



Purchasing Division

ADDENDUM NO. 5

DATE: May 7, 2019
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: Raw Water Irrigation Supply and Waterline Replacement IFB-4611-19-DH

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to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.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

1. Contractor shall utilize the attached updated Price Bid Schedule when submitting their bid response.
2. Q. There appears to be an 8" service on the Raw Water line at station 27+49.53 (cemetery line) as shown on plan sheet 2.6 that has no bid item – similar question asked on addendum 3 with no answer provided.
 - A. This was revised to 12" service with 12 meter for cemetery connection. See attached updated Price Bid Schedule.
3. Q. Please provide detail for meter vaults required on bid items 16-19 (2" to 12"), the only service/meter detail provided is for a small diameter potable water service.
 - A. See answers in this Addendum.
4. Q. Please provide blow-off detail for bid item 26.
 - A. Refer to Detail 8, Sheet CD2.0.
5. Q. Bid item 44 - Please provide meter connection detail for 24" mag meter in vault.
 - A. Install flow meter per installation instructions provided by manufacturer.
6. Q. Bid item 27, combination air valve (6") - threaded tap saddles are not readily available with 6" outlet, what type of fitting will be required for this connection to main line? Please revise air valve detail to reflect necessary fittings for 6" air valves.
 - A. A flanged tee with flange butterfly valve is acceptable. Butterfly valve must have a traveling nut or worm gear actuator with manual operating nut such that the valve can be operated from outside the manhole.

7. Q. The fusible PVC pipe may not be readily available in purple, will blue pipe be allowed? The remainder of the irrigation line does not currently have a purple pipe requirement.

A. Blue pipe will be allowed.

8. Q. Casing and spacers

- a. A detail and spec are provided for spacers but no indication where required (detail note for waterline lowering shows casing but states if specified, no indication of requirement for project)
- b. Are casing spacers required on fusible pipe into existing RCP?
- c. Addenda 3 Q&A #10 unclear.
 - i. Is bridge pipe intended to be encased. Detail 6/S2.1 appears to show 10" PVC through casing/sleeve through abutment wall only, please clarify, additional detail on sheet S2.1 do not indicate steel casing
 - ii. If only abutment is encased/sleeved are link seal required on penetration per plan detail 2/C2.3, or where does this detail pertain to?

A. The 14" goes through the abutment wall only. Pipe spanning under Hwy 50 bridge will be Certa-Lok C900 PVC with EBAA Iron Extend Series 210M2 Expansion Joints at both ends. Refer to Sheets C2.12-C2.14. Link Seal is required, refer to Detail 2, Sheet 2.3.

9. Q. From previous experience with waterlines suspended from bridges, it is recommended that the pipe be fully restrained so that it cannot move (i.e. vertically or laterally, separation at joint) when pressurized. This could be possibly accomplished in a number of ways (TBD by engineer)

- a. Use C900 as called out with EBAA 1900 series restraint joints or similar with an EBAA extend coupling or similar installed on at least one end to accommodate thermal expansion/contraction.
- b. Use Certalok restrained joint pipe with EBAA extend coupling or similar
- c. Use fusible PVC pipe with EBAA extend coupling or similar

A. Pipe spanning under Hwy 50 bridge will be Certa-Lok C900 PVC with EBAA Iron Extend Series 210M2 Expansion Joints at both ends. Refer to Sheets C2.12-C2.14.

10. Q. Erosion and sedimentation control do not have an item on bid schedule, are these to be included in mob/demob or should there be a separate bid item?

A. See attached updated Price Bid Schedule.

11. Q. Addendum 3, answer #3 states approximately 4,800 lf of AC pipe to be removed. At the pre-bid meeting, it was stated that only Canon Ave would have AC pipe within the work zone. Please identify the location of the 4,800 lf to be removed.

A. The quantity if AC pipe is revised to 700 LF.

12. Q. The City Standard Waterline Detail drawings do not show details for a 12" meter and vault. Please provide.

A. Location is shown on Sheet C2.6. Use City Standard Waterline Detail W-06 as detail for 12" vault.

13. Q. We cannot find the locations for any of the meters and vaults that are in Bid Schedule Items 15, 16, 17 & 18. We only locate notes stating connection to existing. Please identify the locations of

the meters and vaults. Since restoration is bid as lump sum or incidental, we need to know exact location to determine the extent of replacement cost for landscaping.

A. Meter symbol and annotations have been provided on the drawings.

14. Q. Addendum 2 provided drawings for the proposed liner work on Reservoir #3. However, a revised bid schedule with line items for liner work and associated appurtenances was not provided. Please revise bid schedule to include this work or clarify where the cost for this work is to be included.

A. See attached updated Price Bid Schedule.

15. Q. Addendum 3, answer #10 says casing pipe is supposed to be. Not clear what the intent is. Also states "see revised bid schedule" but never received revised schedule. Please clarify intent and revise schedule to show what, how much, location and size casing pipe is to be included in our proposals.

A. Refer to Detail 6, Sheet S2.1.

16. Q. Addendum 3, question and answer #13. This question addresses our previous item #3 above. It also makes it the contractor's responsibility to verify material and size of each connection to existing. We would need to know what type of existing pipe material to assume at bid time and clarification as to how different types would be paid for should different or additional fittings be required. This same answer refers to updated bid schedule, but we did not receive on. Please clarify and update bid schedule.

A. The 8" Cemetery line was revised to 12" with meter. The cemetery is fed by a 12" manifold. See attached updated Price Bid Schedule.

17. Q. Addendum 3, answer #14. Adjusted 6" water service connections to 2 each. Please revise bid schedule to reflect quantity change.

A. See attached updated Price Bid Schedule.

18. Q. Addendum 3, answer 15. Did not answer question regarding acceptable valve boxes types, slip or threaded. Please clarify.

A. Use City standards, slip valve boxes.

19. Q. Addendum 3, answer #16. Contractor is responsible for providing protective coating for utility supports on bridge crossing. Is there a specification that will be required to be followed for this protective coating work?

A. All structural steel shall be hot dip galvanized. Connection bolts, washer and nuts shall be galvanized.

20. Q. Has CDOT reviewed and accepted the project plans?

A. CDOT has reviewed and approved this project.

21. Q. Will there be bird migration issues to consider for the bridge crossing work? If so, this may affect completion date of project.

A. No issues known for bird migration.

22. Q. Addendum 3, answer #17. Seems to be confusion on the question. Was not asking if the pipe needed to be installed prior to the HDPE liner, was asking how the pipe penetration into Reservoir #3 was to be made. Detail 2/C2.3 is for a vertical concrete wall penetration, not a sloped wall as Reservoir #3. Need detail on how this connection will be made.

A. Refer to Detail 5, Sheet C4.0.

23. Q. Addendum 3, questions 17 and 37, answer 37. Both questions address making the connection into Reservoir #3. Since the existing concrete liner is at a 1.75:1 backslope, either concrete panels need to be removed and replaced to facilitate installation of the new piping into the reservoir or a detailed drawing needs to be provided to show how this is to be constructed without excavation. It is not possible to excavate under the concrete and leaving it hanging in the air for pipe installation below. Please address this issue.

A. Refer to Detail 5, Sheet C4.0.

24. Q. Addendum 3, question 18. The question was not answered. Due to the new 24" line and the existing 24" line being at the same elevation near the vault, there will be a conflict in crossing over the 24" irrigation to the Orchard Mesa potable while connecting. The question is how this is to be done. Please provide clarification for bid purposes as to the proper configuration desired.

A. Orchard Mesa line will require waterline lowering.

25. Q. Addendum 3, question and answer #21. The answer to this question reflects back to answer #4 of the addendum. Since the City may "consider" a different pipe after bid time, we have to bid as detailed at bid time. The plans show standard 4" PVC to be installed under the detention pond for the Botanical Garden lateral. The bore process will require this section of pipe to be restrained in some fashion to facilitate installation. Please clarify the type of restrained PVC pipe that will be acceptable.

A. HDPE is acceptable in this location. It is possible the pond could be drained to allow for pipe installation with open cut trench. For bidding purposes, provide price for boring approximately 330 LF of HDPE pipe.

26. Q. Addendum 3, question and answer #22. This addresses the Hwy 50 crossing within the existing 24" concrete pipe. Careful examination of the plans indicates that the 24" concrete pipe may already have an abandoned 16" pipe installed within it. Has this been verified? If it is existing within the 24" concrete, we would need to know the type of pipe and if it is grouted or some other way secured within the 24" concrete casing. If the 16" is present within the 24" concrete, it would need to be removed. How would this be paid for? Please provide further information regarding this crossing.

A. The City does not have evidence that a pipe exists within the 24-inch concrete pipe.

27. Q. Addendum 3, question and answer #24. Potholing information should be provided prior to this project bidding. Contractors need this information to accurately price out their proposals. Please provide or explain as to why it is not being provided.

A. Potholing information will be provided to the awarded bidder. Information is not shown on plans for clarity, but is reflected in profile view, where existing crossings are applicable.

28. Q. Addendum 3, question and answer #41. Did not answer if we need to include concrete collars around fiber optic box at location provided. Please clarify.

A. A concrete collar is not required.

29. Q. Site investigation of the bridge crossing reveals that the pipe alignment as shown on the drawings will be in direct conflict with the 4" steel deck drains. Observation also shows that there is conflict with the mid-span girder diaphragms and the pier diaphragms. How will these conflicts be avoided? Will bends be allowed on the pipeline under the bridge in order to wave through for clearance?

A. Revised alignment addresses this issue. Pipe was shifted to east side of bridge. Refer to Sheets C2.12-C2.14.

30. Q. Discussion at the pre-bid and verbiage in the addendums indicate that the irrigation pipe may not be drained fully in the winter. How will the pipeline under the bridge be prevented from freezing? We see no indication that this section of line is insulated. Please clarify.

A. The pipeline under the bridge will be drained.

31. Q. The plans indicate 10" PVC pipe without restraints or full casing to be installed under the bridge. We have never seen this done on past projects. Are there provisions for joint restraints on the PVC pipe? If casing is required, we need to know what size, type and thickness.

A. Pipe spanning under Hwy 50 bridge will be Certa-Lok C900 PVC with EBAA Iron Extend Series 210M2 Expansion Joints at both ends. Refer to Sheets C2.12-C2.14.

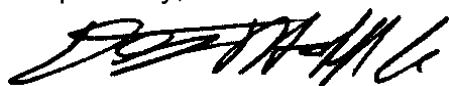
32. Q. If casing is required to be installed with the carrier pipe under the bridge, it will greatly affect the possibility of weaving through the diaphragms for clearance as addressed in item 19 above. Please address and explain intent.

A. No casing is required. See questions above.

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

All other conditions of subject remain the same.

Respectfully,



Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

Bid Schedule (Revised per Addendum 5): Raw Water Irrigation Supply and Waterline Replacement

Item No.	(Div. No.)	Description	Quantity	Units	Unit Price	Total Price
Raw Water Irrigation Supply						
1	103	Flowable Fill (in CDOT ROW)	80.	CY	\$ _____	\$ _____
2	608	Concrete Path Repair	100.	SY	\$ _____	\$ _____
3	608	AC Pipe Removal and Disposal	700.	LF	\$ _____	\$ _____
4	SP	Reservoir 3 Connection	1.	EA	\$ _____	\$ _____
5	SP	Reservoir 4 Connection	1.	EA	\$ _____	\$ _____
6	SP	Boring - Botanical Garden Lateral	330.	LF	\$ _____	\$ _____
7	SP	5th Street Bridge Abutment Penetration	Lump Sum		---	\$ _____
8	SP	5th Street Bridge Waterline Installation	Lump Sum		---	\$ _____
9	104/108	24" Existing Waterline Modification (2" and smaller) (Service Disconnections and Cap)	11.	EA	\$ _____	\$ _____
10	104/108	24" Existing Waterline Modification (greater than 2") (Service Disconnections	6.	EA	\$ _____	\$ _____
11	104/108	Raw Water Main (16") (C900 PVC, DR-25)	1,750.	LF	\$ _____	\$ _____
12	104/108	Raw Water Main (12") (C900 PVC, DR-25)	5,850.	LF	\$ _____	\$ _____
13	104/108	Raw Water Main (12") (C900 Fusible PVC, DR-25) - Slipline at Hwy 50	550.	LF	\$ _____	\$ _____
14	104/108	Raw Water Main (10") (C900 CertaLok PVC, DR-25) - Bridge Crossing	700.	LF	\$ _____	\$ _____
15	104/108	Expansion Joint Fitting (EBAA Iron Series)	2.	EA	\$ _____	\$ _____
16	104/108	Raw Water Lateral (4") (C900 PVC, DR-25) - Las Colonias	570.	LF	\$ _____	\$ _____
17	104/108	Raw Water Lateral (4") (C900 PVC, DR-25) - Botanical Gardens	1,560.	LF	\$ _____	\$ _____
18	104/108	Raw Water Service (12") (C900 DR-18) (Includes all fittings and connections, including water meter and vault, required to tie into existing irrigation system)	1.	EA	\$ _____	\$ _____
19	104/108	Raw Water Service (6") (C900 DR-18) (Includes all fittings and connections, including water meter and vault, required to tie into existing irrigation system)	1.	EA	\$ _____	\$ _____
20	104/108	Raw Water Service (4") (C900 DR-18) (Includes all fittings and connections, including water meter and vault, required to tie into existing irrigation system)	1.	EA	\$ _____	\$ _____
21	104/108	Raw Water Service (2") (Schedule 80 PVC) (Includes all fittings and connections, including water meter and vault, required to tie into existing irrigation system)	3.	EA	\$ _____	\$ _____
22	104/108	Butterfly Valve (16")	3.	EA	\$ _____	\$ _____
23	104/108	Butterfly Valve (12")	1.	EA	\$ _____	\$ _____

Bid Schedule (Revised per Addendum 5): Raw Water Irrigation Supply and Waterline Replacement

