Lin. Ft.
5	108.2	Water Main (18") (C-905 PVC, DR-25) (Includes cost of connection to existing waterline / valve / fitting)	230.	Lin. Ft.
6	108.2	Water Main (18") (Fusible C-905 PVC, DR-25) (Install Only) (Includes all equipment, labor, fuel, and materials for fusing pipe and pulling pipe through existing 24" steel pipe) (The City has already purchased the 18" Fusible pipe from Underground Solutions) The Bidder shall not include pipe material costs for this Bid Item.	3,650.	Lin. Ft.
7	108.2	Imported Trench Backfill (Class 3) (Includes haul and disposal of unsuitable excavated material) (Assumed Unit Weight = 133 lbs/ft^3)	300.	Ton
8	108.3	Gate Valve (6")	1.	Each
9	108.3	8" Blind Flange	1.	Each
10	108.3	18" x 6" Tee (MJ x FL)	1.	Each
11	108.3	Butterfly Valve (18")	4.	Each
12	108.3	Elbow (6" x 22.5 deg) (MJ)	2.	Each
13	108.3	Elbow (6" x 45 deg) (MJ)	8.	Each
14	108.3	Elbow (8" x 45 deg) (MJ)	6.	Each
15	108.3	Elbow (18" x 22.5 deg) (MJ)	4.	Each
16	108.3	Elbow (18" x 45 deg) (MJ)	6.	Each
17	108.3	Reducer (20" x 18") (MJ)	1.	Each
18	108.3	18" Solid Sleeve Coupling (MJ)	7.	Each
19	108.3	Fire Hydrant Assembly	6.	Each
20	108.4	3/4" Water Service Line (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	160.	Lin. Ft.
21	108.4	Tapping Saddle (18" x 3/4")	19.	Each
22	108.4	Tapping Saddle (18" x 2")	1.	Each
23	108.4	Corporation Stop (3/4")	19.	Each
24	108.4	Corporation Stop (2")	1.	Each
25	108.7	Granular Stabilization Material (Type B) (Crushed Rock) (Includes haul and disposal of unsuitable excavated material) (Assumed material unit weight = 138 lbs/ft^3)	200.	Ton
26	202	Removal of Bush	1.	Each
27	202	Removal of Tree	2.	Each
28	202	Abandon Pipe (Abandon pipe by plugging ends with concrete)	70.	Each
29	202	Abandon Existing Water Valve (Close valve, remove top half of existing valve box, fill cavity to finished subgrade with flow-fill material)	9.	Each
30	202	Remove Existing Fire Hydrant (Return Hydrant to City Shops)	6.	Each
31	202	Remove Existing Pipe (Various sizes and material type)	400.	Lin. Ft.
32	202	Remove Existing Water Valve	7.	Each
33	202	Removal of Asphalt Mat (Planing) (T-Top Section) (2" Depth) (North Ave., 28 Road, Orchard Ave.) (Per City Standard Detail GU-03)	430.	Sq. Yd.
34	202	Removal of Asphalt Mat (Full-Depth) (Per City Standard Detail GU-03)	520.	Sq. Yd.
35	202	Removal of Concrete (Saw cut and remove concrete as shown) (Includes but not limited to curb, gutter, sidewalk. driveway, slabs, V-pan, curb ramps, intersection corners, aprons, and concrete walls.)	210.	Sq. Ft.
36	203	Disposal of Radioactive Material (City Shops Location)	100.	Cu. Yd.
37	206	Structure Backfill (Flow-Fill)	27.	Cu. Yd.
38	208	Storm Drain Inlet Protection (Silt-Sack) (Includes Maintenance & Removal of Inlet Protection)	10.	Each
39	208	Concrete Washout Facility	1.	Lump Sum
40	210	Repair damage to unlocated irrigation lines, various sizes and materials (1" to 12" dia.)	3.	Each
41	210	Reset Guardrail	50.	Lin. Ft.
42	210	Reset Sprinkler System (Complete in Place)	6.	Each
43	212	Sod (Includes 6" Thick Imported Topsoil placed prior to sod placement)	100.	Sq. Ft.
44	304	Aggregate Base Course (Class 6) (15" Thick) (4' wide +/-)	520.	Sq. Yd.
45	401	Hot Bituminous Pavement (Patching) (4" Thick) (Grading SX, PG 64-22, GYR=75) (Two 2" Lifts) (Bottom Two Mats) (See City Standard Detail GU-03)	520.	Sq. Yd.
46	401	Hot Bituminous Pavement (Patching) (2" Thick) (Grading SX, PG 64-22, GYR=75) (T-Top) (See City Standard Detail GU-03) (Top Mat)	595.	Sq. Yd.
47	407	Emulsified Asphalt (Tack Coat)	95.	Gallon
48	608	Concrete Curb and Gutter (Match in Kind)	100.	Lin. Ft.
49	608	Concrete Curb, Gutter and Sidewalk (Match in Kind)	3.	Sq. Yd.
50	608	Concrete Drainage Pan (Match in Kind)	6.	Sq. Yd.
51	608	Cap Top Half of Sewer Pipe in concrete per Std. Detail GU-04 (20' long)	2.	Each
52	620	Portable Sanitary Facility	1.	Each
53	625	Construction Surveying	1.	Lump Sum
54	626	Mobilization	1.	Lump Sum
55	630	Traffic Control Plan	1.	Lump Sum
56	630	Traffic Control (Complete in Place)	1.	Lump Sum
57	630	Flagging	100.	Hour

⚠1 ⚠2

DESCRIPTION	DATE
REVISION ⚠1 ADDENDUM #3	2/10/16
REVISION ⚠2 ADDENDUM #4	2/16/16
REVISION ⚠3	
REVISION ⚠4	

DRAWN BY _____ DATE _____
DESIGNED BY _____ DATE _____
CHECKED BY _____ DATE _____
APPROVED BY _____ DATE _____

SCALE
N.T.S.

CITY OF Grand Junction COLORADO

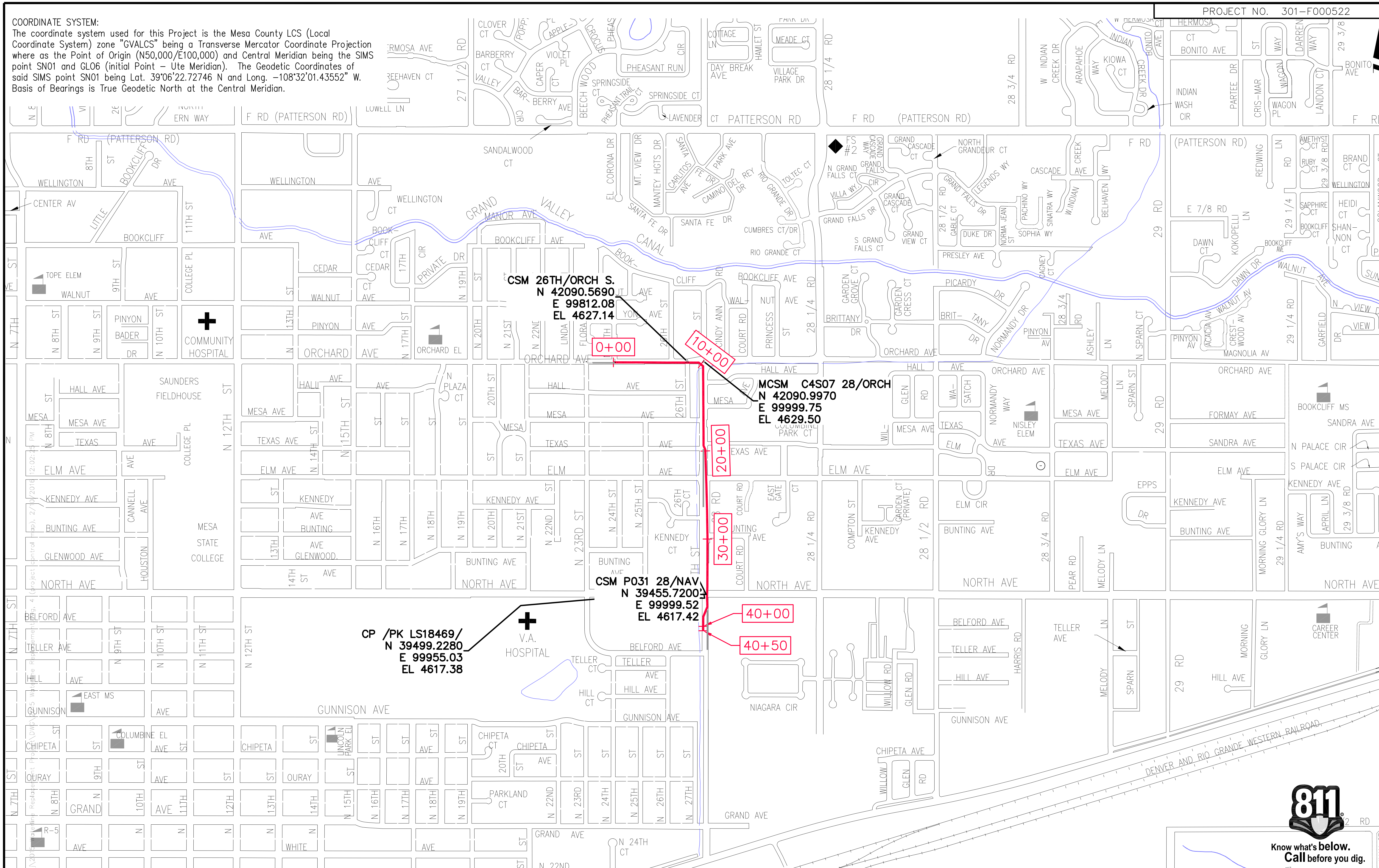
PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT
SUMMARY OF APPROXIMATE QUANTITIES

N:\Landproj\2015 Waterline Replacement Project\DWG\2015 Waterline Replacement.dwg, 2/16/2016 2:54:58 PM

PROJECT NO. 301-F000522

COORDINATE SYSTEM:
The coordinate system used for this Project is the Mesa County LCS (Local Coordinate System) zone "GVALCS" being a Transverse Mercator Coordinate Projection where as the Point of Origin (N50,000/E100,000) and Central Meridian being the SIMS point SN01 and GL06 (initial Point – Ute Meridian). The Geodetic Coordinates of said SIMS point SN01 being Lat. 39°06'22.72746 N and Long. −108°32'01.43552" W. Basis of Bearings is True Geodetic North at the Central Meridian.