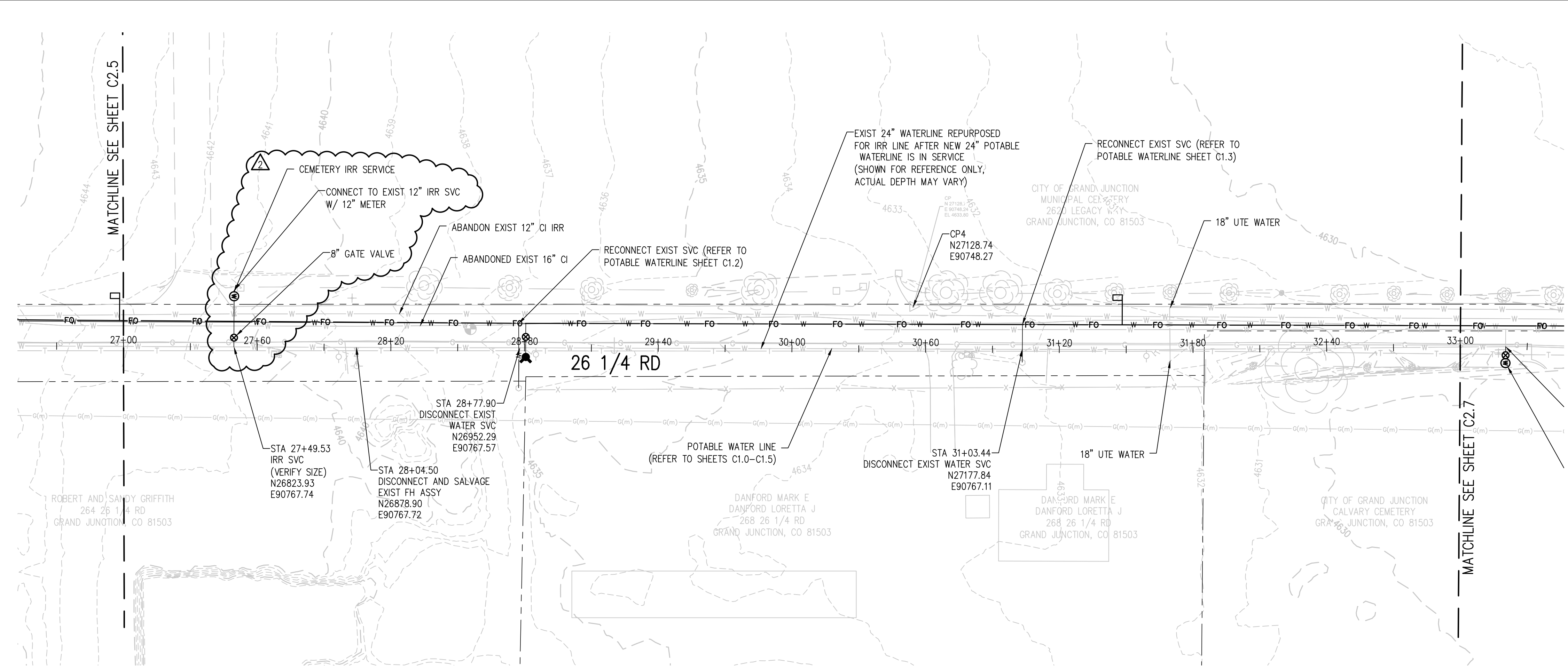
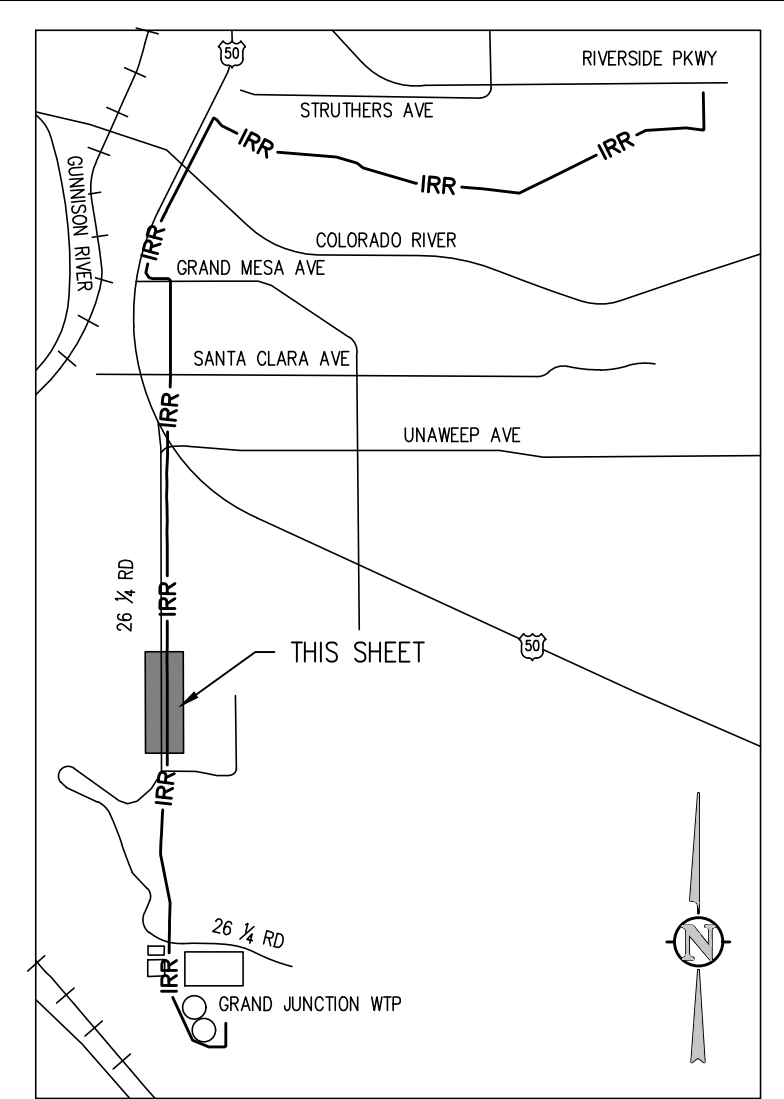
Item No.	(Div. No.)	Description	Quantity	Units	Unit Price	Total Price
24	104/108	Butterfly Valve (10")	1.	EA	\$ _____	\$ _____
25	104/108	Gate Valve (6")	2.	EA	\$ _____	\$ _____
26	104/108	Gate valve (4")	3.	EA	\$ _____	\$ _____
27	104/108	Dewatering		Lump Sum	---	\$ _____
28	104/108	Blow-Off Valve	3.	EA	\$ _____	\$ _____
29	104/108	Combination Air Valve and Vault Assembly (6") (Includes Bedding material, flanged butterfly valve w/ 90 deg angle nut, air valve, 60" concrete vault, frost proof ring and cover, galvanized vent pipe, and all necessary fittings to complete assembly)	3.	EA	\$ _____	\$ _____
30		Fiber Conduit (2") (Schedule 80 PVC)	8,500.	LF	\$ _____	\$ _____
31		Pull Box	15.	EA	\$ _____	\$ _____
32		Pull Box (Poured In Place)	2.	EA	\$ _____	\$ _____
33	SP	Landscape Repair - Pollinator Garden		Lump Sum	---	\$ _____
34	SP	Landscape Repair - Las Colonias Phase I		Lump Sum	---	\$ _____
35	SP	Landscape Repair - Duck Pond Park		Lump Sum	---	\$ _____
36	SP	Reservoir 3 Concrete Repair at Inlet from Res No. 4 (Up to 3" depth) (Include priming exposed reinforcing steel and non-shrink grout or patch)	500.	SF	\$ _____	\$ _____
37	SP	Reservoir 3 Void Patching	375.	SF	\$ _____	\$ _____
38	SP	Reservoir 3 Modify Inlet/Outlet	2.	EA	\$ _____	\$ _____
39	SP	Reservoir 3 Pipe Extension	2.	EA	\$ _____	\$ _____
40	SP	Reservoir 3 Cut Existing Pipe Penetration (Include cutting and plugging)	2.	EA	\$ _____	\$ _____
41	SP	Reservoir 3 Liner (45 Mil Reinforced Polypropylene) (Includes inlet boots, staff gage, steel removal and gate modification)		Lump Sum	---	\$ _____
Potable Waterline Replacement						
42	104/108	Water Main (24") (C900 PVC, DR-25)	3,600.	LF	\$ _____	\$ _____
43	104/108	Water Service (10") (C900 PVC, DR-18)	1.	EA	\$ _____	\$ _____
44	104/108	Water Service (8") (C900 PVC, DR-18)	1.	EA	\$ _____	\$ _____
45	104/108	Water Service (6") (C900 PVC, DR-18)	2.	EA	\$ _____	\$ _____
46	104/108	Water Service (2") (Copper w/Corp Stop)	1.	EA	\$ _____	\$ _____
47	104/108	Water Service (3/4") (Copper w/Corp Stop)	10.	EA	\$ _____	\$ _____
48	104/108	Butterfly Valve (24")	2.	EA	\$ _____	\$ _____
49	104/108	Fire Hydrant Assembly w/GV and Tee to Main	2.	EA	\$ _____	\$ _____

Bid Schedule (Revised per Addendum 5): Raw Water Irrigation Supply and Waterline Replacement

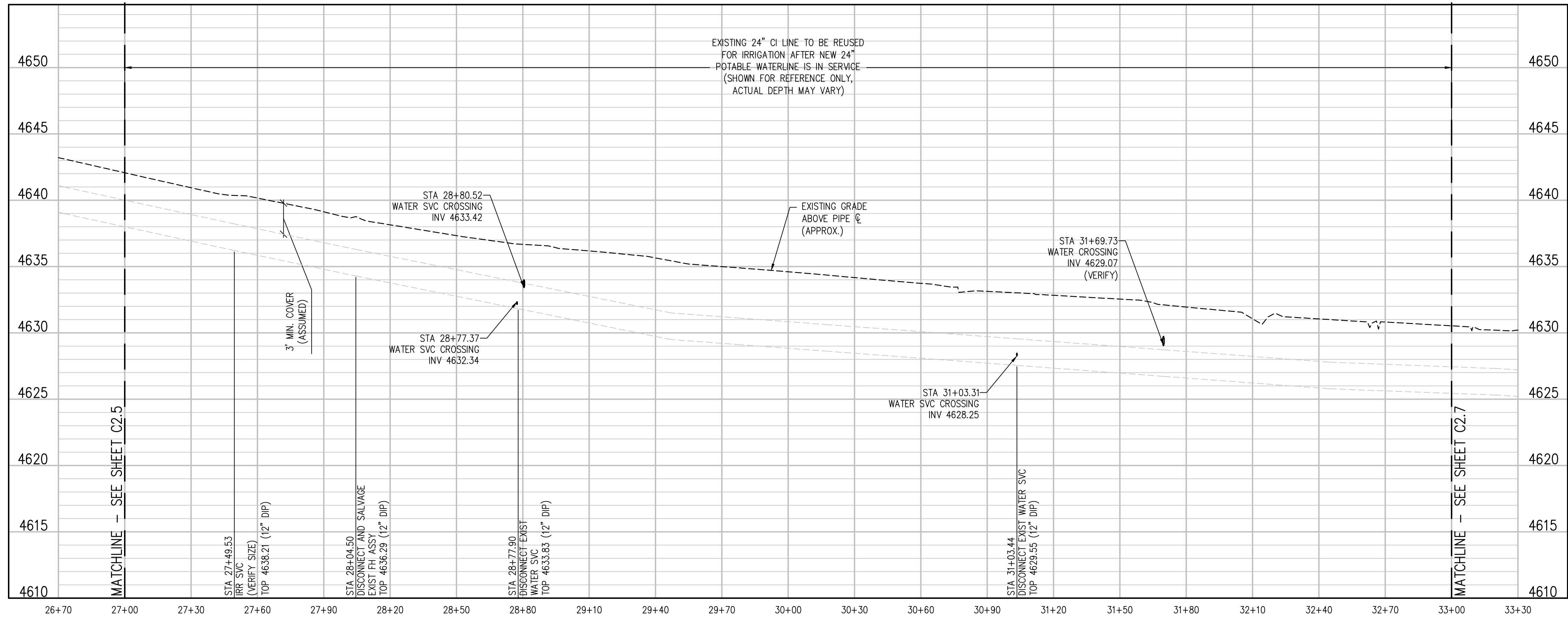
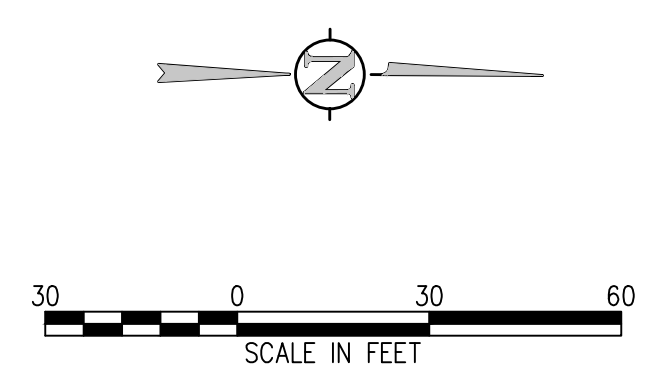
Item No.	(Div. No.)	Description	Quantity	Units	Unit Price	Total Price
General Conditions and Sitework						
50	202	Asphalt Cutting and Removal	3,340.	SY	\$ _____	\$ _____
51	401	Hot Bituminous Pavement (Patching) (Grading SX, PG 64-22) (GYR.=75)	3,340.	SY	\$ _____	\$ _____
52	SP	Meter Vault Modification and Connection	2.	EA	\$ _____	\$ _____
53	208	Erosion and Sediment Control		Lump Sum	---	\$ _____
54	212	Seeding		Lump Sum	---	\$ _____
55	620	Sanitary Facility		Lump Sum	---	\$ _____
56	625	Construction Surveying		Lump Sum	---	\$ _____
57	625	As-Built Documentation		Lump Sum	---	\$ _____
58	626	Mobilization/Demobilization		Lump Sum	---	\$ _____
59	630	Traffic Control (Complete in Place)		Lump Sum	---	\$ _____
Bid Amount:						\$ _____

Bid Amount:

dollars



IRRIGATION LINE PLAN
 SCALE: 1"=30'



IRRIGATION LINE PROFILE
 SCALE: 1"=30' HORIZ
 1"=5' VERT

DISCONNECT NOTES:
 1. CUT EXISTING SERVICE 12" FROM MAIN
 2. PHOTO DOCUMENT ALL DISCONNECTS
 3. CITY TO INSPECT DISCONNECTS BEFORE BACKFILL
 4. SEE POTABLE WATER SHEETS C1.0-C1.5 FOR RECONNECTION
 5. DISCONNECT AND RECONNECT SHALL OCCUR WITHIN 6 HOURS

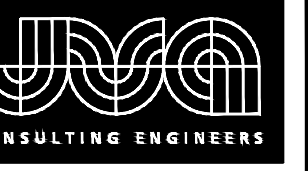
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2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

DESIGNED BY: BLM
 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019

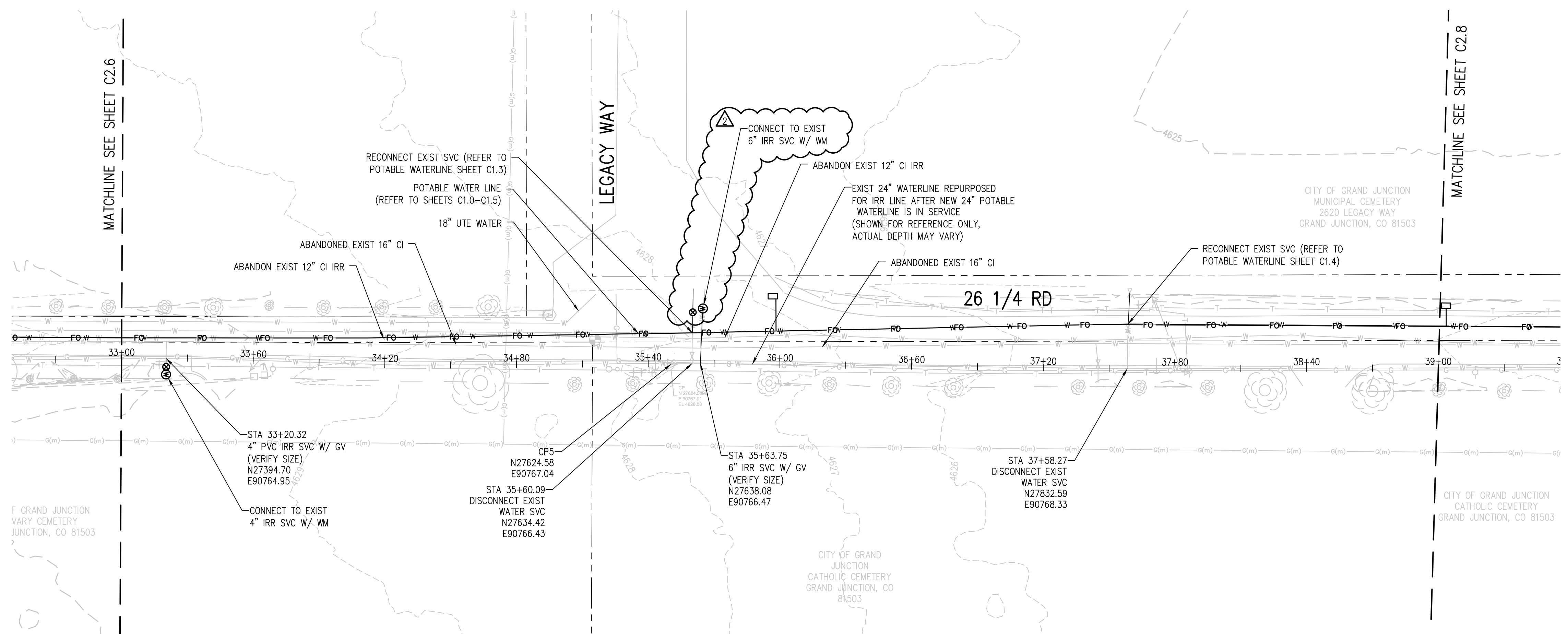
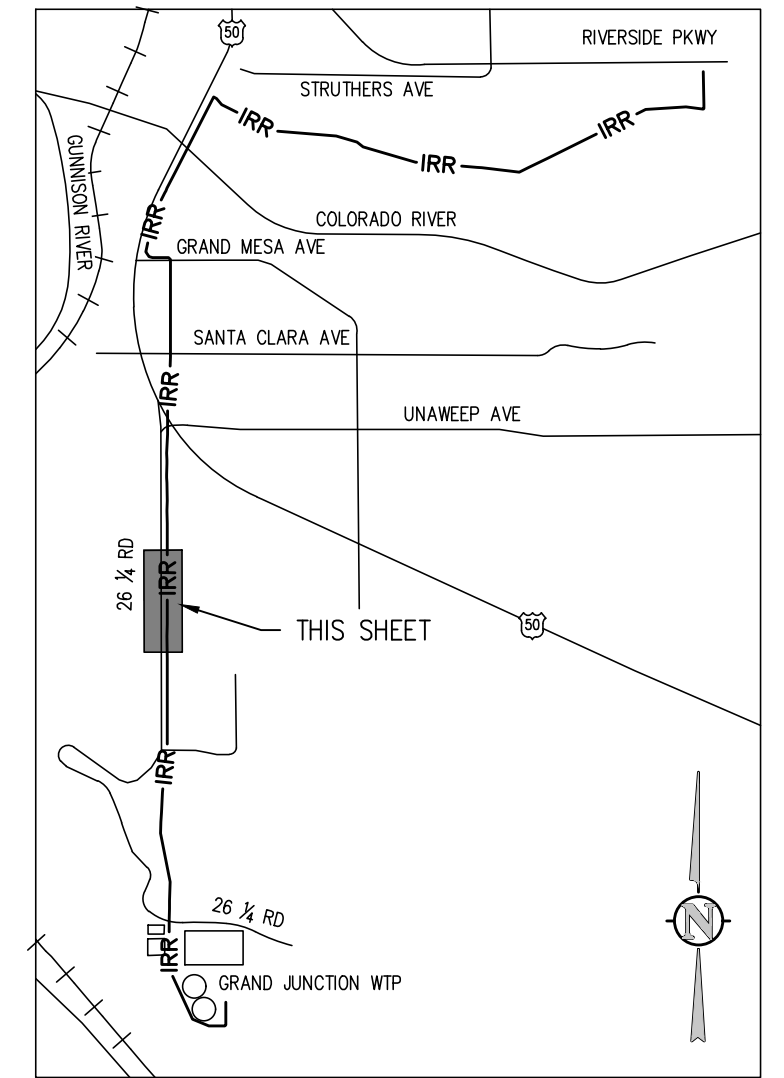
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RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 27+00.00
 - 33+00.00

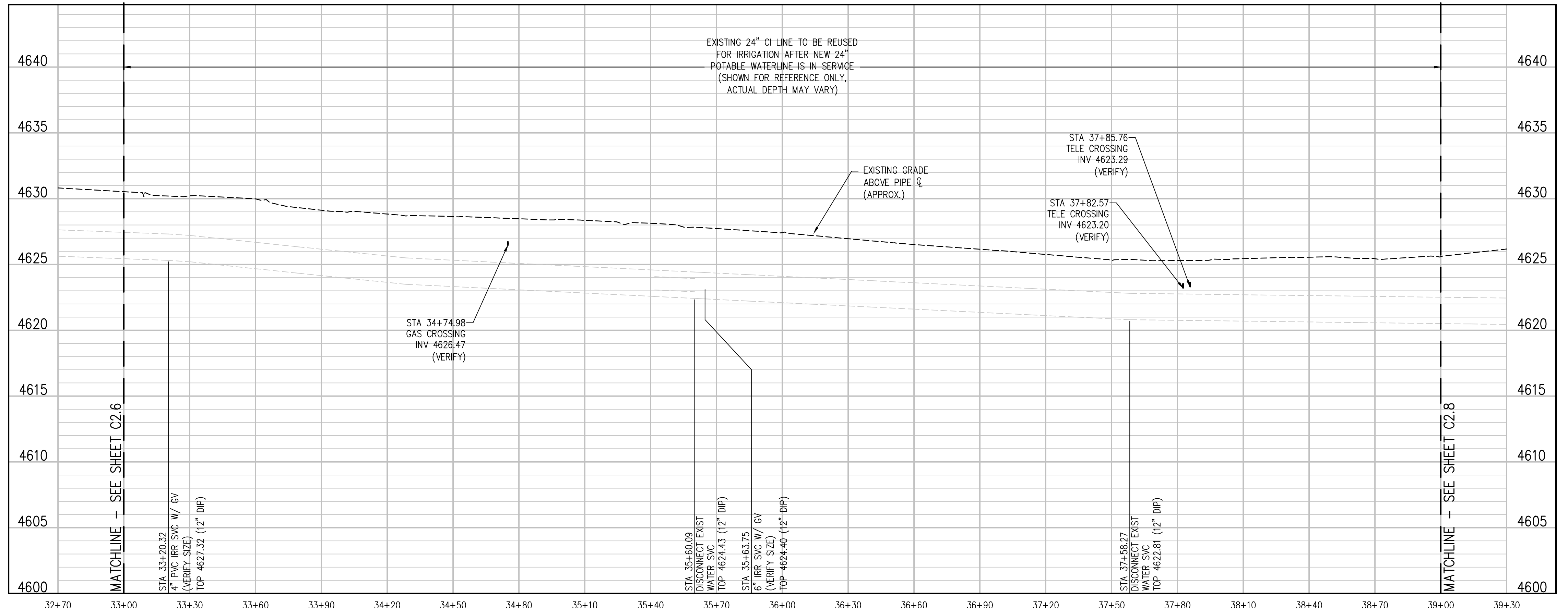
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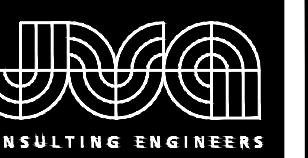
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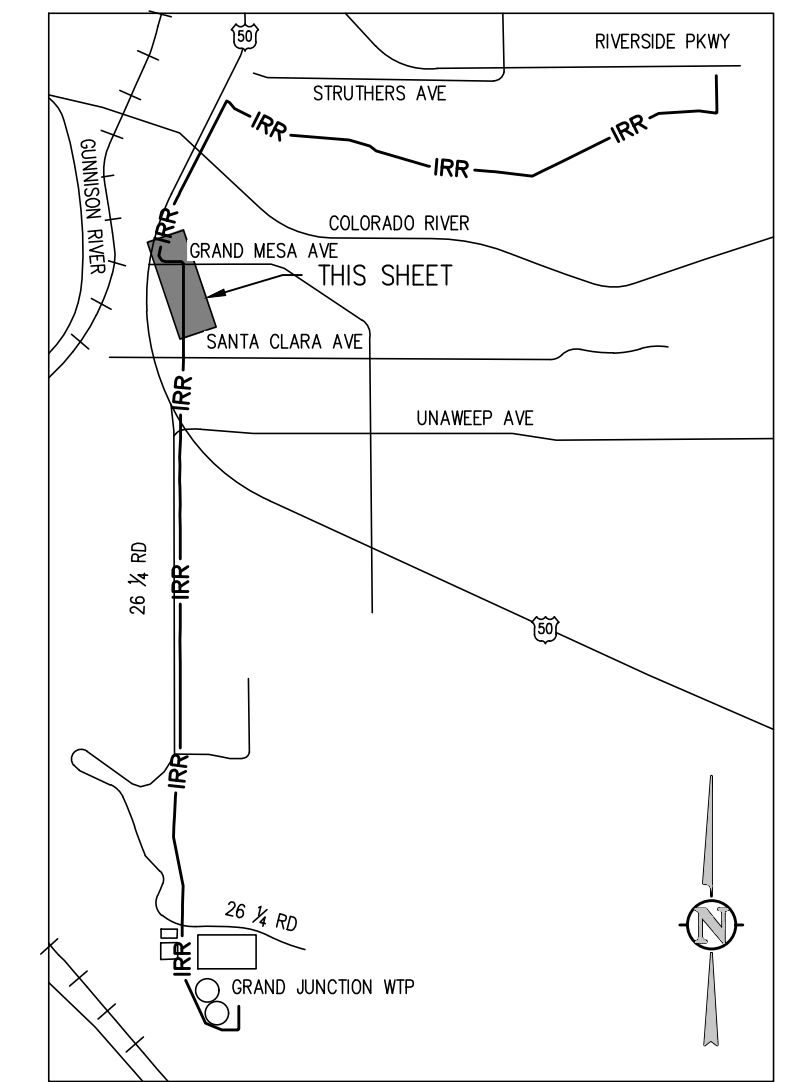
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 33+00.00
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SHEET NO.
C2.7

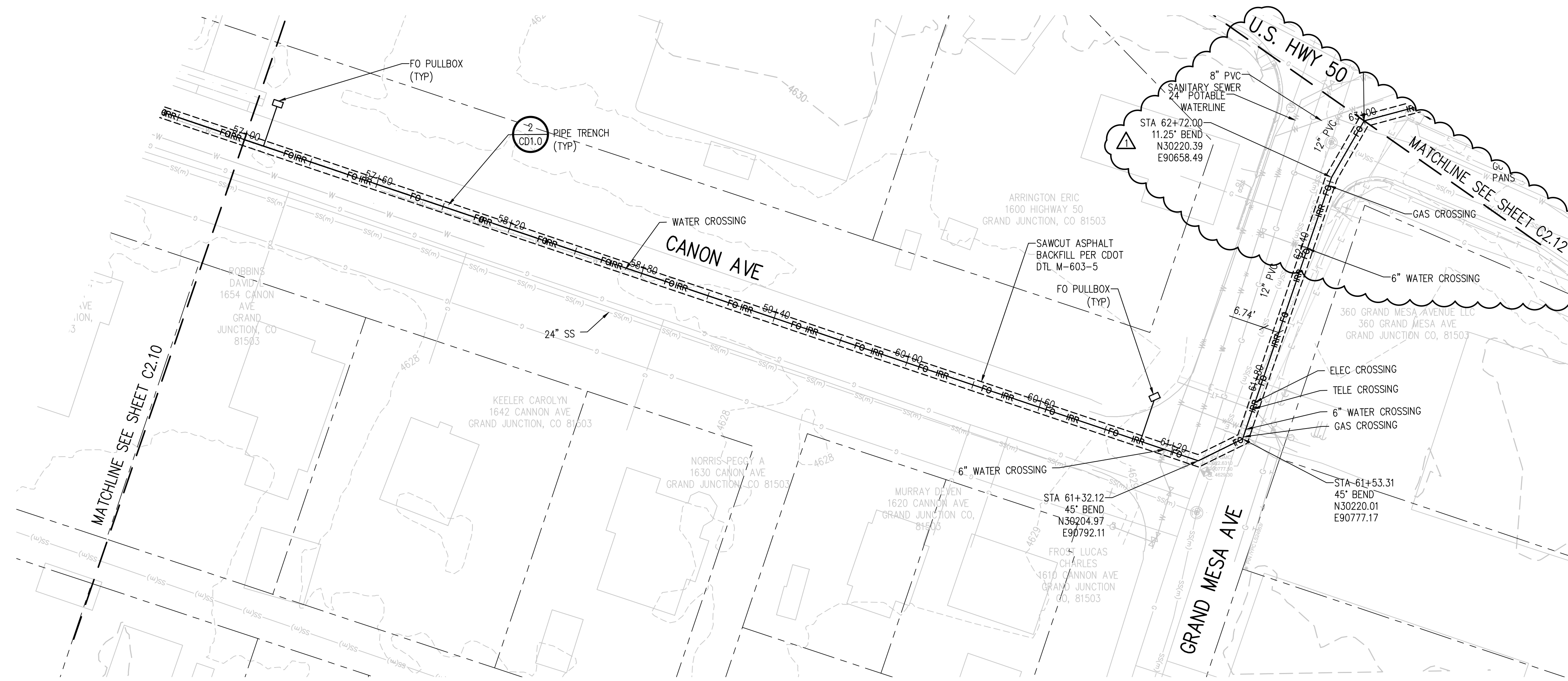
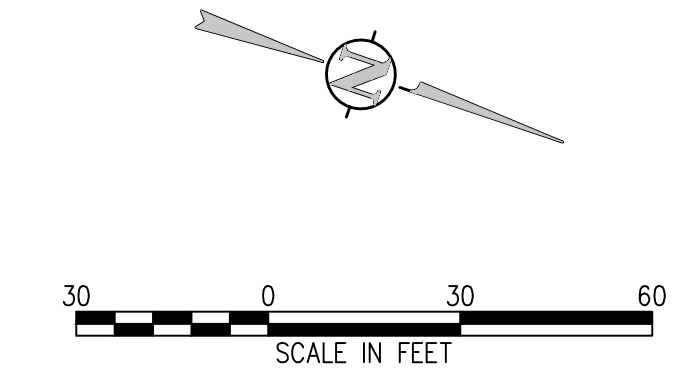
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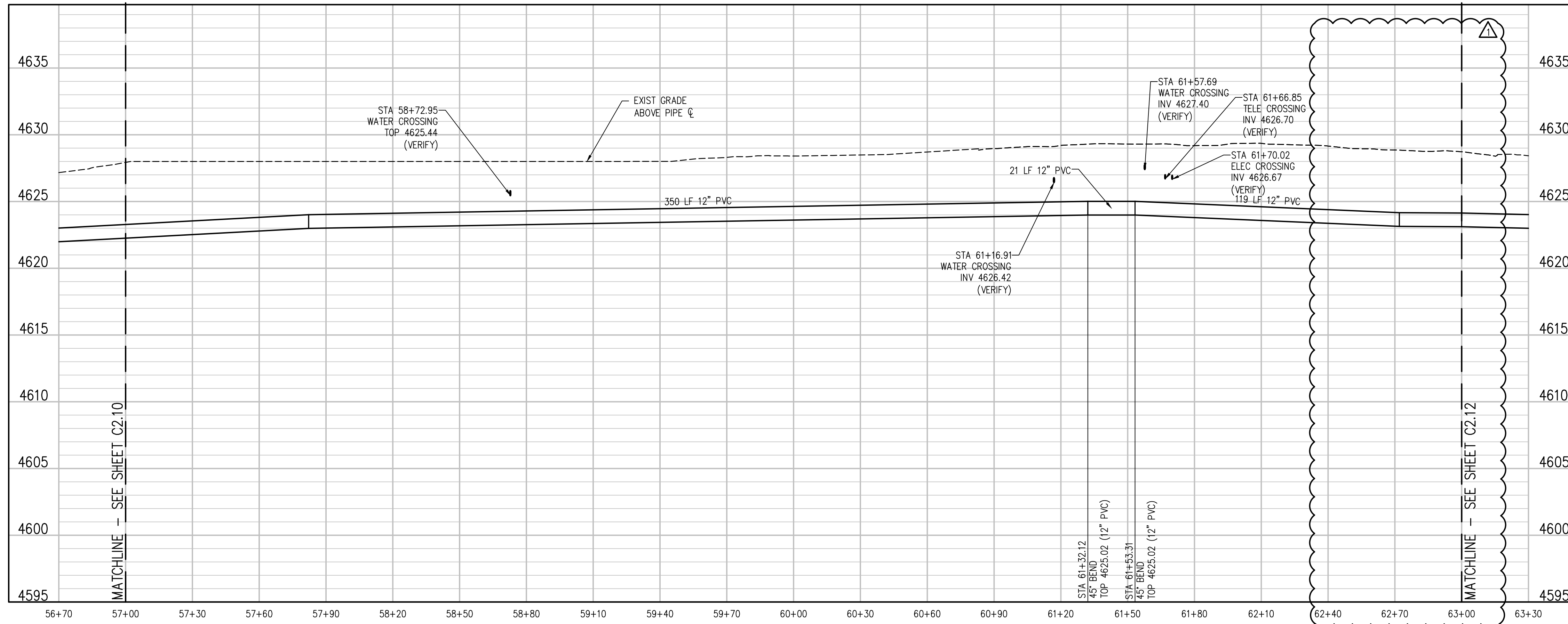
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KEY MAP
NTS