DESCRIPTION	DATE
REVISION ⚠	
REVISION ⚠	
REVISION ⚠	
REVISION ⚠	

DRAWN BY ____ DATE ____
DESIGNED BY ____ DATE ____
CHECKED BY ____ DATE ____
APPROVED BY ____ DATE ____

SCALE 0 10 20 40

City of Grand Junction Colorado

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT
PROJECT CONTROL MAP

PIPE FUSING ZONE. CONTRACTOR SHALL FUSE PIPE WITHIN THE AREA OF 24TH STREET AND 21ST STREET

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

ENGINEER'S RECOMMENDED SEQUENCE OF OPERATIONS:

1. EXCAVATE LAUNCHING AND RECEIVING PITS.
2. LOCATE AND EXCAVATE AREAS FOR WATER SERVICES, LATERALS, AND FIRE HYDRANTS.
3. WORK WITH CITY WATER DEPT. ON ISOLATING EXISTING 24" STEEL PIPE.
4. DRAIN/PUMP WATER OUT OF SECTION OF 24" STEEL PIPE RECEIVING THE NEW 18" PVC PIPE.
5. CITY CREWS TV EXISTING 24" LINE TO SEE IF THERE'S ANY RESTRICTIONS WITHIN THE EXISTING PIPE.
6. REMOVE SECTIONS OF EXISTING 24" STEEL PIPE (36" WIDE, MIN.) AT WATER SERVICES, LATERALS, AND FIRE HYDRANTS LOCATIONS.
7. PULL NEW 18" PVC PIPE THROUGH EXISTING 24" STEEL PIPE.
8. PRESSURE TEST, DISINFECT AND FLUSH.

24TH STREET

PROPOSED LAUNCHING PIT FOR NEW 18" FUSIBLE PVC PIPE APPROX. DIMENSIONS: 47' L x 6' W

EX. 20" BUTTERFLY VALVE, INSTALLED IN FALL 2012.

ORCHARD AVE.

3/4" TAP

(2) 3/4" TAP

THRUST BLOCK TEE

25 LF, STEEL PIPE 47'

REMOVE EX. 8" GATE VALVE AND INSTALL EPOXY COATED BLIND FLANGE ON EXISTING FITTING. CONCRETE THRUST BLOCK REQUIRED PER CITY DETAIL W-07 & W-08.

8" DI PIPE (EXISTING)

EXISTING 8" D.I. WATER PIPE TO BE ABANDONED

MATCH LINE

2945-121-00-951
2430 ORCHARD AVE
GRAND JUNCTION, CO 81501
WESTERN COLORADO CHRISTIAN CAMPUS

2945-121-00-024
2460 ORCHARD AVE
GRAND JUNCTION, CO 81501
STUCKMAN TANYA D
STUCKMAN MARC

2945-124-02-006
2403 ORCHARD AVE
GRAND JUNCTION, CO 81501
DESROSIERS DON C

2945-124-02-025
2413 ORCHARD AVE
GRAND JUNCTION, CO 81501
PEASE MICHAEL J

2945-124-02-024
2421 ORCHARD AVE
GRAND JUNCTION, CO 81501
LEWIS SETH
LEWIS LAURA

2945-124-02-003
2429 ORCHARD AVE
GRAND JUNCTION, CO 81501
MITCHELL BRIAN
521 SPRING ST
COLLBRAN, CO 816249653

2945-124-02-002
2437 ORCHARD AVE
GRAND JUNCTION, CO 81501
GREEN JAMES M
GREEN MARY ANN

2945-124-02-026
2507 ORCHARD AVE
GRAND JUNCTION, CO 81501
GARRATY PAUL G
GARRATY LOIS T

2945-124-02-945
1827 N 26TH ST
GRAND JUNCTION, CO 81501
CITY OF GRAND JUNCTION
ROCKET PARK

2945-121-00-017
2528 ORCHARD AVE
GRAND JUNCTION, CO 81501
MCDONALD DAVID L
MCDONALD CAROL J

EXISTING 6" PVC PIPE

26TH ST.

2945-121-10-021
1900 N 26TH ST
GRAND JUNCTION, CO 81501
MUSSMACHER FREDERICK J
MUSSMACHER KIMBERLY B

CSM 26TH/ORCH S.
N 42090.5690
E 99812.08
EL 4627.14

2945-121-10-036
2638 ORCHARD AVE
GRAND JUNCTION, CO 81501
LAVERGNE DRS LLC
24508 BLAZER RD
LITTLE ROCK, AR 72223

10 LF, PVC PIPE

THRUST BLOCK TEE

12 LF, PVC PIPE

EXISTING 10" PVC PIPE

18" FUSIBLE PVC

PROPOSED RECEIVING PIT AREA FOR NEW 18" PVC PIPE LOCATED IN LANDSCAPE AREA

THRUST BLOCK ELBOW

40 LF, STEEL PIPE & EX. THRUST BLOCKS

15 LF, STEEL PIPE

9+68.75, 0.00' E.
N 42079.79
E 99941.64

REMOVE EXISTING 24" STEEL PIPE AND INSTALL NEW 18" PVC C-905 IN SAME LOCATION.

EXISTING 24" STEEL WATER PIPE FROM ORCHARD AVE. (0+34) TO TEXAS AVE. (19+50). CONTRACTOR SHALL VERIFY EXISTING PIPE MATERIAL.

2945-124-01-001
1848 N 26TH ST
GRAND JUNCTION, CO 81501
CAMPOS RAFAEL TRUST
596 MAXWELL DR
GRAND JUNCTION, CO 81504-7047

FROM ABUTMENT WALL TO ABUTMENT WALL EXISTING 24" STEEL PIPE CROSSING INDIAN WASH SHALL BE LEFT IN PLACE AND PROTECTED. EXISTING 24" STEEL PIPE WILL BECOME SLEEVE FOR NEW 18" PVC PIPE.

INDIAN WASH BRIDGE

MATCH LINE - SEE SHEET 6

10' U.E.

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

2. THE CONTRACTOR SHALL USE A SOLID PIECE OF NEW 18" PVC FUSIBLE PIPE TO SPAN THE INDIAN WASH DRAINAGE CROSSING. NO FITTINGS OR GASKETED PIPE JOINTS SHALL BE LOCATED WITHIN THE STEEL PIPE CASING ACROSS INDIAN WASH.

811 Know what's below. Call before you dig.

PROJECT NO. 301-F000522

CONSTRUCTION NOTES

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(5) 202 – REMOVAL OF BUSH

(15) 202 – REMOVAL OF PIPE (SIZE & TYPE AS SHOWN ON PLAN) (INCLUDES REMOVAL OF THRUST BLOCKS)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(21) 202 – REMOVE EXISTING WATER VALVE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.

(252) 208 – STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)

(397) 102.7/108.2 – 10" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(400) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.

(401) 102.7/108.2 – 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(402) 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(404) 102.8e/108.3 – BUTTERFLY VALVE (18")

(405) 102.8/108.3 – 20" x 18" REDUCER (MJ) RESTRAINED

(409) 102.8/108.3 – 18", 45° ELBOW (MJ) RESTRAINED

(410) 102.8/108.3 – 8" BLIND FLANGE

(411) 102.8/108.3 – 18" SOLID SLEEVE COUPLING (MJ)

(412) 102.8A/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7C/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.

(415) 102.8K/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8J/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(429) 102.8/108.3 – 6", 45° ELBOW (MJ) RESTRAINED

(431) 10" HOT TAP & 10" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(433) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(602) 608.06 – CONCRETE CURB AND GUTTER (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)

(683) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7' WIDE)

(846) POTHOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POTHOLING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.

DESCRIPTION		DATE
REVISION 1	ADDENDUM #3	2/10/16
REVISION 2	ADDENDUM #4	2/16/16
REVISION 3		
REVISION 4		

DRAWN BY HC DATE JULY, 2015
DESIGNED BY ALC DATE JULY, 2015
CHECKED BY DATE
APPROVED BY DATE

SCALES: PLAN HORIZONTAL 0 10 20 40; PROFILE HORIZONTAL 0 10 20 40, VERTICAL 0 2.5 5

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT
ORCHARD AVENUE TO 28 ROAD
STA 0+00 TO STA 10+00

5

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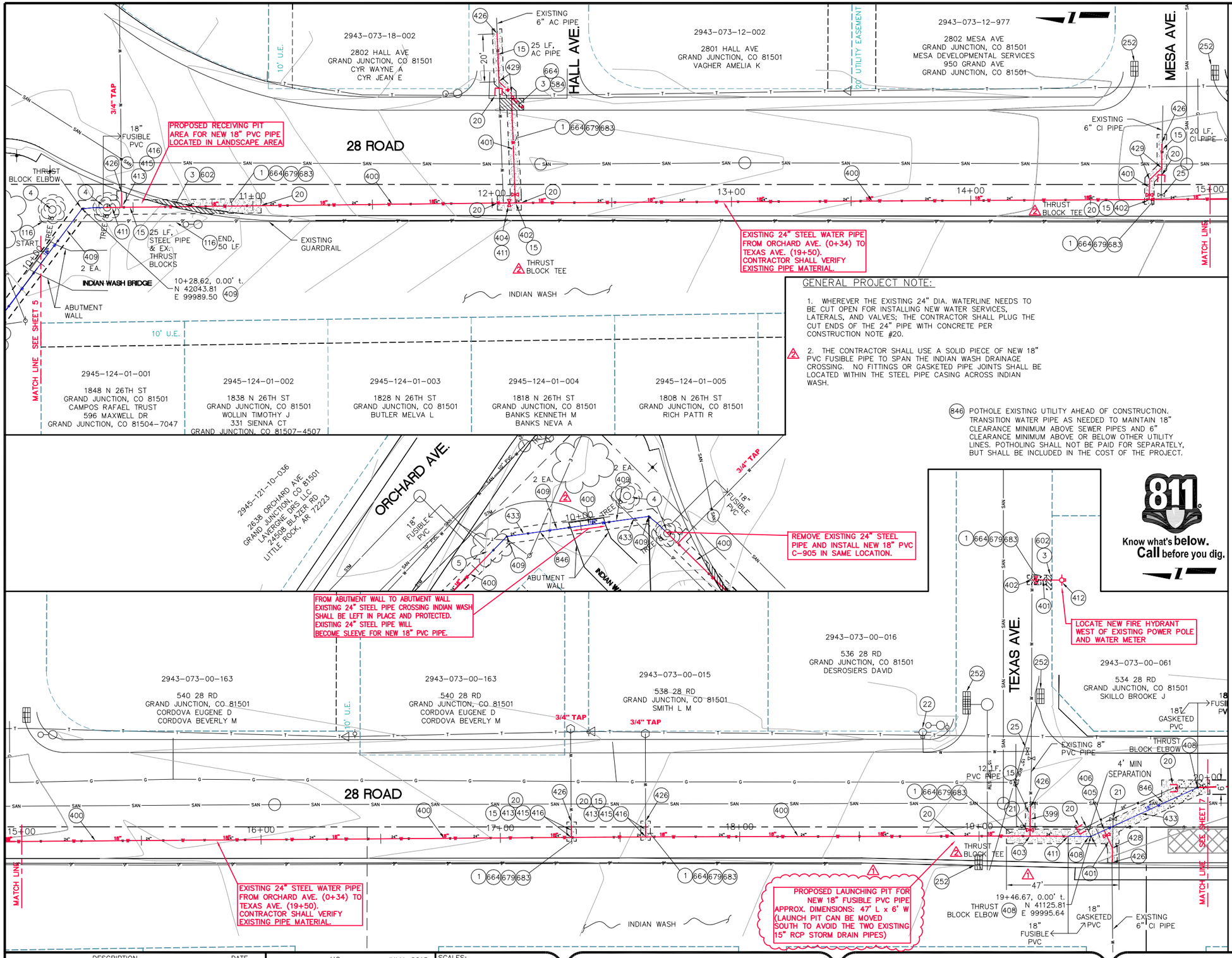


GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

2. THE CONTRACTOR SHALL USE A SOLID PIECE OF NEW 18" PVC FUSIBLE PIPE TO SPAN THE INDIAN WASH DRAINAGE CROSSING. NO FITTINGS OR GASKETED PIPE JOINTS SHALL BE LOCATED WITHIN THE STEEL PIPE CASING ACROSS INDIAN WASH.

(846) POTHOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POTHOLING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.

Know what's below. Call before you dig.

PROJECT NO. 301-F000522

CONSTRUCTION NOTES

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(4) 202 – REMOVAL OF TREE

(5) 202 – REMOVAL OF BUSH

(15) 202 – REMOVAL OF PIPE (SIZE AND TYPE AS SHOWN ON PLAN) (INCLUDES REMOVAL OF THRUST BLOCKS)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(21) 202 – REMOVE EXISTING WATER VALVE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.

(116) 210 – RESET GUARDRAIL

(252) 252 208 – STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)

(399) 102.7/108.2 – 8" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(400) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.

(401) 102.7/108.2 – 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(402) 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(403) 8" HOT TAP & 8" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(404) 102.8e/108.3 – BUTTERFLY VALVE (18")

(405) 102.8b/108.3 – 6" GATE VALVE

(406) 102.8/108.3 – 18" x 6" TEE

(408) 102.8/108.3 – 18", 22.5° ELBOW (MJ) RESTRAINED

(409) 102.8/108.3 – 18", 45° ELBOW (MJ) RESTRAINED

(411) 102.8/108.3 – 18" SOLID SLEEVE COUPLING (MJ)

(412) 102.8A/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7C/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.

(415) 102.8K/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8J/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(428) 102.8/108.3 – 6", 22.5° ELBOW (MJ) RESTRAINED

(429) 102.8/108.3 – 6", 45° ELBOW (MJ) RESTRAINED

(433) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(584) 608.06 – CONCRETE DRAINAGE PAN (MATCH IN KIND)

(602) 608.06 – CONCRETE CURB AND GUTTER (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)

(683) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7' WIDE) ⚠1 ⚠2

DESCRIPTION		DATE
REVISION ⚠1	ADDENDUM #3	2/10/16
REVISION ⚠2	ADDENDUM #4	2/16/16
REVISION ⚠3		
REVISION ⚠4		

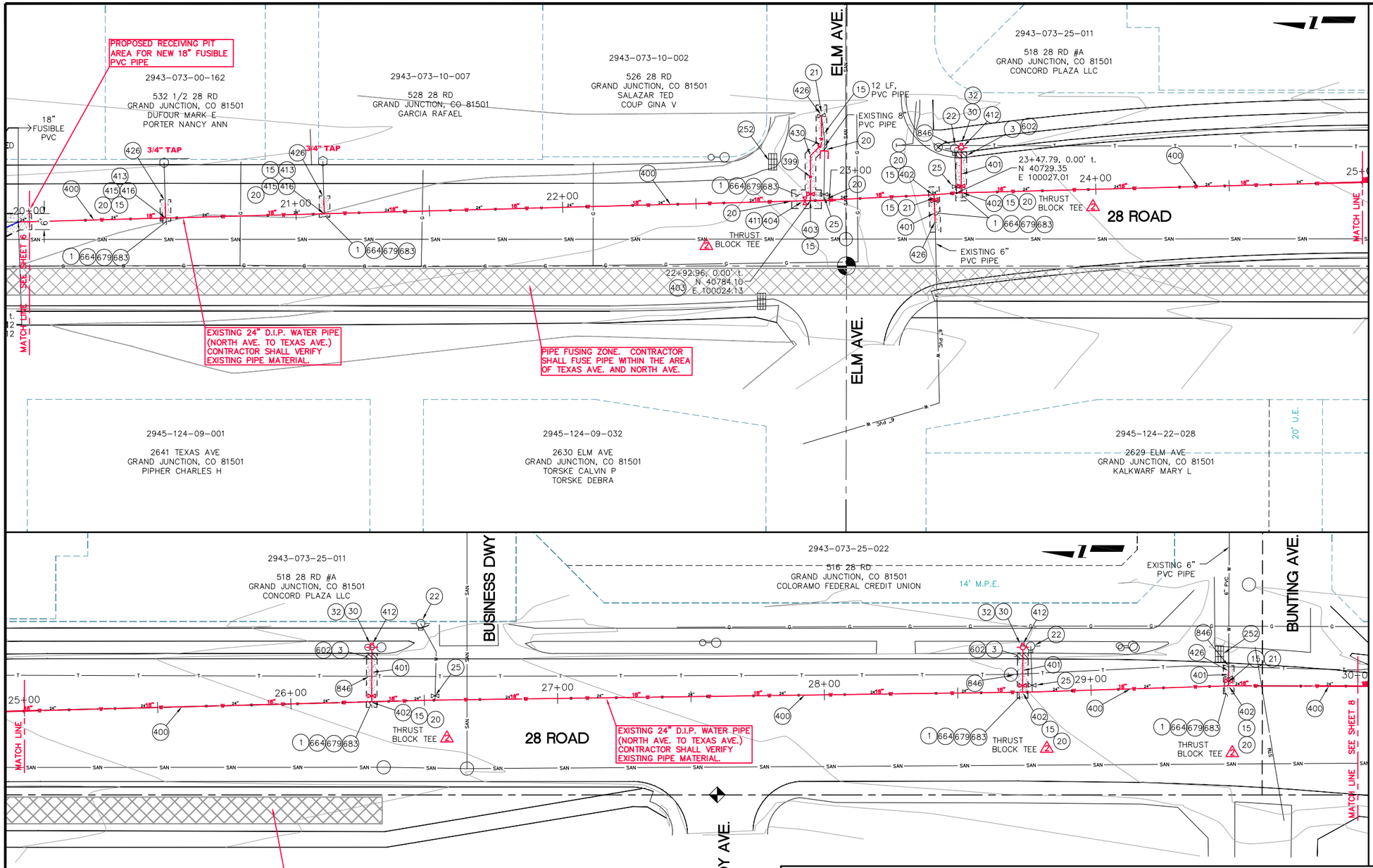
DRAWN BY HC DATE JULY, 2015
DESIGNED BY ALC DATE JULY, 2015
CHECKED BY _____ DATE _____
APPROVED BY _____ DATE _____

SCALES: PLAN HORIZONTAL 0 10 20 40; PROFILE HORIZONTAL 0 10 20 40, VERTICAL 0 2.5 5

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT
28 ROAD (ORCHARD AVE. TO TEXAS AVE.)
STA 10+00 TO STA 20+00



PROJECT NO. 301-F000522

CONSTRUCTION NOTES

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(21) 202 – REMOVE EXISTING WATER VALVE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.

(30) 210 – RESET SPRINKLER SYSTEM (COMPLETE IN PLACE)

(32) 212 – SOD (INCLUDES 6" THICK IMPORTED TOPSOIL PLACED PRIOR TO SOD PLACEMENT)

(252) 252 208 – STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)

(399) 102.7/108.2 – 8" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(400) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.

(401) 102.7/108.2 – 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(402) 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(403) 8" HOT TAP & 8" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(404) 102.8e/108.3 – BUTTERFLY VALVE (18")

(411) 102.8/108.3 – 18" SOLID SLEEVE COUPLING (MJ)

(412) 102.8A/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7C/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.

(415) 102.8K/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8J/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – 8", 45° ELBOW (MJ) RESTRAINED

(433) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(584) 608.06 – CONCRETE DRAINAGE PAN (MATCH IN KIND)

(602) 608.06 – CONCRETE CURB AND GUTTER (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)

(683) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7' WIDE)

(846) POTHOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POTHOLING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

811 Know what's below. Call before you dig.

DESCRIPTION		DATE
REVISION 1	ADDENDUM #3	2/10/16
REVISION 2	ADDENDUM #4	2/16/16
REVISION 3		
REVISION 4		

DRAWN BY HC DATE JULY, 2015
DESIGNED BY ALC DATE JULY, 2015
CHECKED BY DATE
APPROVED BY DATE

SCALES: PLAN HORIZONTAL 0 10 20 40; PROFILE HORIZONTAL 0 10 20 40, VERTICAL 0 2.5 5

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT
28 ROAD (TEXAS AVE. TO BUNTING AVE.)
STA 20+00 TO STA 30+00