IRRIGATION LINE PLAN
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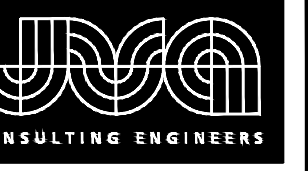
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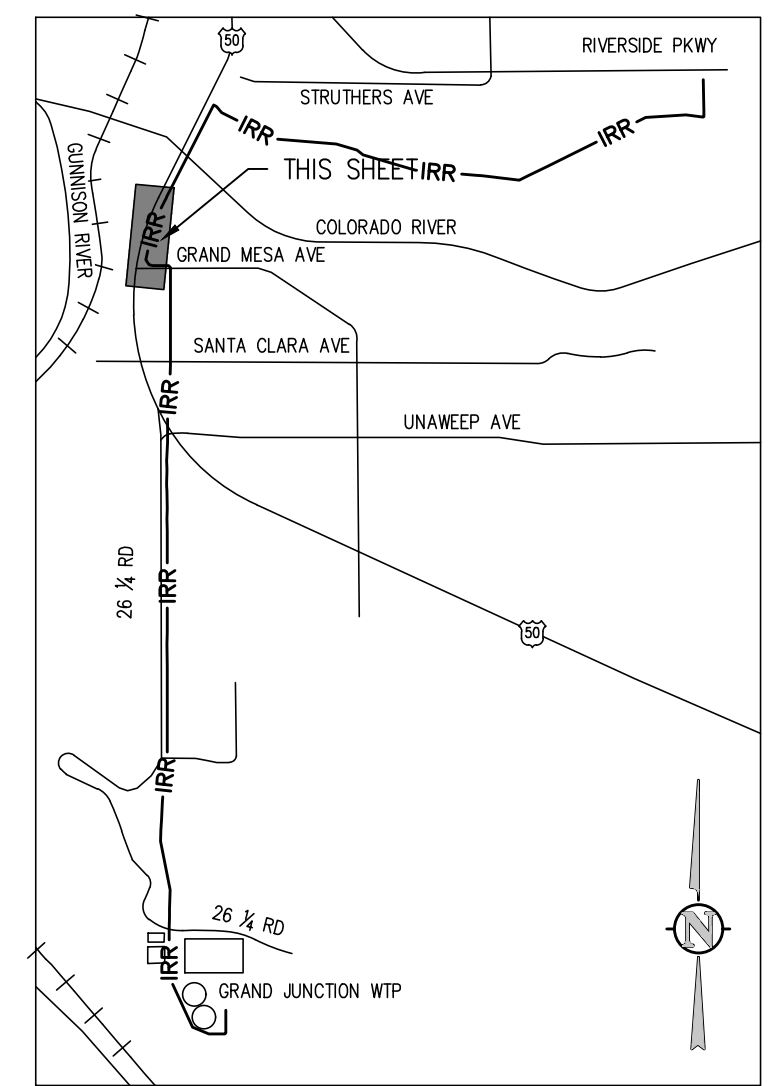
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 57+00.00
 - 63+00.00

SHEET NO.
C2.11

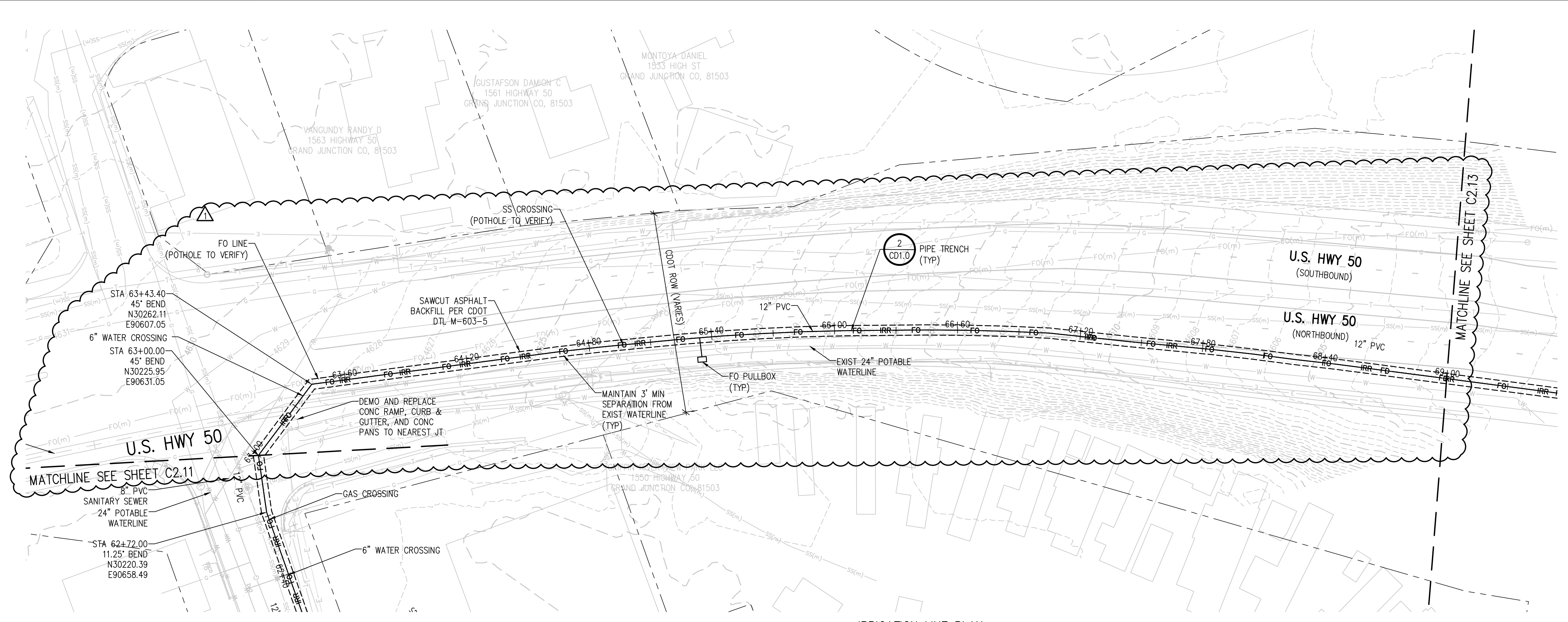
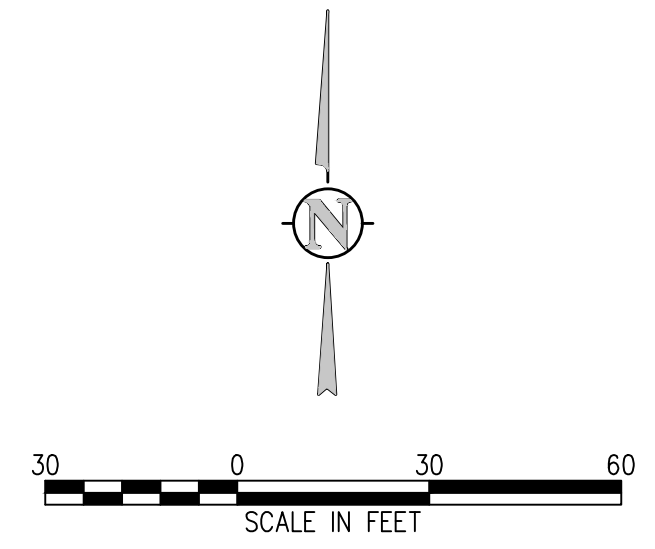
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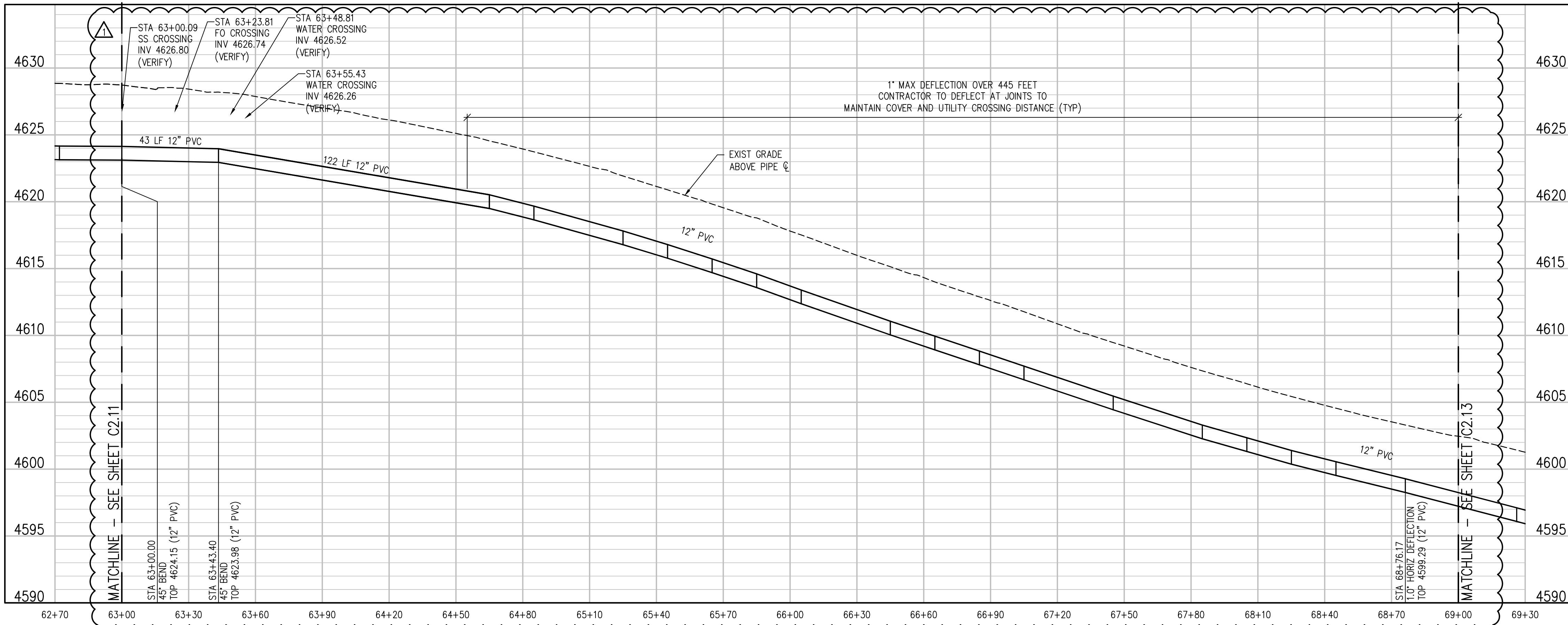
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2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

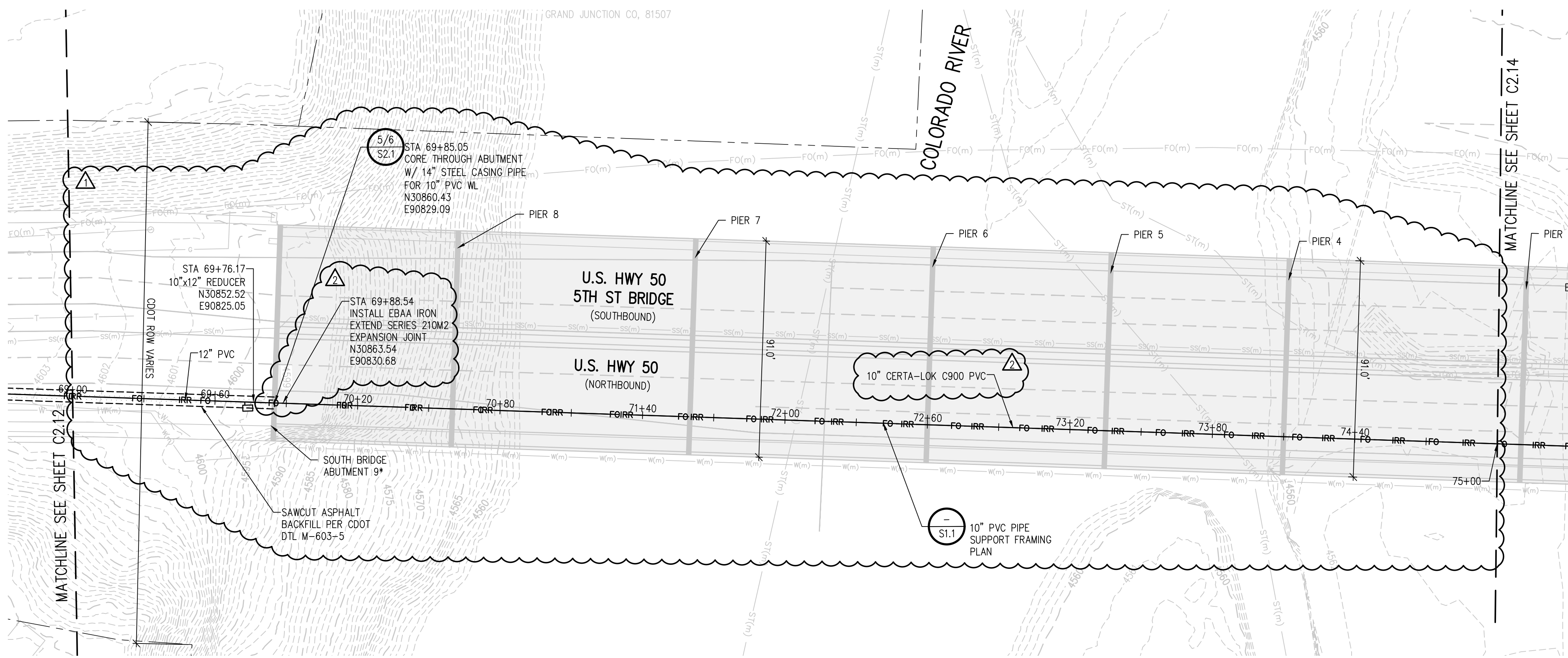
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 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019

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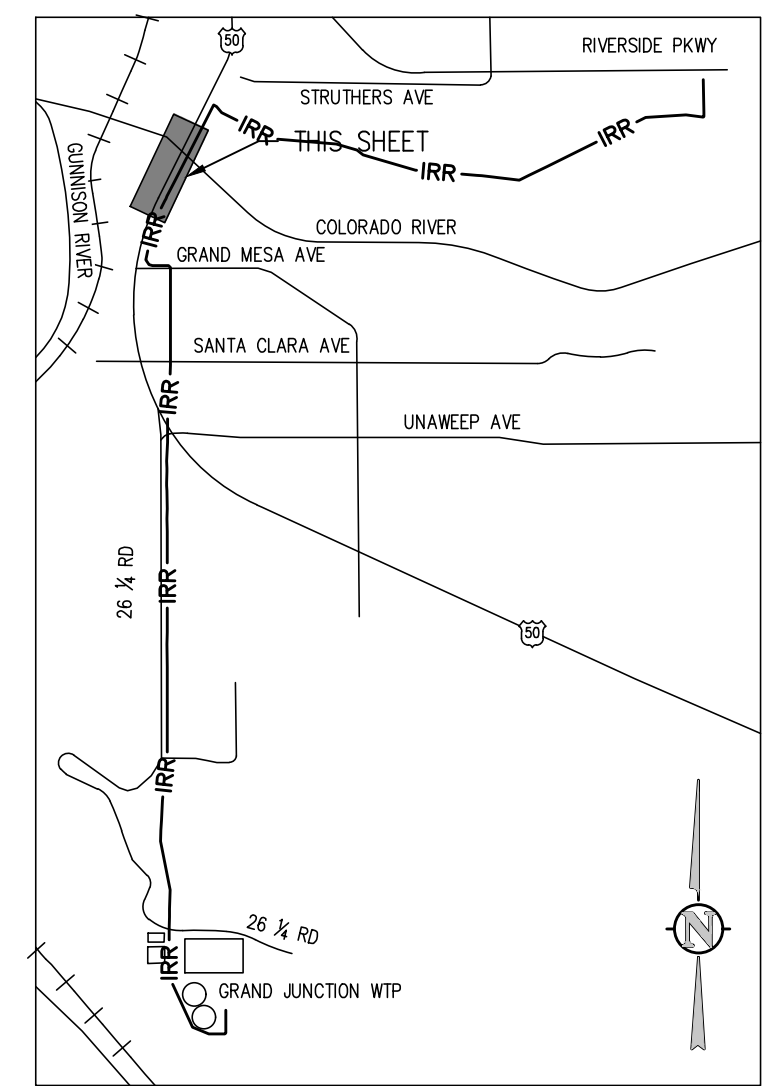
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 63+00.00
 - 69+00.00

SHEET NO.
C2.12

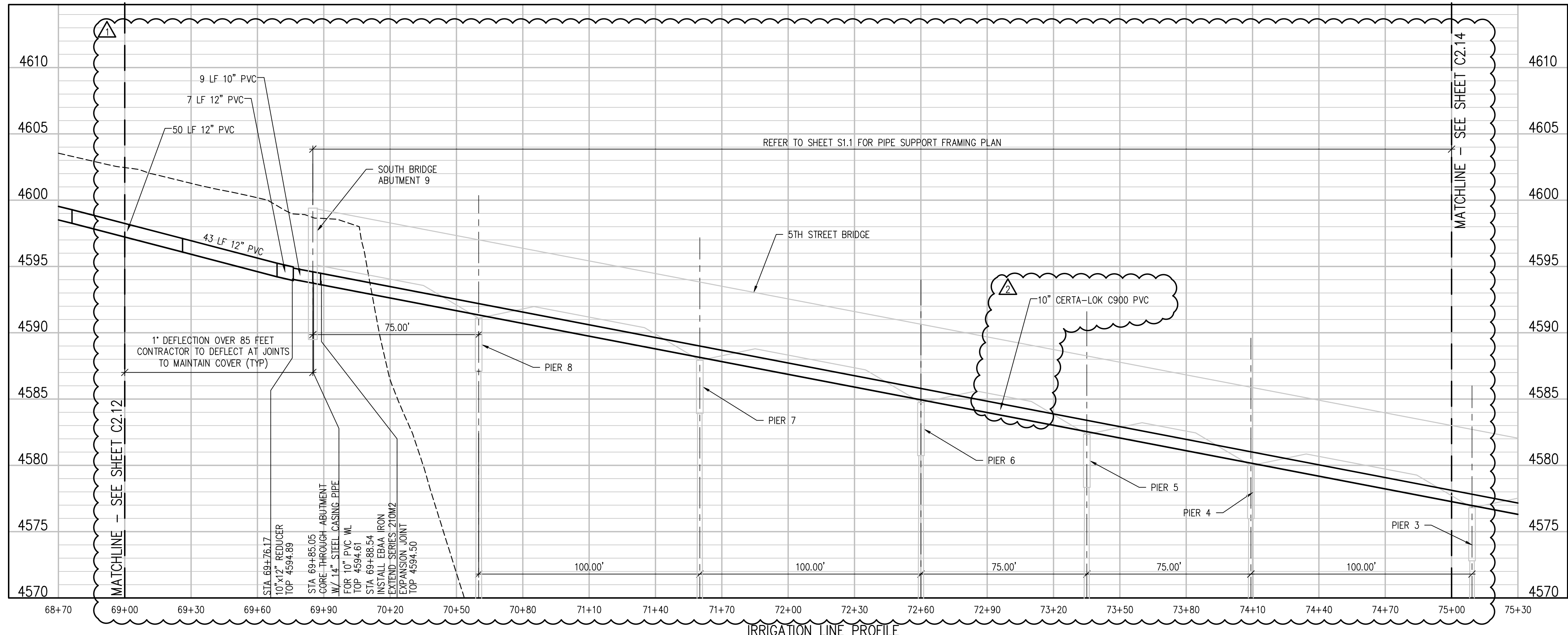
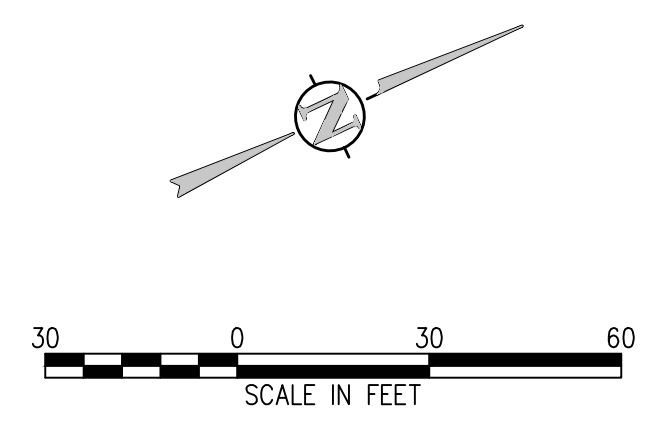
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IRRIGATION LINE PLAN
SCALE: 1"=30'



KEY MAP
NTS



IRRIGATION LINE PROFILE
SCALE: 1"=30' HORIZ
1"=5' VERT

NOTE:
BRIDGE ABUTMENT AND PIER
IDENTIFICATION PER 12/31/08 US 50
BRIDGE AS-BUILT PLANS.

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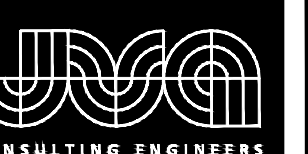
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2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

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CHECKED BY: JJM
JOB #: 2538.3c
DATE: FEBRUARY 2019
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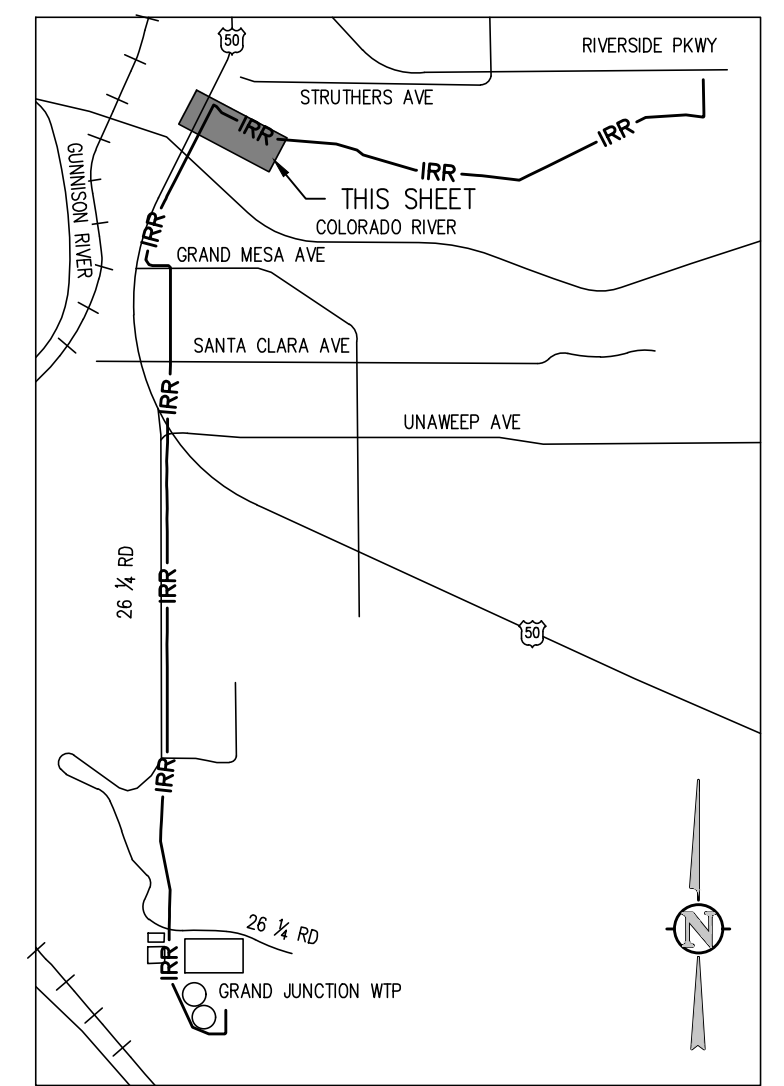
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AND WATER LINE REPLACEMENT
GRAND JUNCTION, COLORADO
RAW WATER IRRIGATION LINE STA 69+00.00
- 75+00.00

SHEET NO.
C2.13

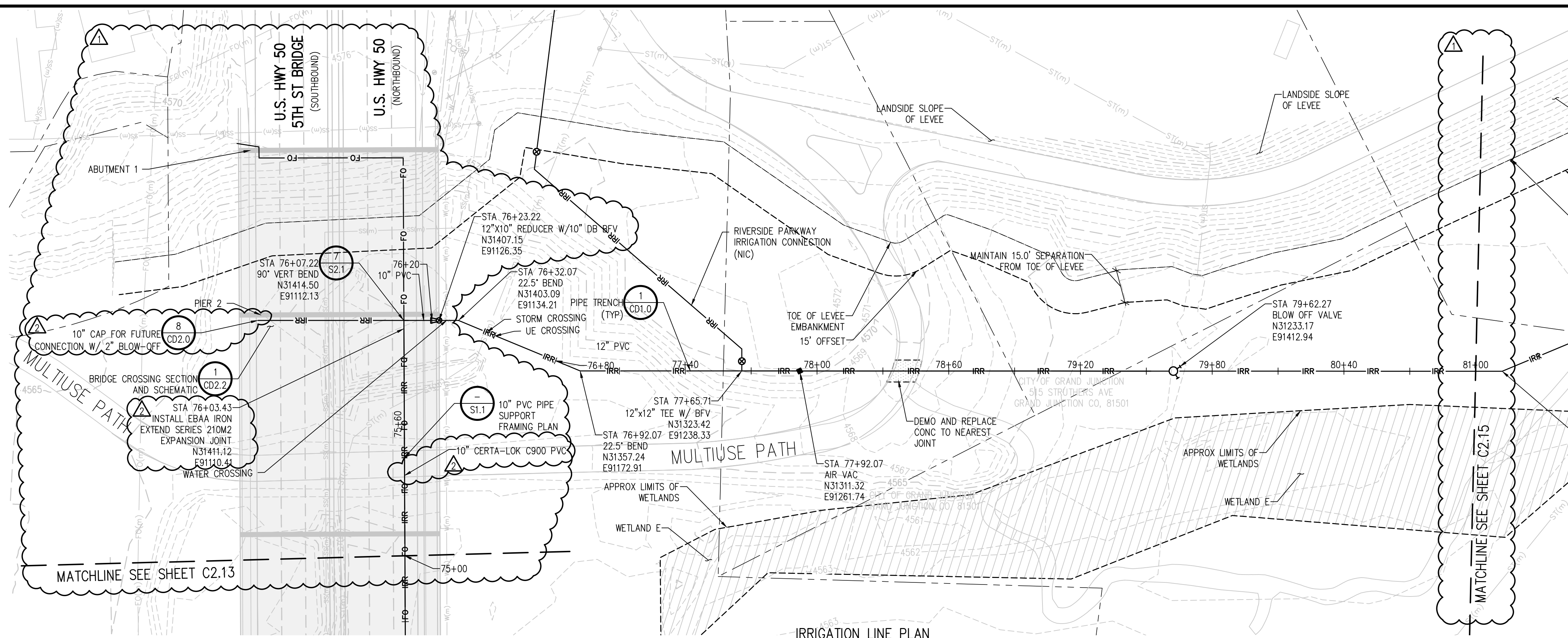
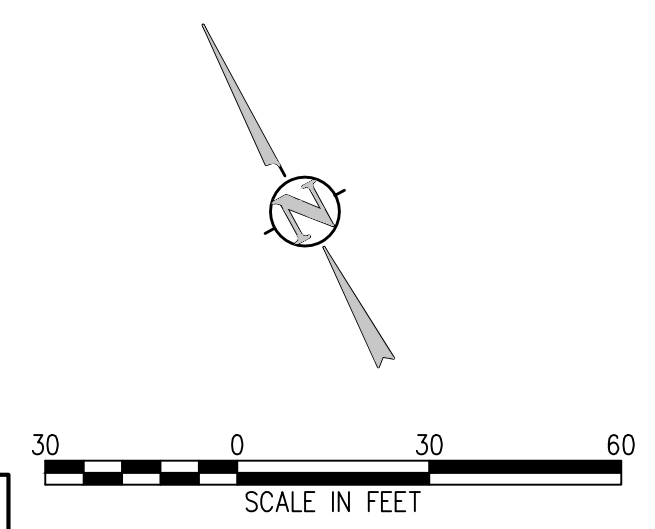
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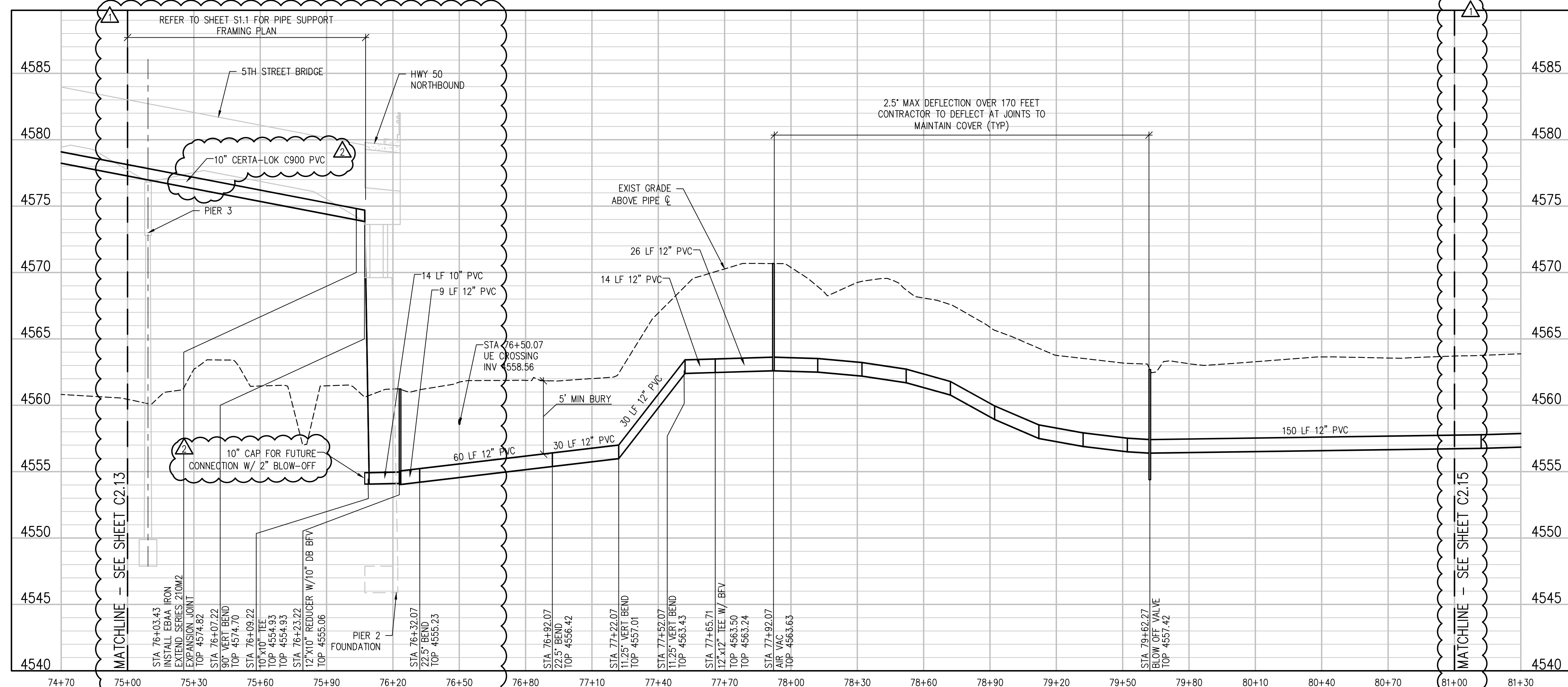
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KEY MAP
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IRRIGATION LINE PLAN
SCALE: 1"=30'



IRRIGATION LINE PROFILE
SCALE: 1"=30' HORIZ
1"=5' VERT

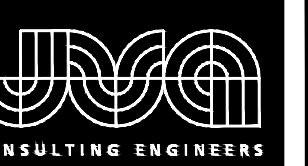
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1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