7

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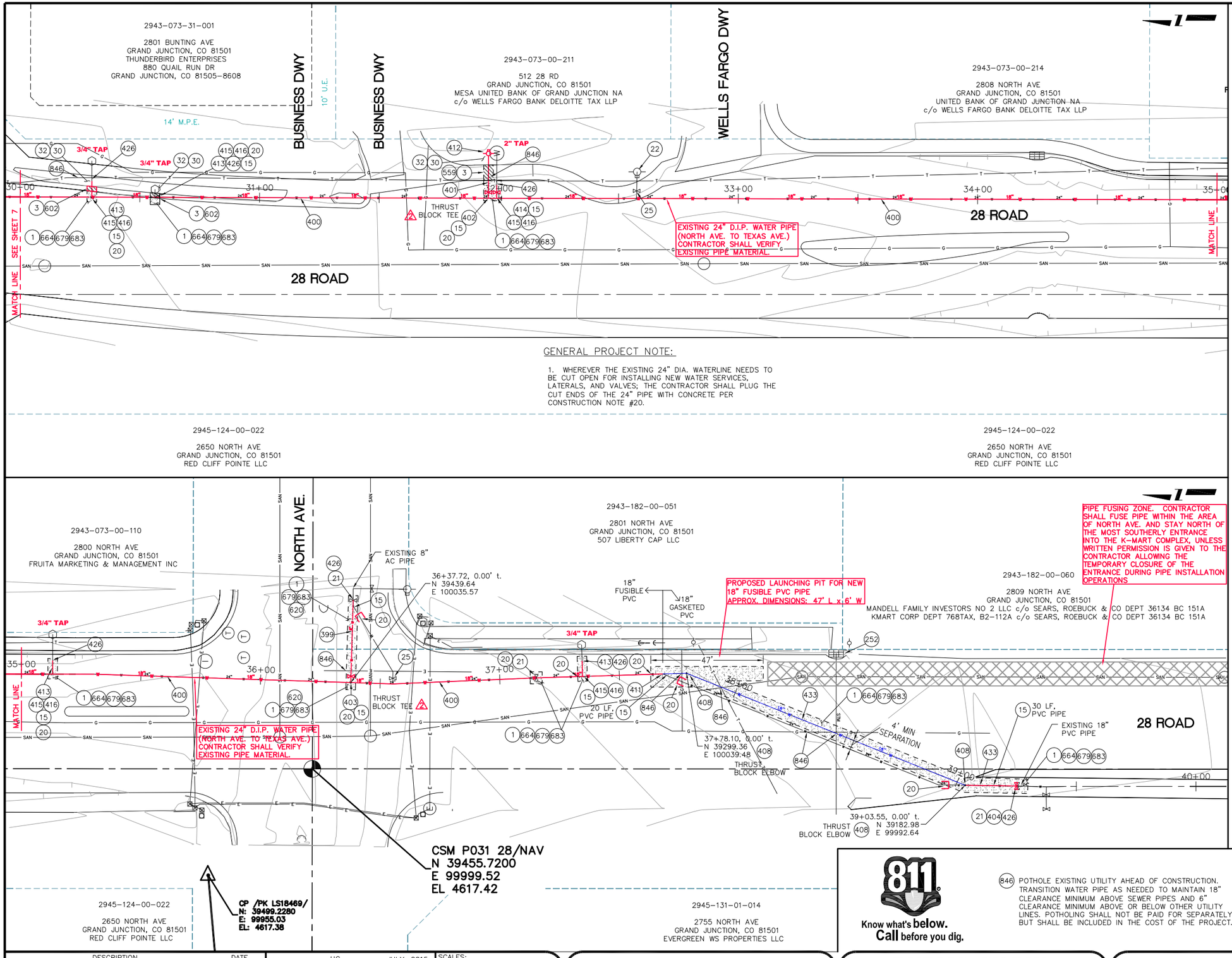

PROJECT NO. 301-F000522

CONSTRUCTION NOTES

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(21) 202 – REMOVE EXISTING WATER VALVE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.

(30) 210 – RESET SPRINKLER SYSTEM (COMPLETE IN PLACE)

(32) 212 – SOD (INCLUDES 6" THICK IMPORTED TOPSOIL PLACED PRIOR TO SOD PLACEMENT)

(252) 252 208 – STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)

(399) 102.7/108.2 – 8" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(400) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.

(401) 102.7/108.2 – 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(402) 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(403) 8" HOT TAP & 8" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)

(404) 102.8e/108.3 – BUTTERFLY VALVE (18")

(408) 102.8/108.3 – 18", 22.5° ELBOW (MJ) RESTRAINED

(411) 102.8/108.3 – 18" SOLID SLEEVE COUPLING (MJ)

(412) 102.8A/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7C/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.

(414) 102.7C/108.4 – WATER MAIN (2") (HDPE) (SERVICE LINE) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.

(415) 102.8K/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8J/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – 8", 45° ELBOW (MJ) RESTRAINED

(433) 102.7/108.2 – 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(559) 608.06 – MONOLITHIC VERTICAL CURB, GUTTER AND SIDEWALK (MATCH IN KIND) (CONCRETE)

(602) 608.06 – CONCRETE CURB AND GUTTER (2' WIDE)

(620) 206 – STRUCTURAL BACKFILL (FLOW-FILL)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)

(683) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7' WIDE)

811 Know what's below. Call before you dig.

(846) POTHOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POTHOLING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.

DESCRIPTION		DATE
REVISION 1	ADDENDUM #3	2/10/16
REVISION 2	ADDENDUM #4	2/16/16
REVISION 3		
REVISION 4		

DRAWN BY HC DATE JULY, 2015
DESIGNED BY ALC DATE JULY, 2015
CHECKED BY DATE
APPROVED BY DATE

SCALES: PLAN HORIZONTAL 0 10 20 40; PROFILE HORIZONTAL 0 10 20 40, VERTICAL 0 2.5 5

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT
28 ROAD (BUNTING AVE. TO NORTH AVE.)
STA 30+00 TO STA 40+00

8

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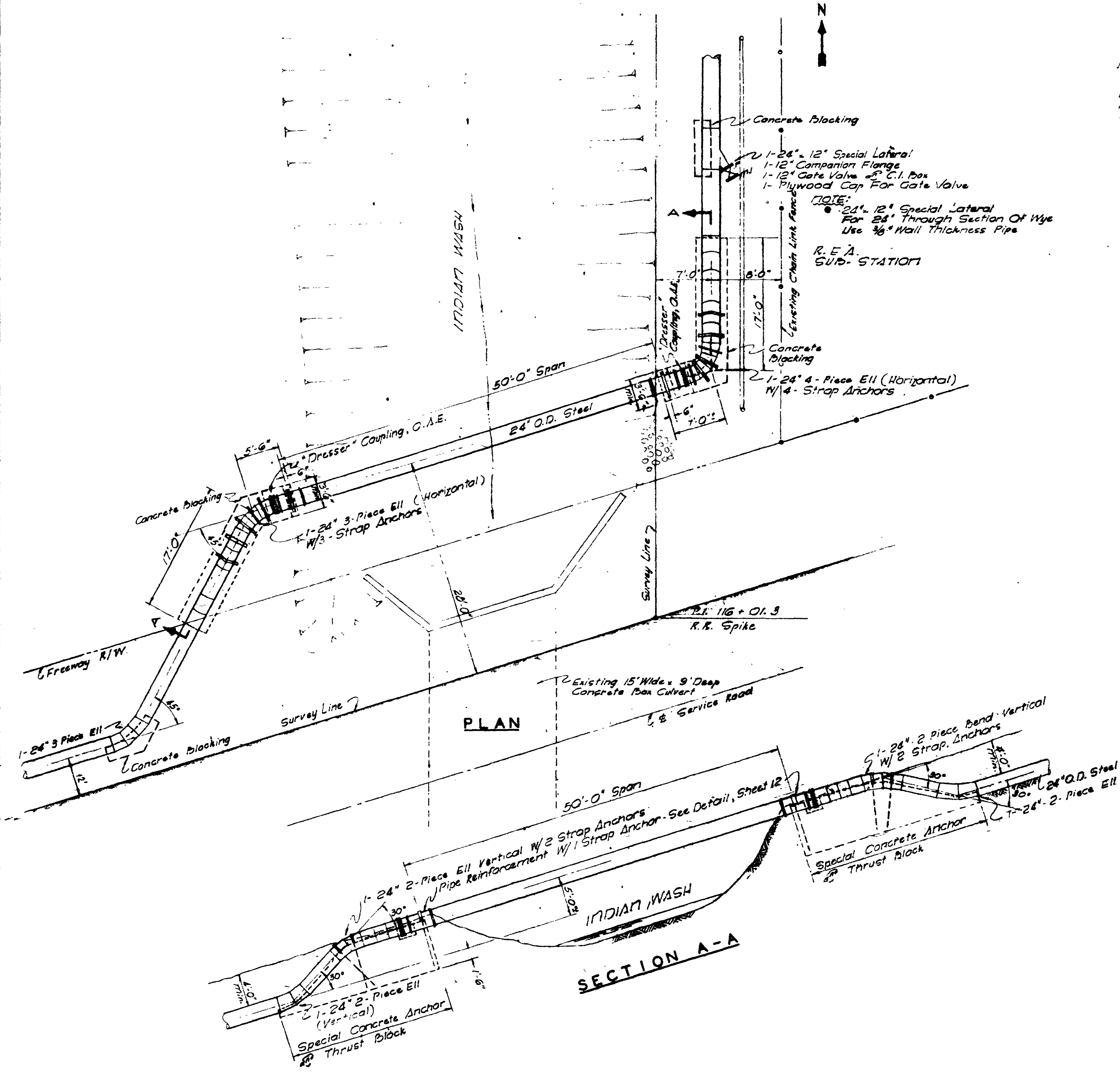
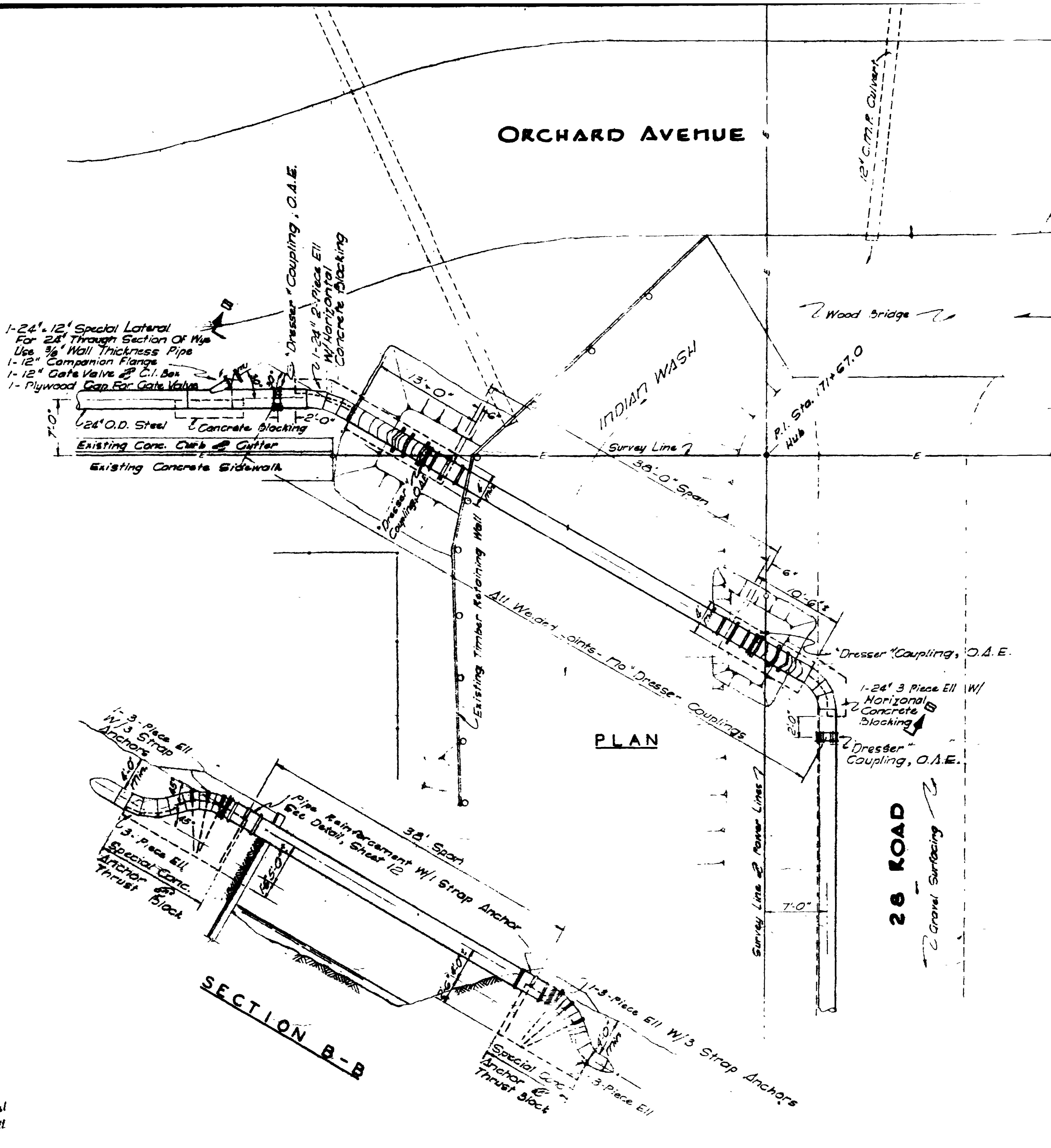


CROSSING AT FREEWAY AND 28 ROAD-STA. 116+01.3

SCALE: 1/8" = 1 FT.



CROSSING AT 28 ROAD AND ORCHARD AVENUE-STA. 171+67.00

SCALE: 1/8" = 1 FT.

AS CONSTRUCTED

W. F. TURNEY AND ASSOCIATES CONSULTING ENGINEERS SANTA FE, NEW MEXICO	GRAND JUNCTION, COLO. INDIAN WASH WATER MAIN INDIAN WASH CROSSINGS
O.A.E. DESIGNATES OR APPROVED EQUAL	PROJECT No. 59-12 · SCALE: 1/8" = 1 FT. · DATE: JAN. 60 · SHEET 11 OF 13

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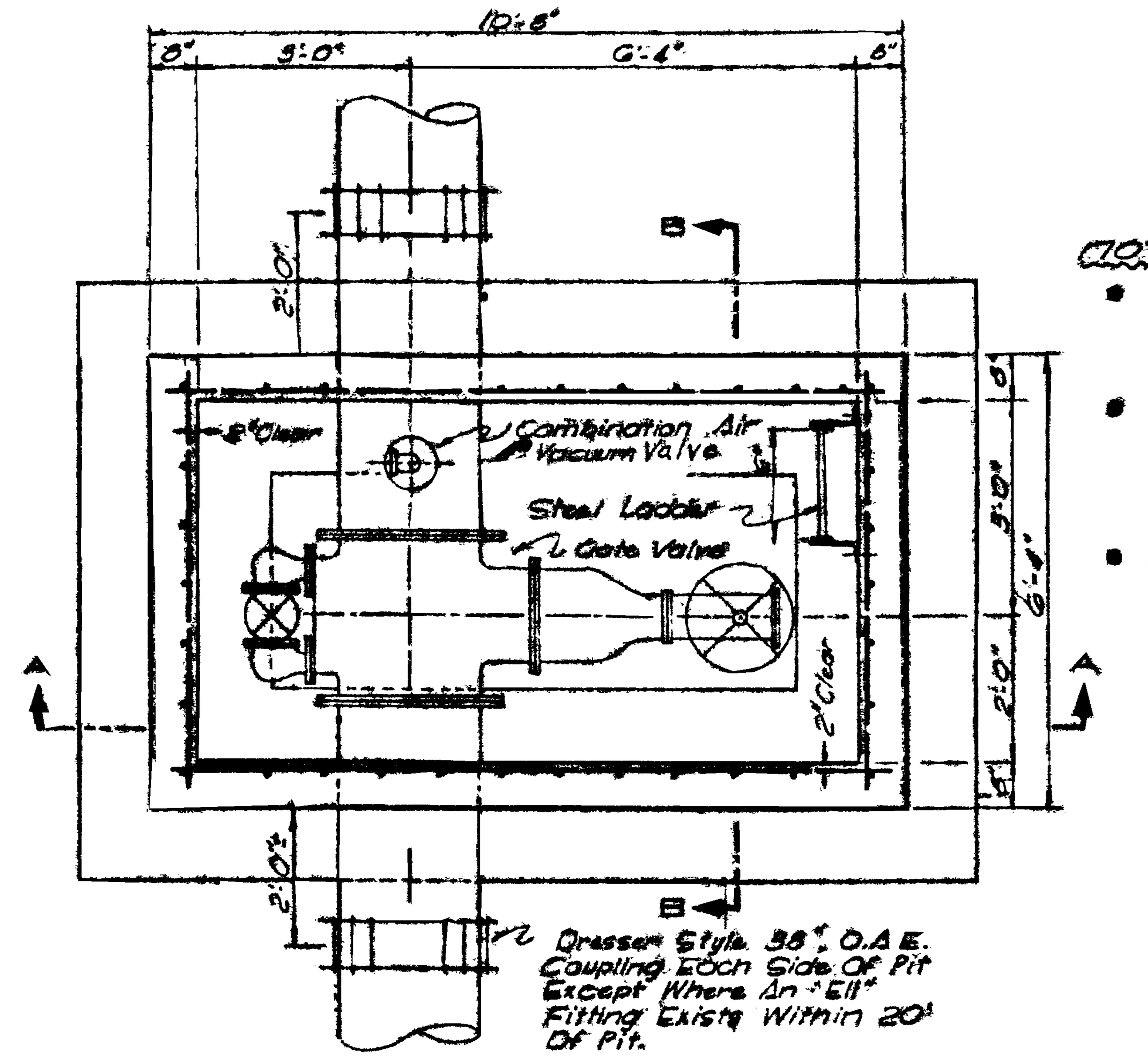


FLOOR PLAN

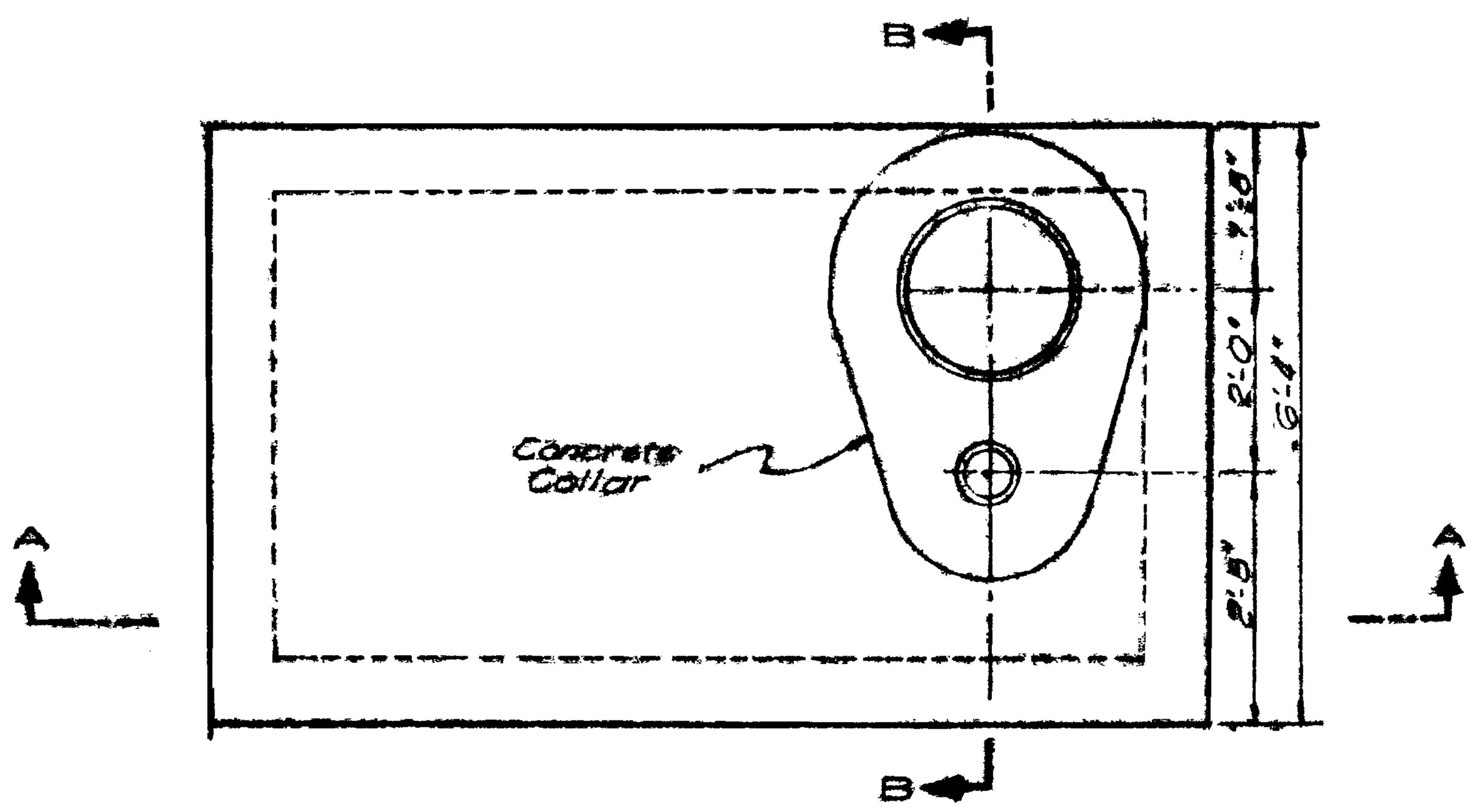
NOTE:
- Provide 2" Combination Air And Vacuum Valve In All 24" Gate Valve Pits. Omit In 20" Gate Valve Pit.
- 2" Combination Air & Vacuum Valve, "APCO" No. 145C Or "Simplex Type AV" Locate On Side Of Gate Valve Towards Sta. 0+00.
- Gate Valve, Horizontal Mount - For Locations, Sizes, Orientation, & End Connections See Plan & Profile Sheets.