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 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019
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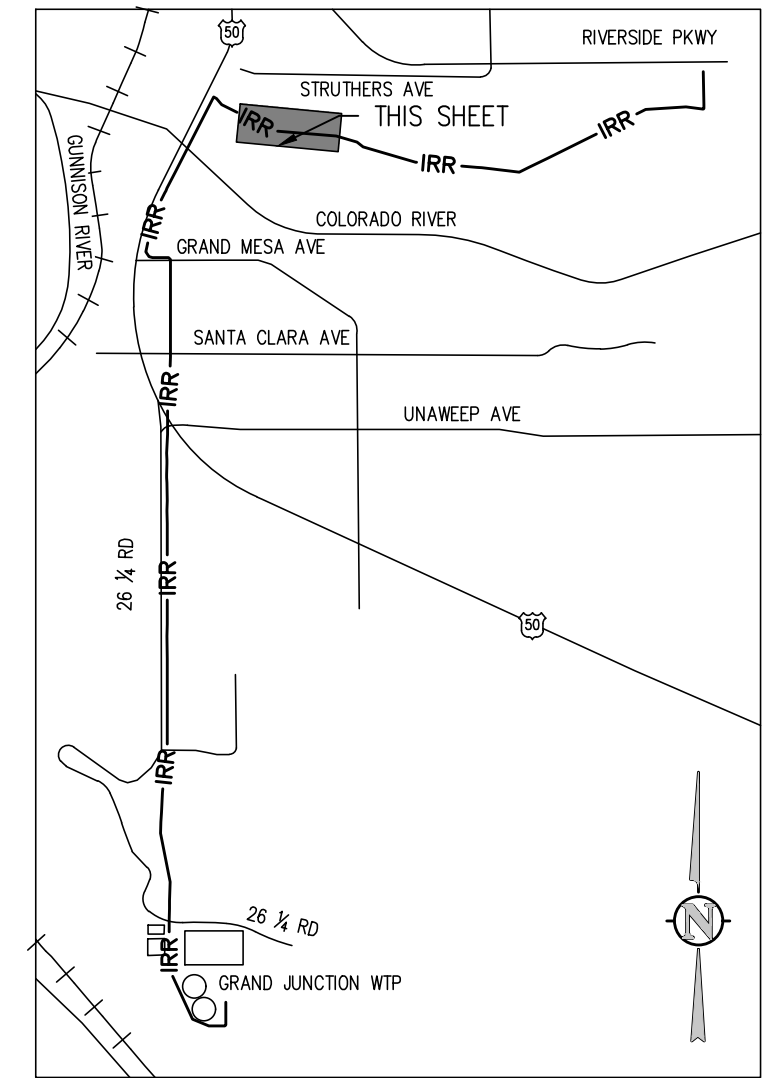
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 75+00.00
 - 81+00.00

SHEET NO.
C2.14

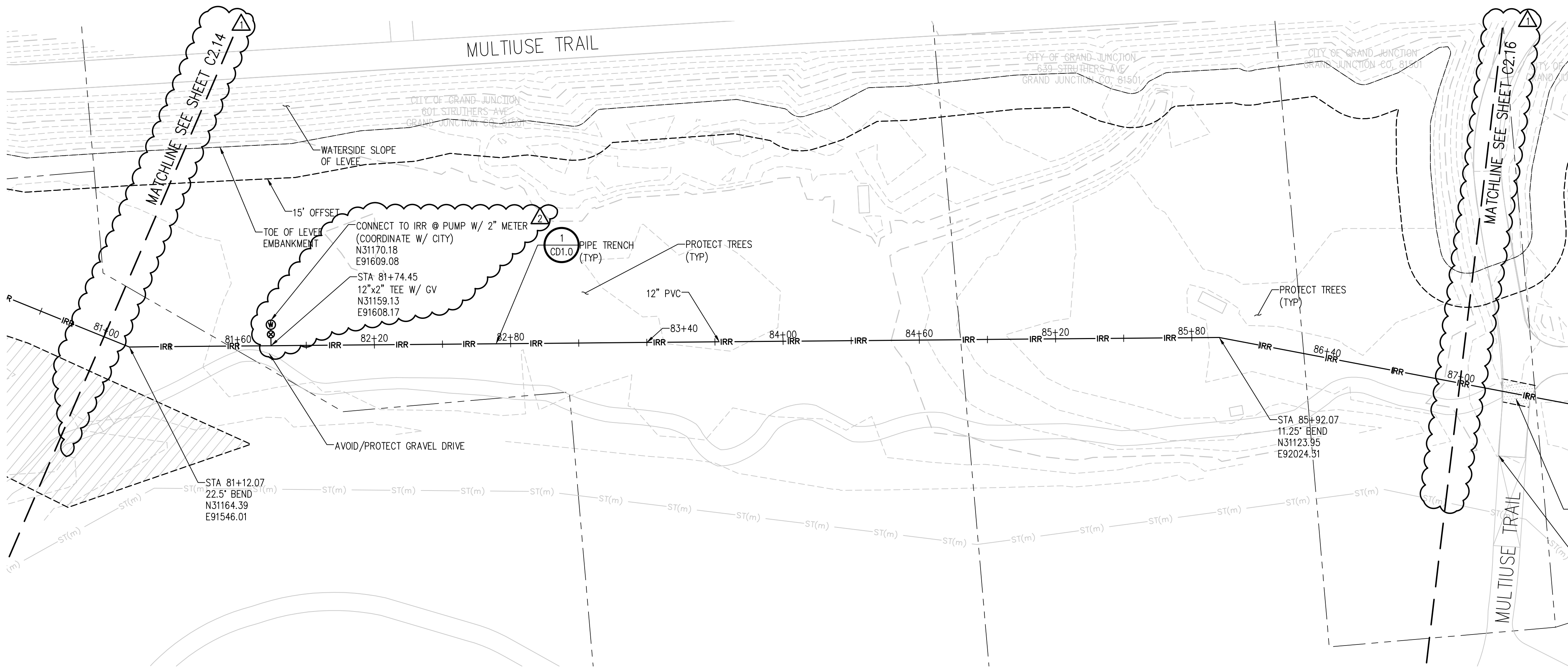
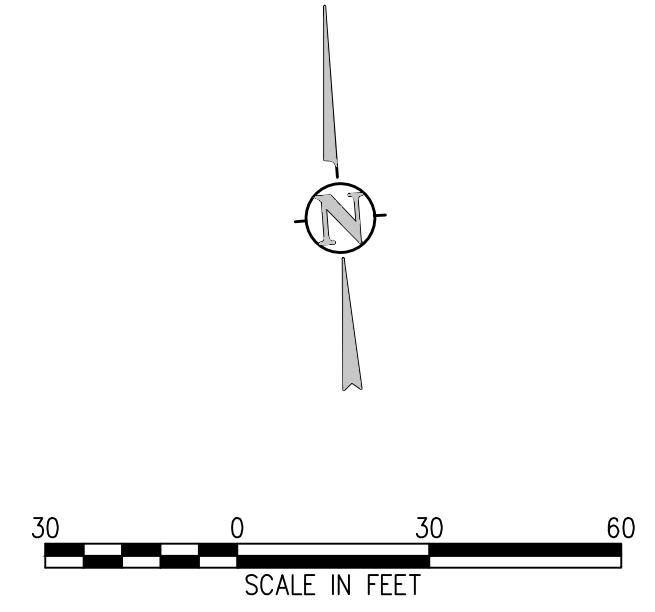
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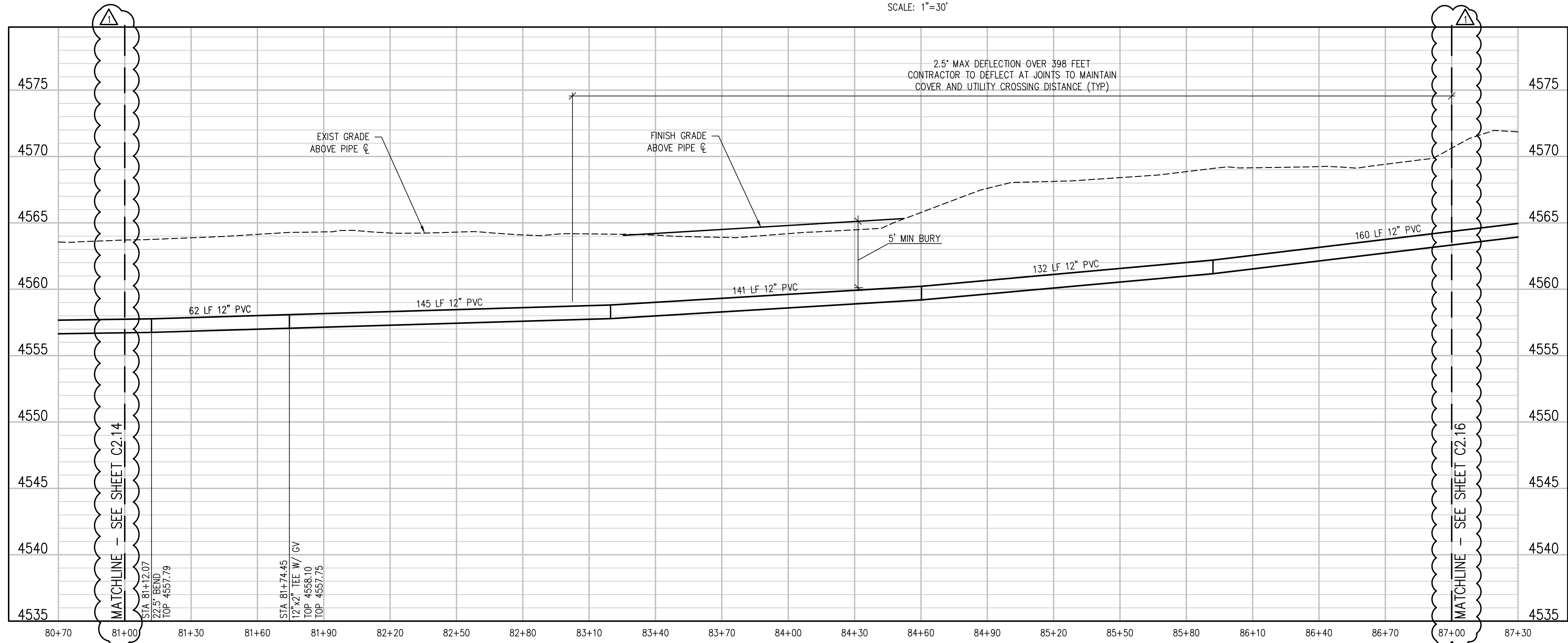
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KEY MAP
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IRRIGATION LINE PLAN
SCALE: 1"=30'



IRRIGATION LINE PROFILE
SCALE: 1"=30' HORIZ
1"=5' VERT

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

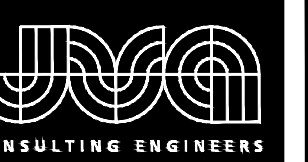
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 JOB #: 2538.3c
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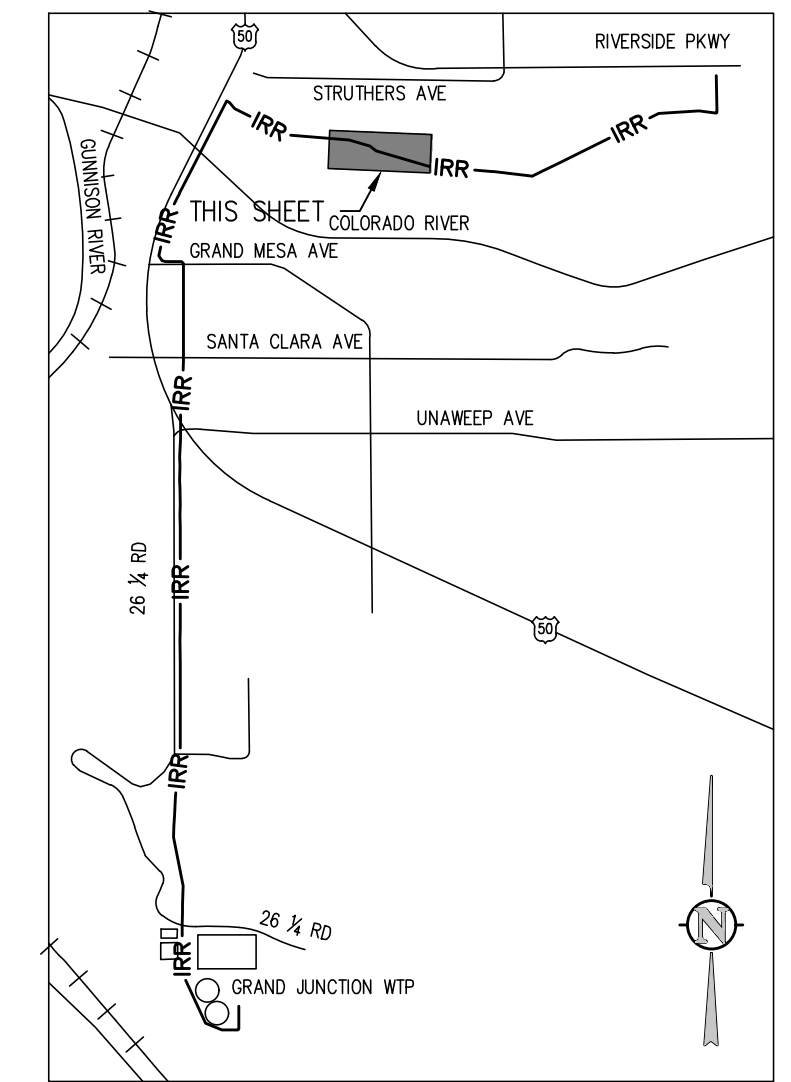
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 81+00.00
 - 87+00.00

SHEET NO.
C2.15

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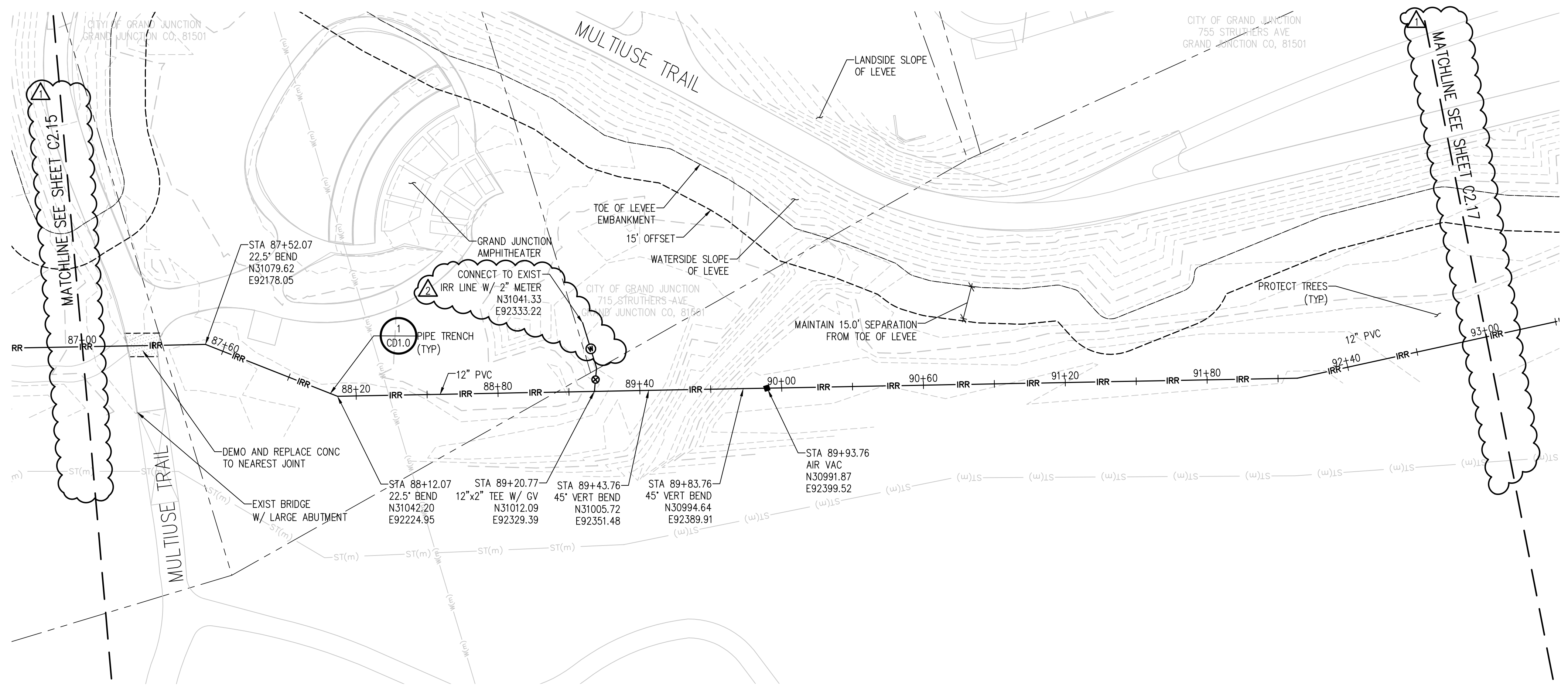
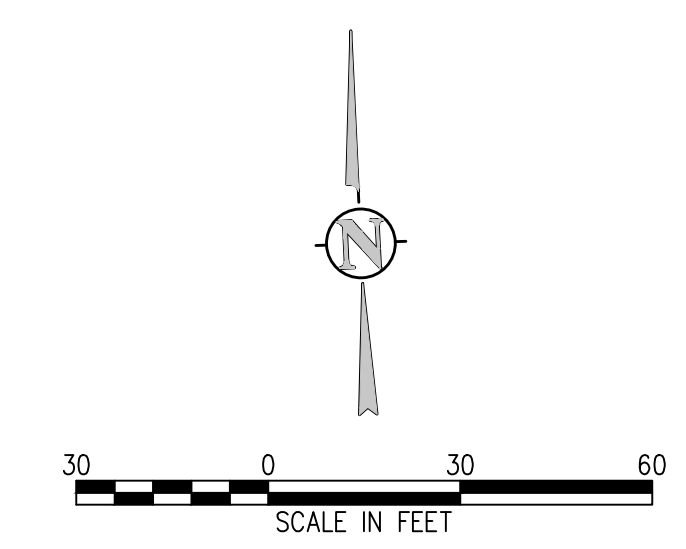