VALVE PIT REINFORCING STEEL

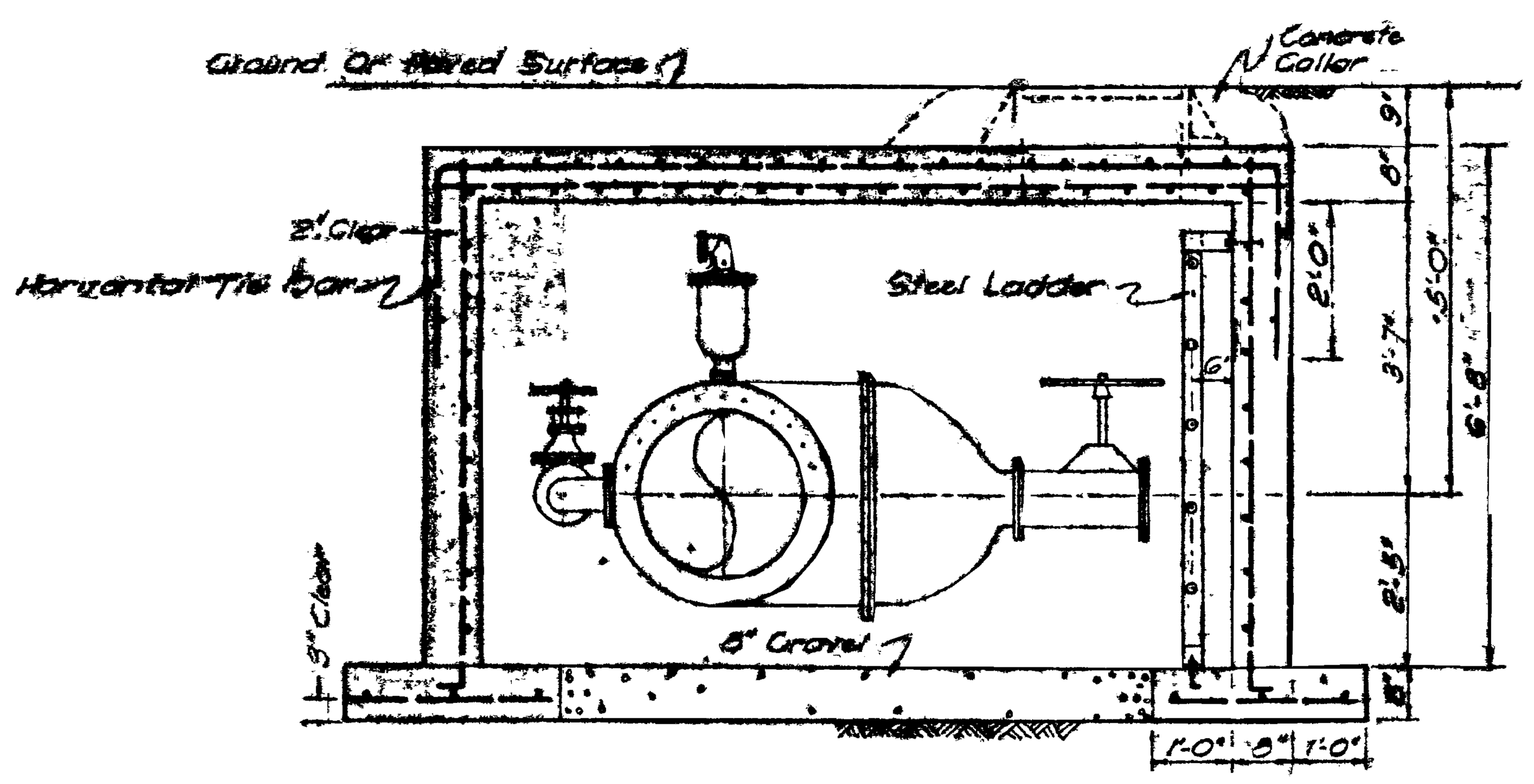
Roof - Bottom - Short Bars #6 @ 6" O.C.
Bottom - Long Bars #4 @ 20" O.C.
Top - Short Bars - #6 @ 6" O.C.
Top - Long Bars - #4 @ 20" O.C.
Walls - Inside - Horizontal Bars - #5 @ 8" O.C. Continuous
Inside & Vertical Bars - #4 @ 10" O.C.
Outside - Horizontal Tie - 1 #4 Continuous
Footing - Longitudinal Bars - 3 #4 Continuous
Transverse Bars - #4 @ 10"

STEEL LADDER

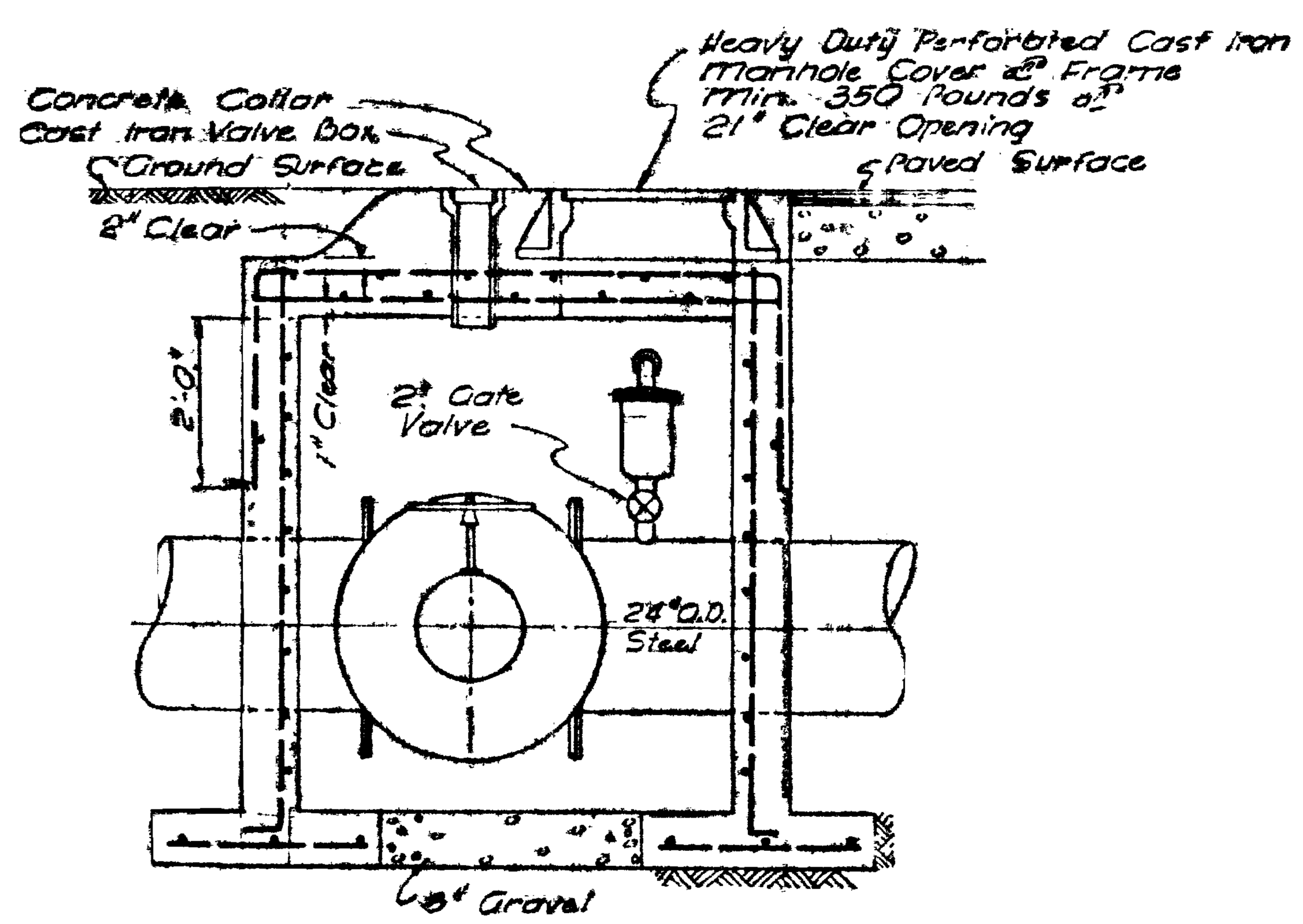
Stile - 2 ½" x 3/8" x 2 ½"
Rungs - 5 - ¾" ϕ (Drill Holes In Stiles & Weld Rungs Therein)
Brackets - 2 - 2½" x 2½" W/ 5/8" ϕ x 6" Anchor Bolt
Clip Angles 2 - 2½" x 2½" W/ 5/8" ϕ x 3" Lag Screw In Expansion Shield



TOP PLAN

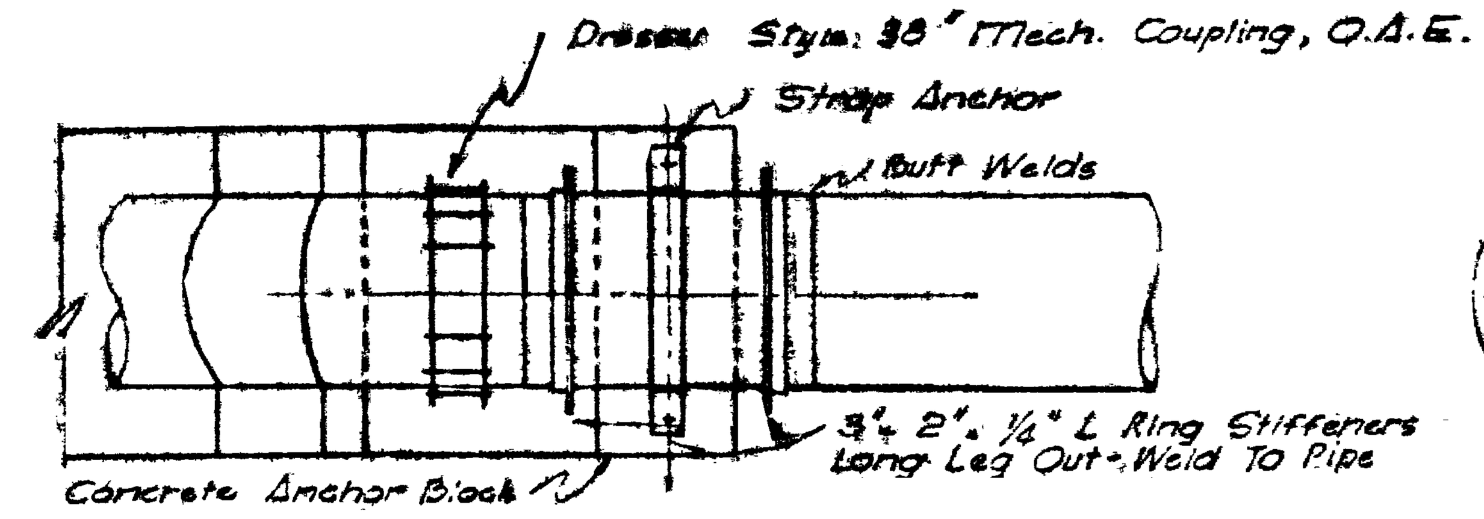


SECTION A-A

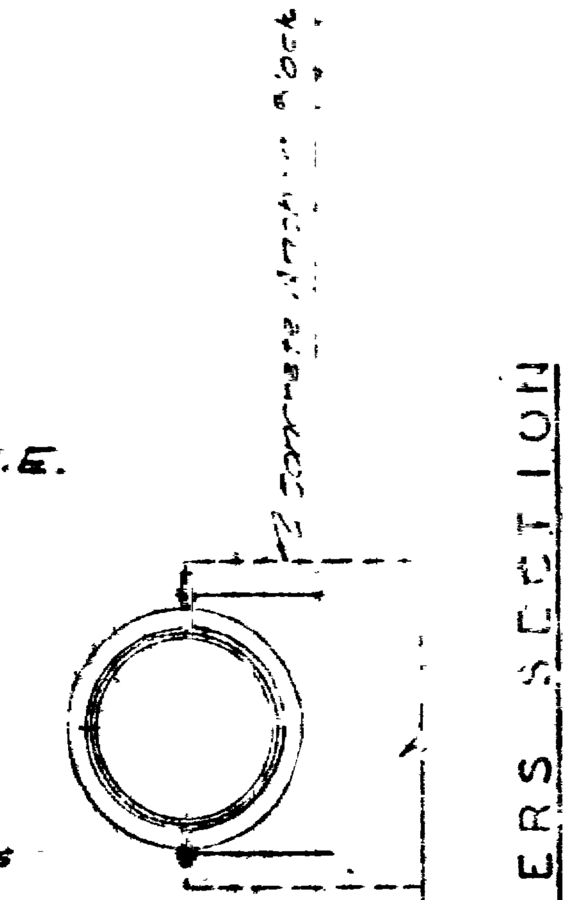


SECTION B-B

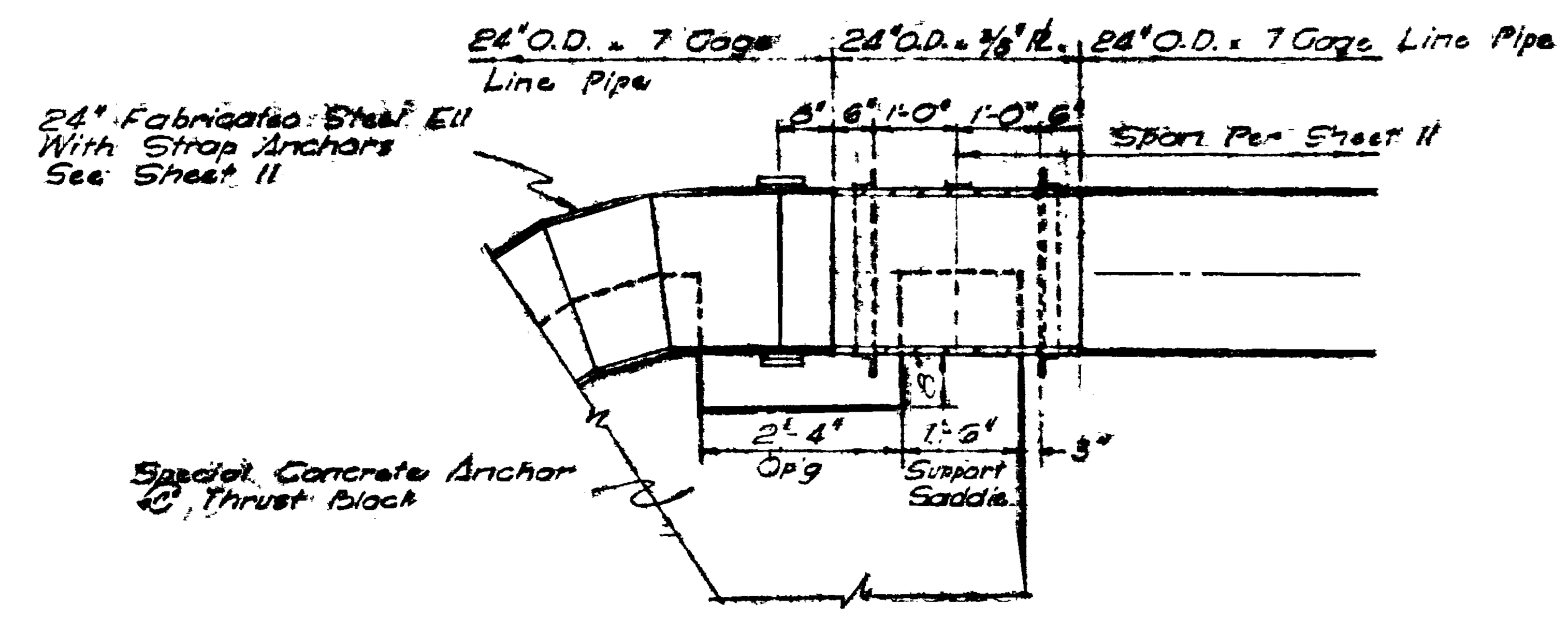
GATE VALVE AND PIT
SCALE: ½" = 1 FT.



PLAN

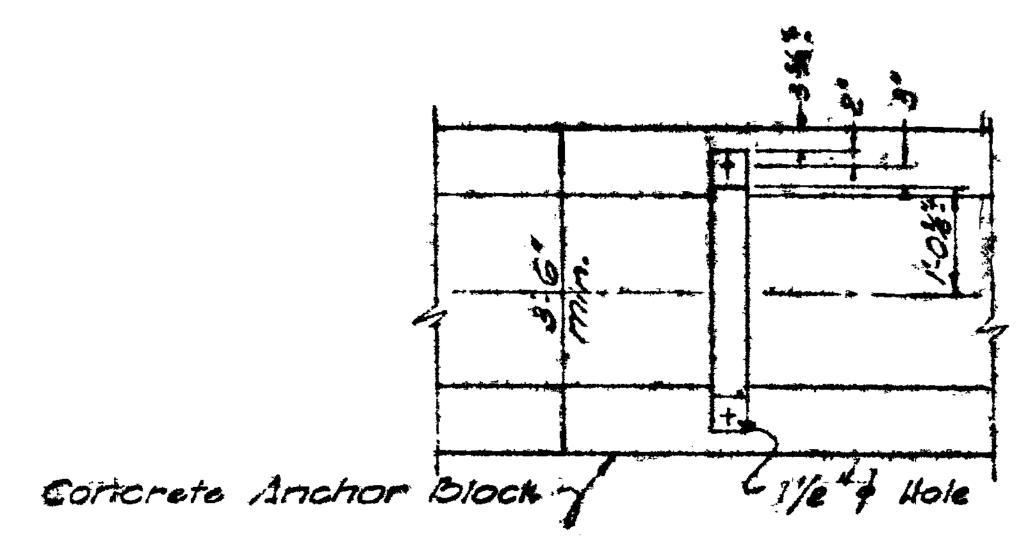


TRANSVERS SECTION



LONGITUDINAL SECTION

PIPE REINFORCEMENT AT SPAN CROSSING SUPPORTS
SCALE: ½" = 1 FT.



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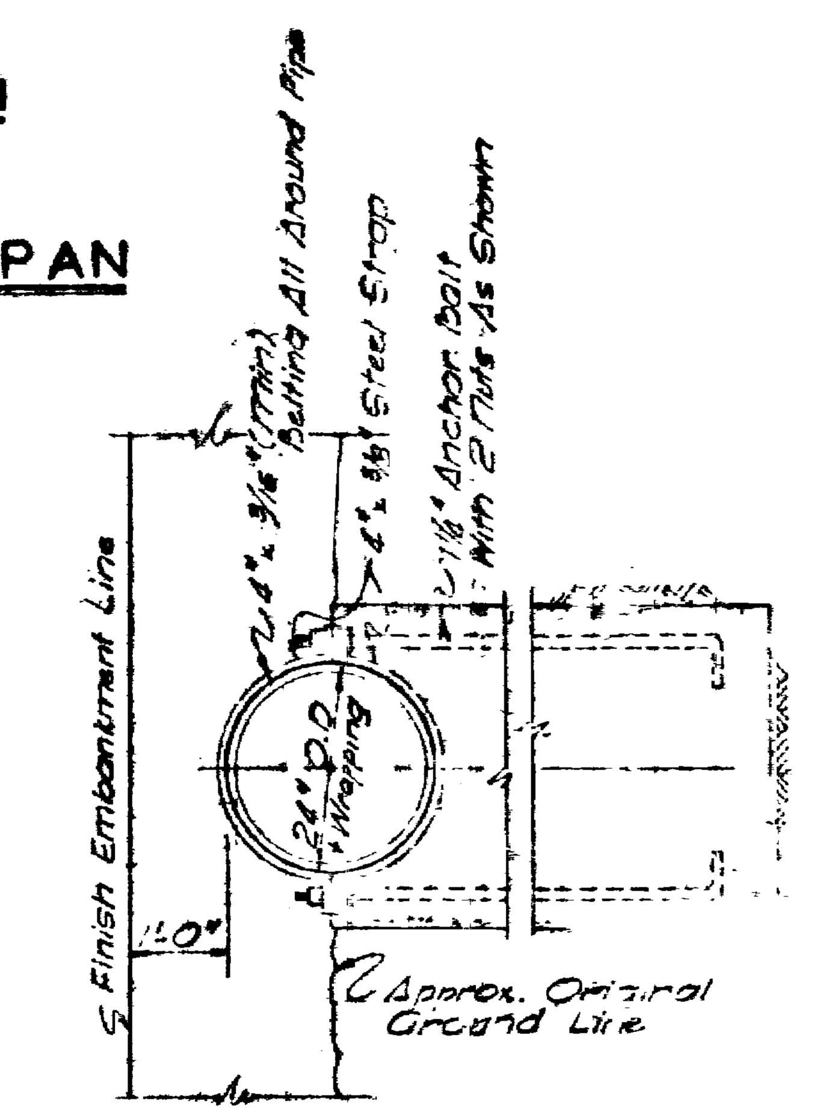

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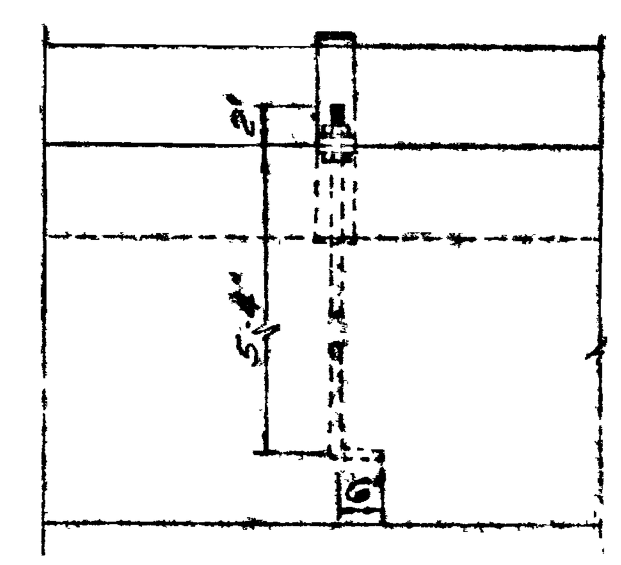

ELEVATION

STRAP ANCHOR
SCALE:

NOTE:
- Straps To Be Painted & Coated Befor
- Strap Anchor Rings At Support Saddle To Be Enough To Allow Thermal Expansion Or Contr Of Span Pipe. Strap Anchor Rings On Ell's To Be Snug Fit.