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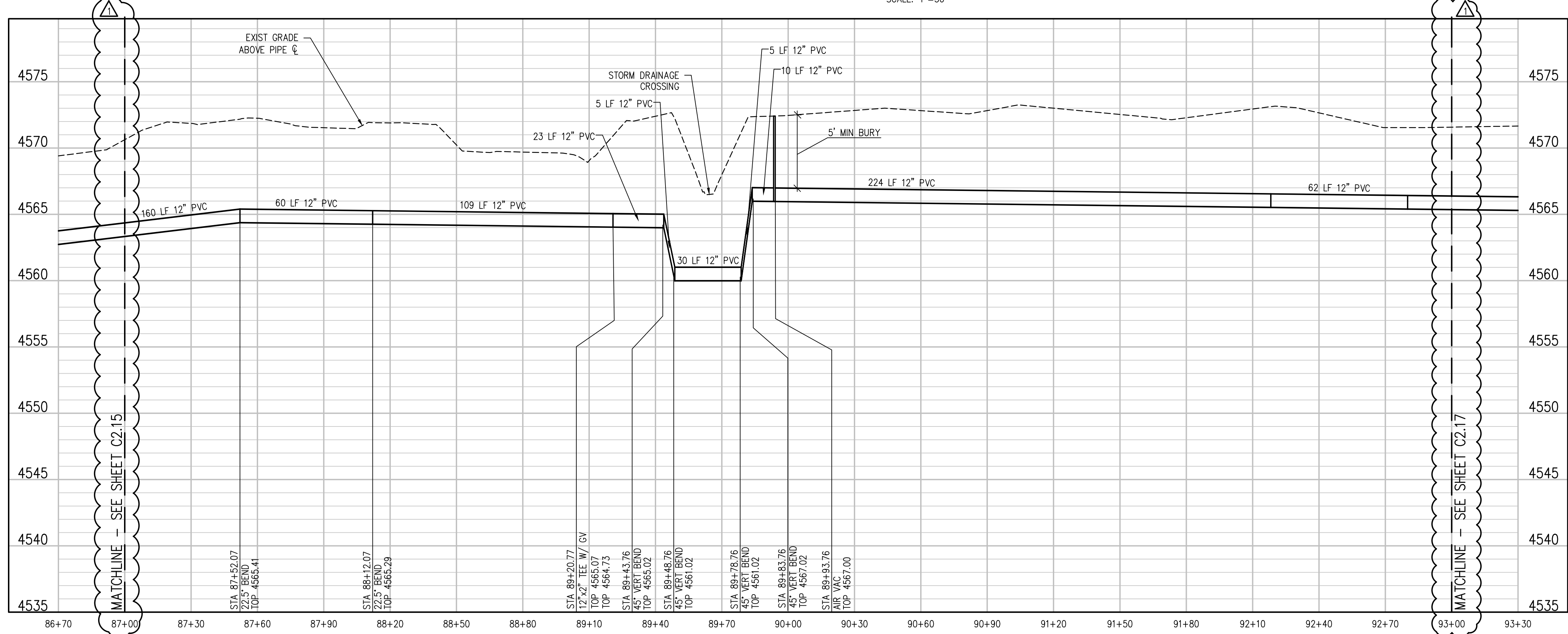


KEY MAP
NTS

- NOTES:**
1. MINIMIZE DISTURBANCE THROUGH POLLINATOR GARDEN
 2. CONTRACTOR TO REPLACE LANDSCAPING IN KIND



IRRIGATION LINE PLAN
SCALE: 1"=30'



IRRIGATION LINE PROFILE
SCALE: 1"=30' HORIZ
1"=5' VERT

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
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1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

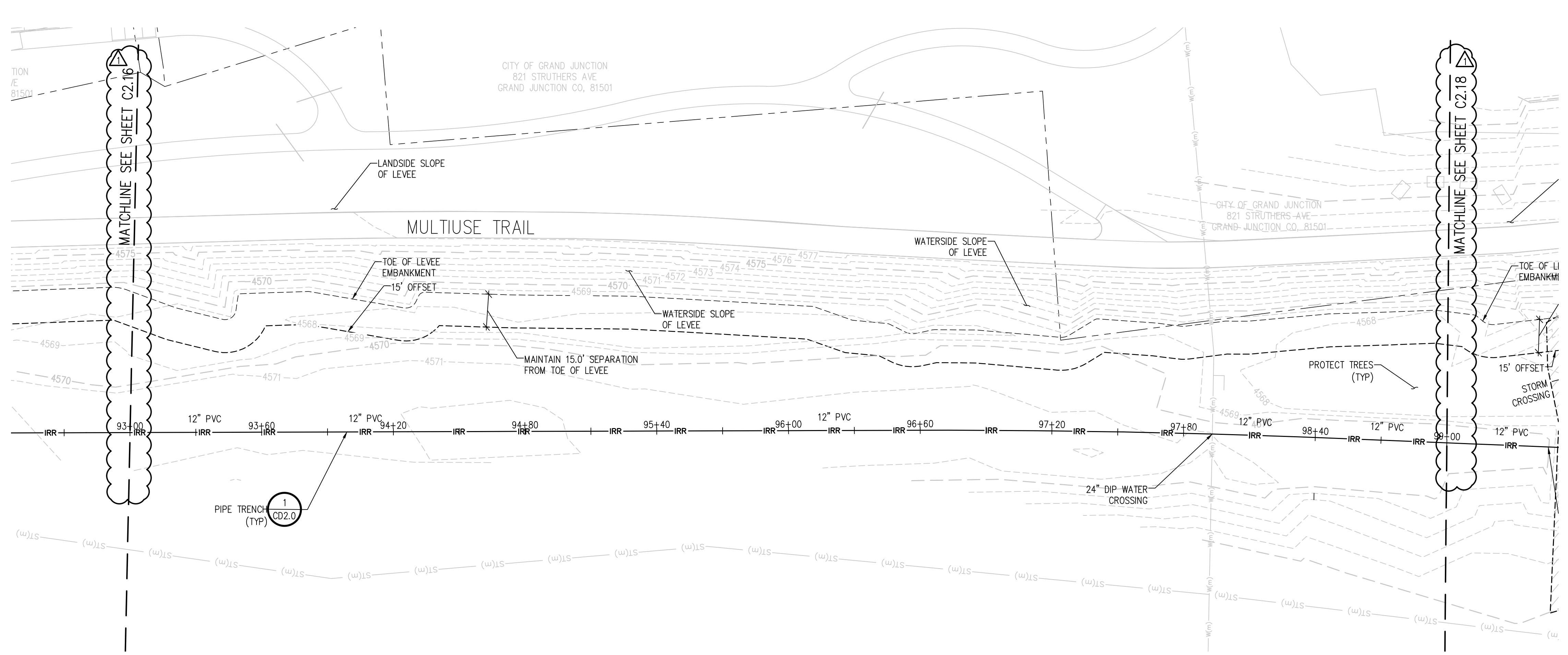
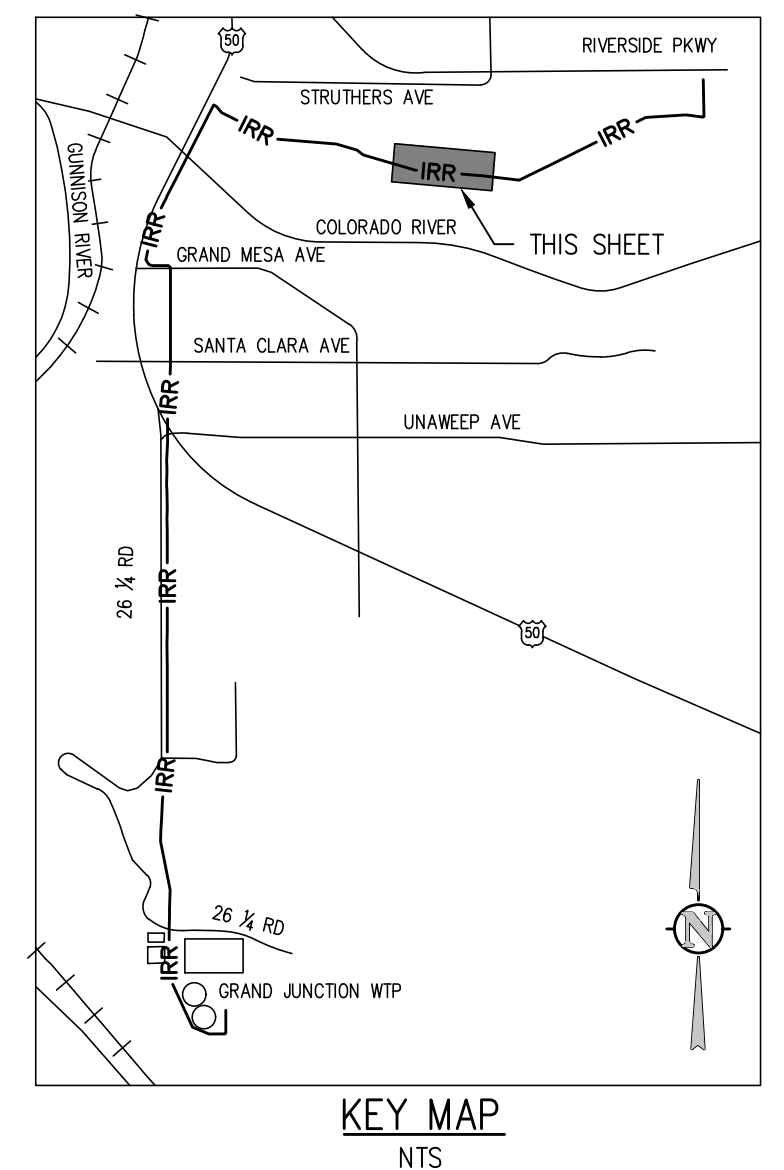
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 DATE: FEBRUARY 2019

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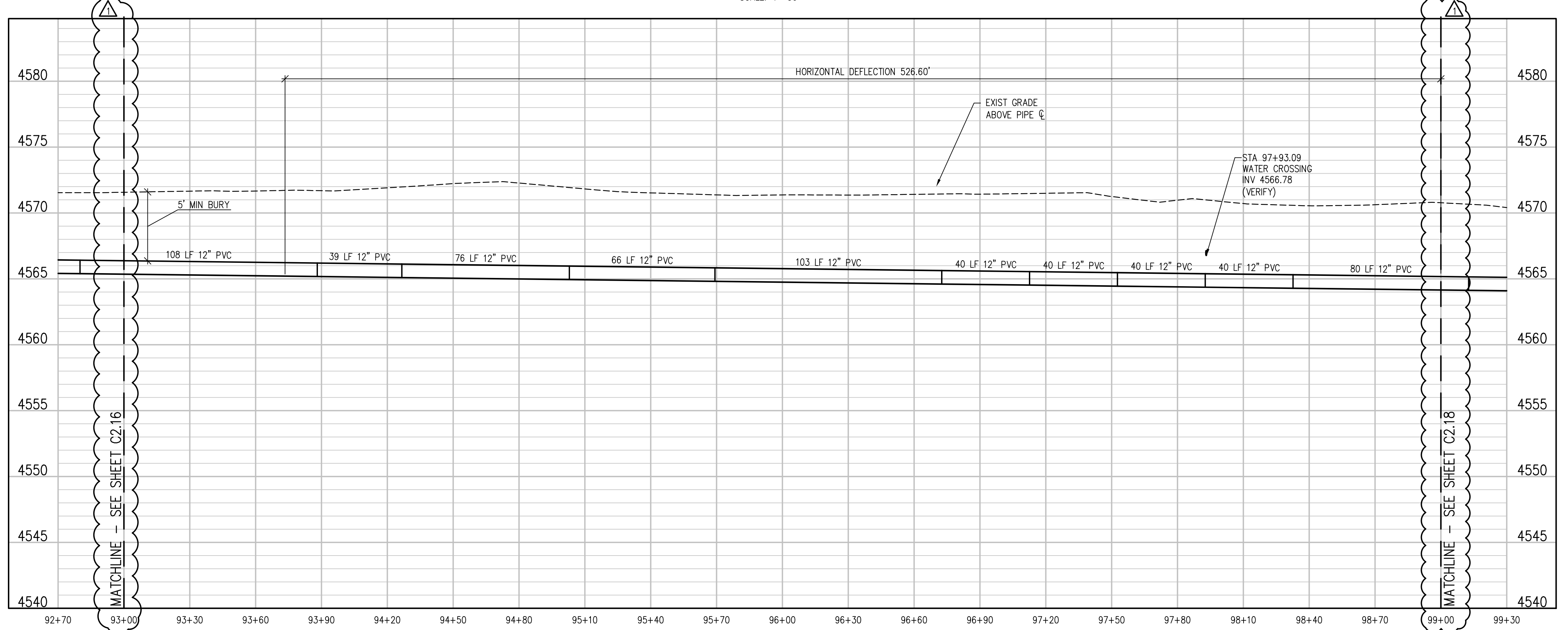
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 87+00.00
 - 93+00.00

SHEET NO.
C2.16

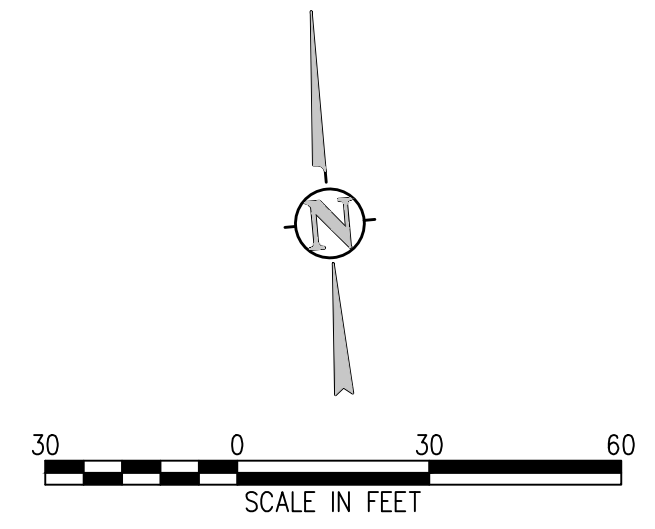
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IRRIGATION LINE PLAN
 SCALE: 1"=30'



IRRIGATION LINE PROFILE
 SCALE: 1"=30' HORIZ
 1"=5' VERT

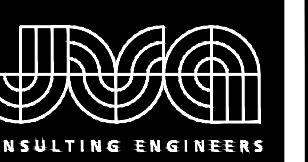


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1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