AS CONST

W. F. TURNEY AND ASSOCIATES
CONSULTING ENGINEERS
SANTA FE, NEW MEXICO

O.A.E. DESIGNATES OR APPROVED EQUAL

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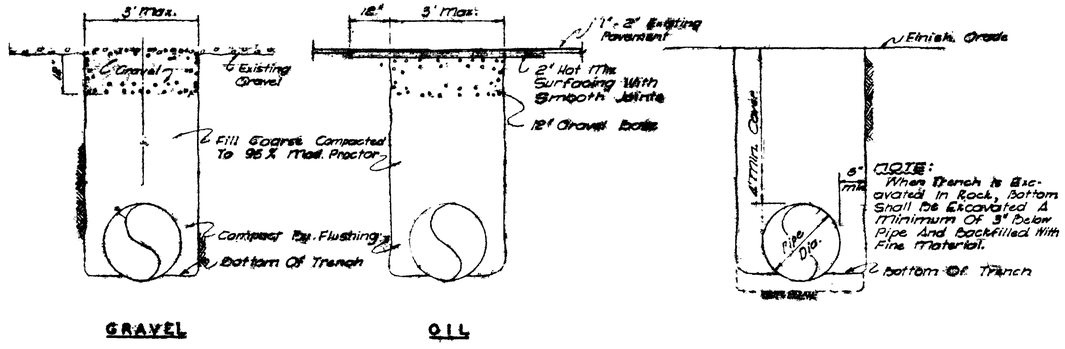
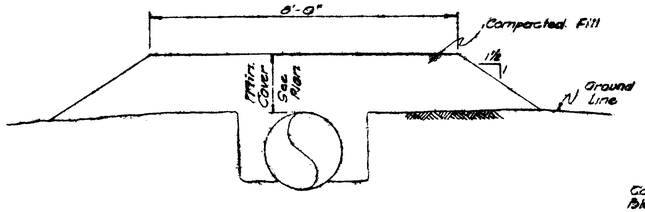


GRAVEL OIL

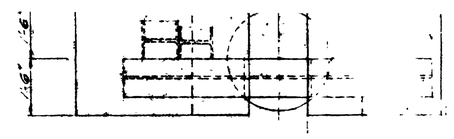
PAVING REPLACEMENT
SCALE: 1/2" = 1 FT.

TRENCH SECTION
SCALE: 1/2" = 1 FT.

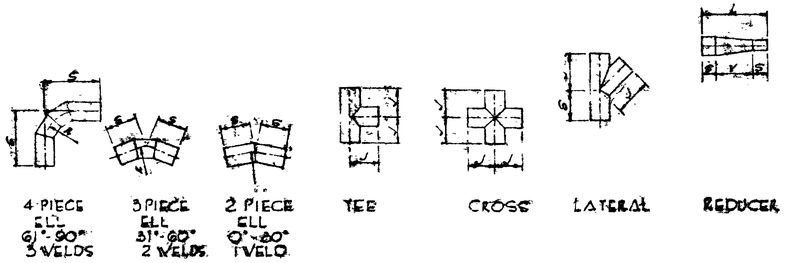


EMBANKMENT
SCALE: 1/2" = 1 FT.

For Location Of Embankment - See Sheet 11.



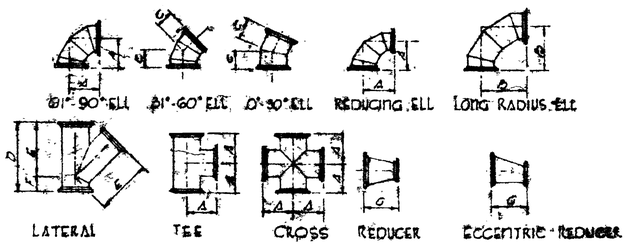
SECTION A-A



FITTINGS FOR WELDED STEEL PIPE

OUTSIDE DIAMETER OF PIPE	4-PIECE ELLS E	4-PIECE ELLS K	3-PIECE ELLS E	3-PIECE ELLS K	2-PIECE ELLS E	2-PIECE ELLS K	REDUCERS L	REDUCERS V	REDUCERS S	TEES J	CROSSES J	LATERALS G	LATERALS J
12"	25	10	16	34	15½	40	36	18	8	27	27	15½	
20"	36	24	26	66	19	96	42	26	8			18½	49
24"	42	30	34	60	28	120	42	26	8	33	33	19½	54

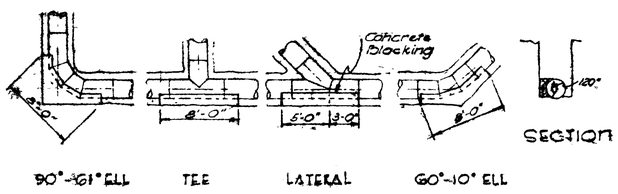
Fabricate All Fittings To Above Dimens.



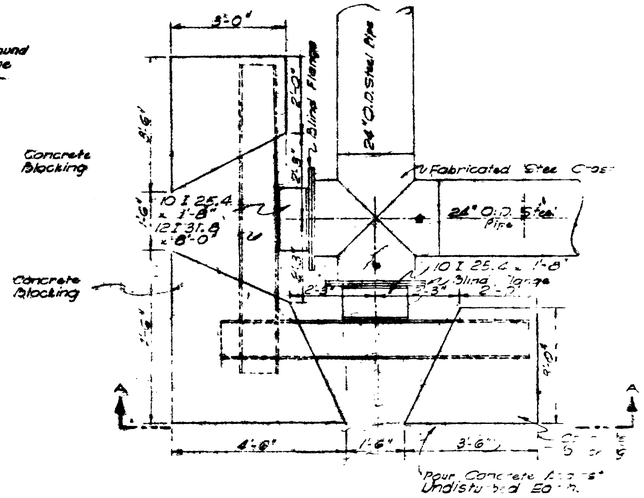
FLANGED FITTINGS FOR WELDED STEEL PIPE

O.D. OF PIPE	Dimensions in Inches A	B	C	D	E	F	G
12"	12	19	7½	30	24⅛	5½	14
20"	18	29	9½	43	35	8	20
24"	22	34	11	49½	40½	9	24

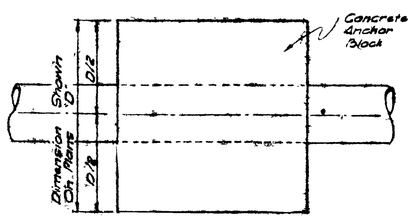
Fabricated All Fittings To Above Dimensions Unless Otherwise Shown On Drawings.



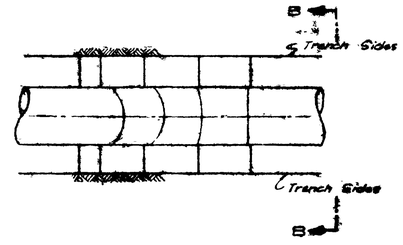
HORIZONTAL BLOCKING



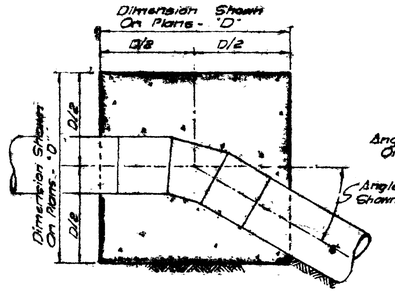
CROSS WITH BLIND FLANGES
SCALE:



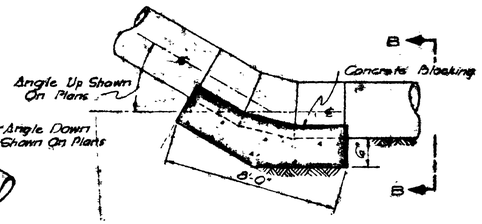
PLAN



PLAN



SECTION

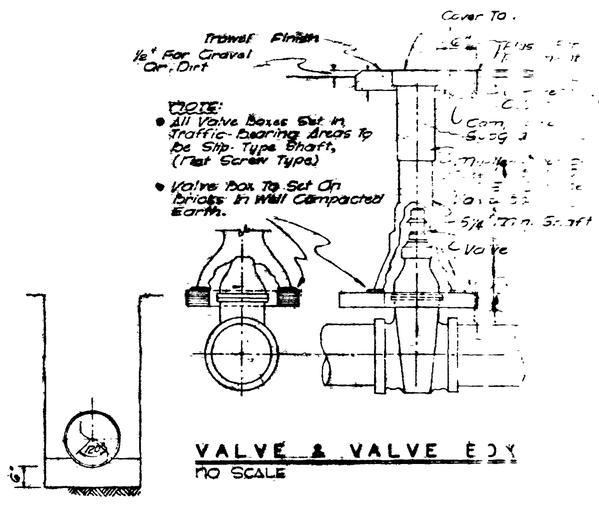


SECTION

ANCHOR FOR BENDS DOWN BLOCKING FOR BENDS UP

ANCHOR BLOCK DIMENSIONS ANGLE DOWN	DIMENSION "D" To Anchor
0° - 10°	4'-0"
11° - 20°	4'-9"
21° - 30°	5'-6"
31° - 40°	6'-6"
21° - 50°	7'-0"

VERTICAL ANCHORS AND BLOCKING
NO SCALE



VALVE & VALVE BOX
NO SCALE

SECTION B-B

W. F. TURNEY AND ASSOCIATES
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GRAND
INDIAN
PIPE L

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