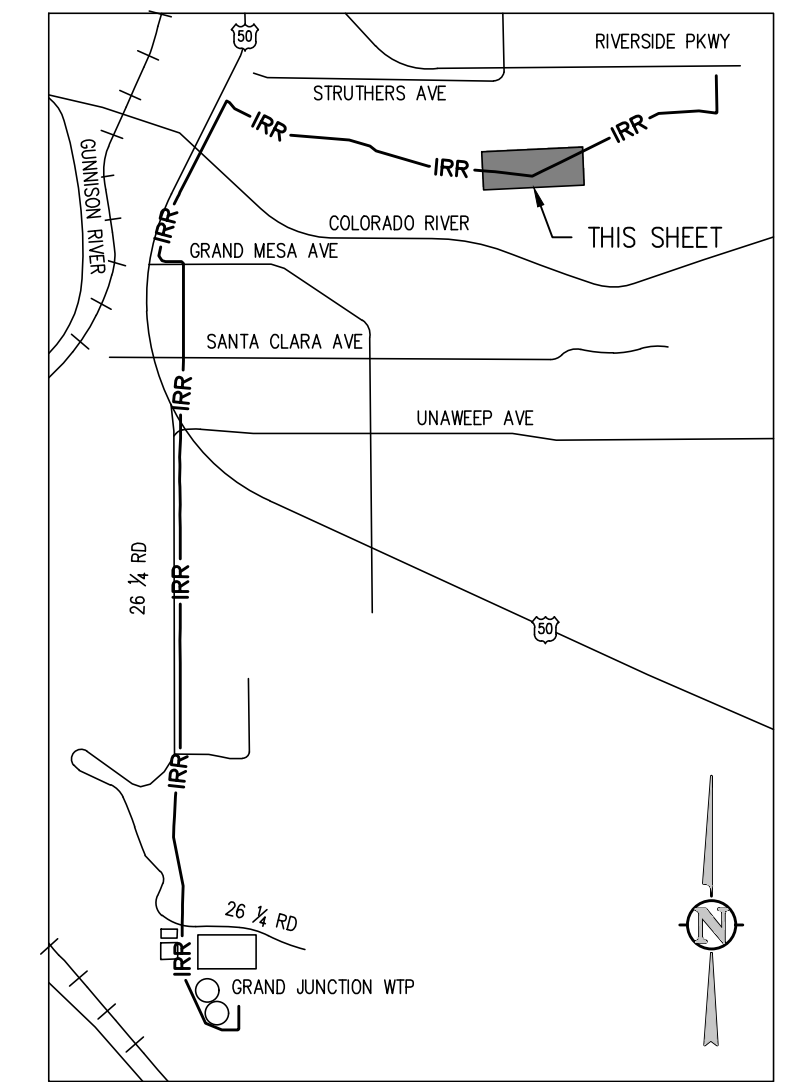
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 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019

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 RAW WATER IRRIGATION LINE STA 93+00.00
 - 99+00.00

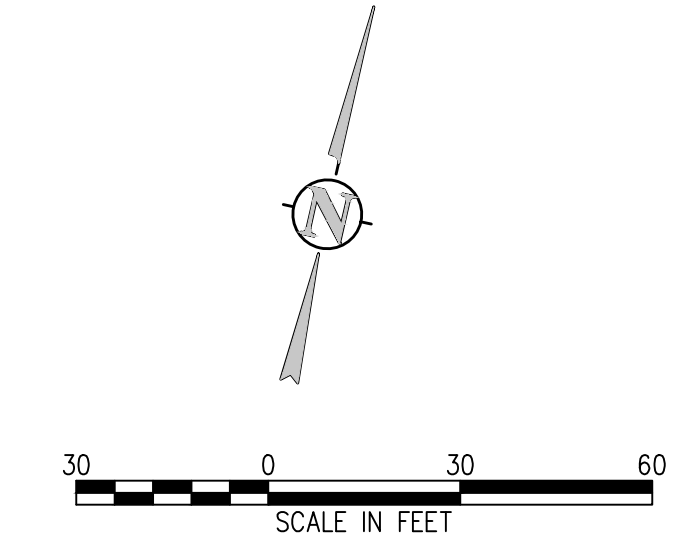
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NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

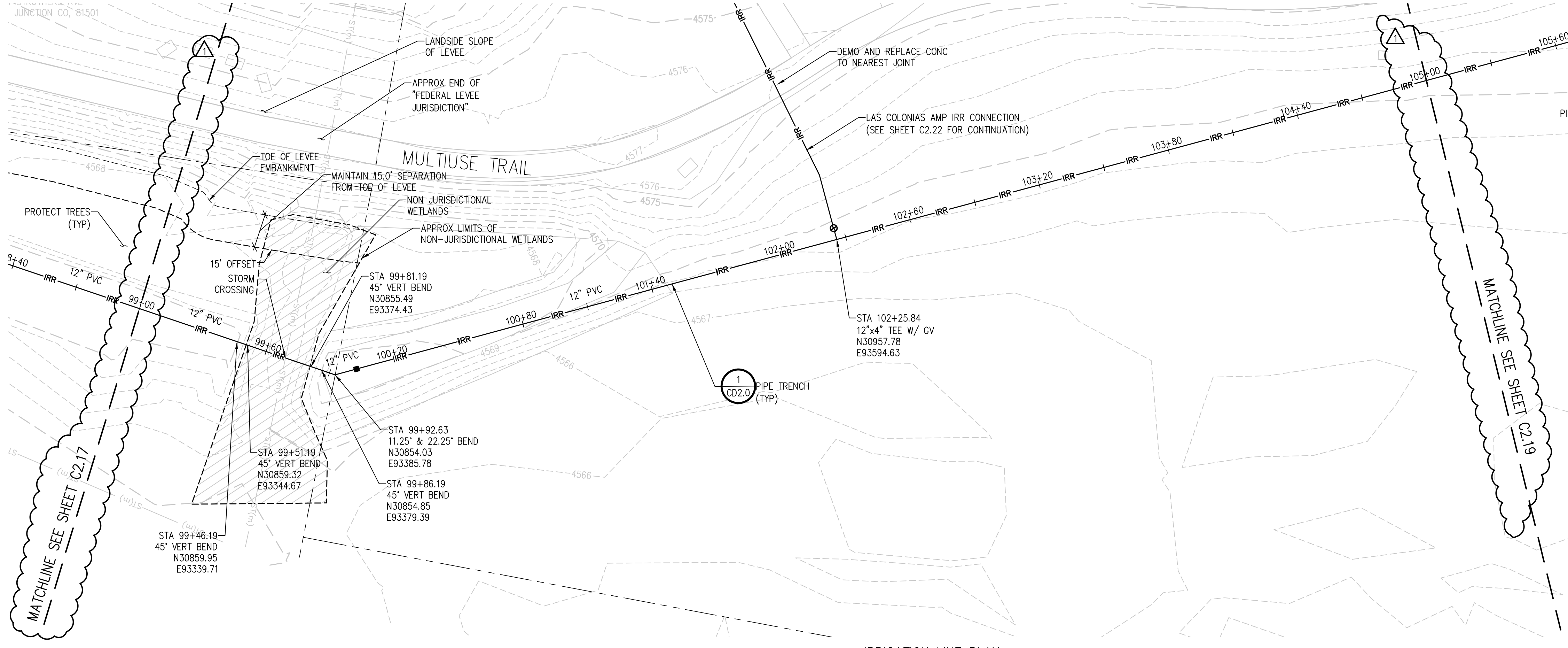
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DRAWN BY: NAS
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JOB #: 2538.3c
DATE: FEBRUARY 2019

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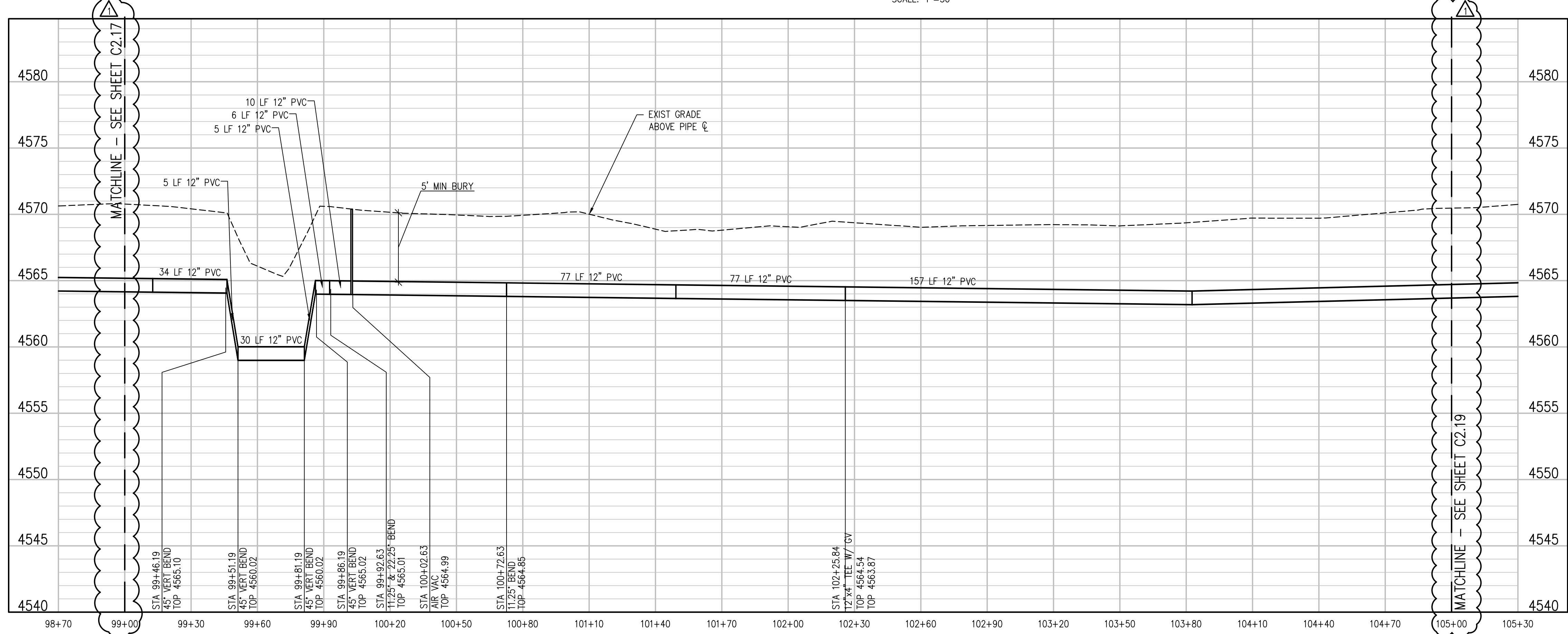
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AND WATER LINE REPLACEMENT
GRAND JUNCTION, COLORADO
RAW WATER IRRIGATION LINE STA 99+00.00
- 105+00.00

SHEET NO.

C2.18

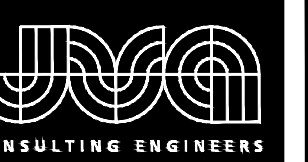


IRRIGATION LINE PLAN
SCALE: 1"=30'

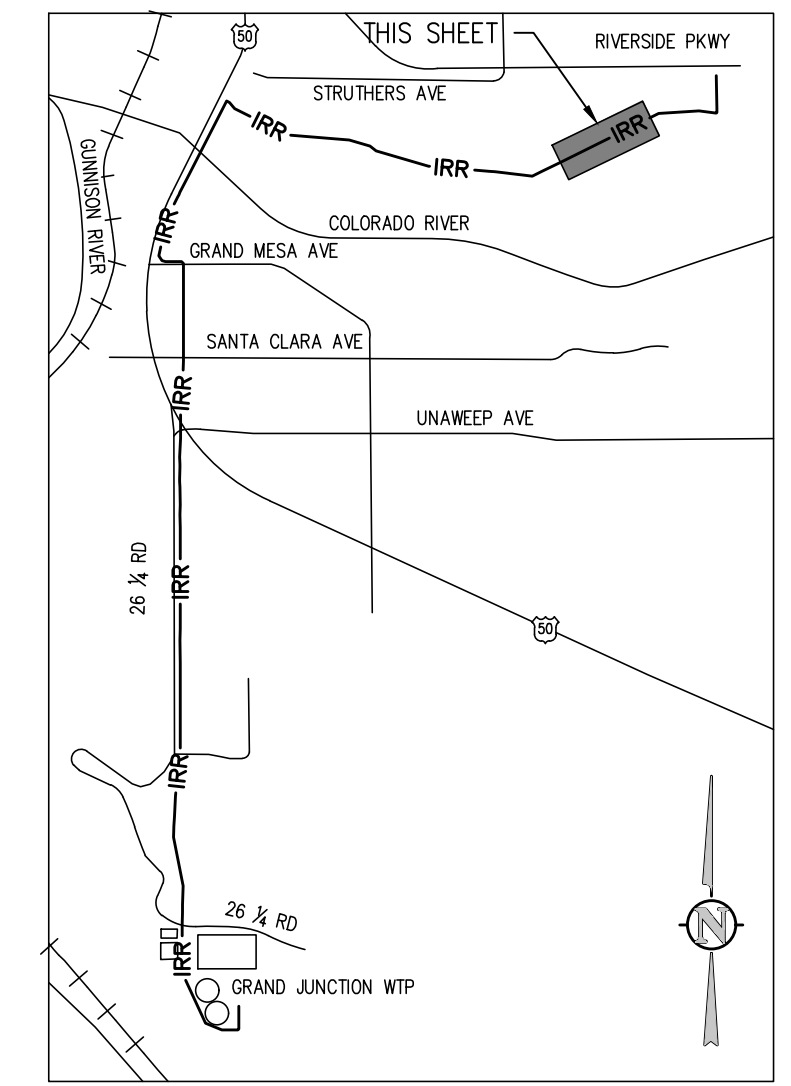


IRRIGATION LINE PROFILE
SCALE: 1"=30' HORIZ
1"=5' VERT

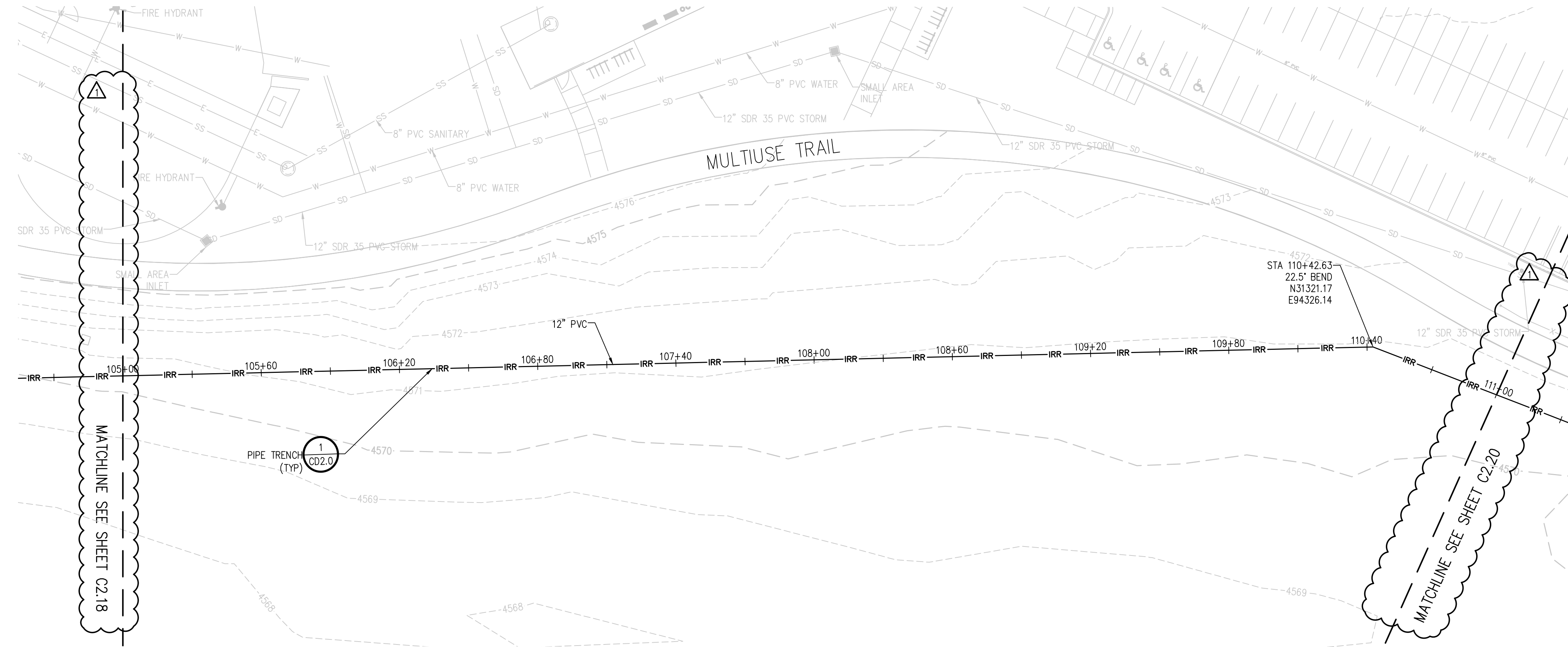
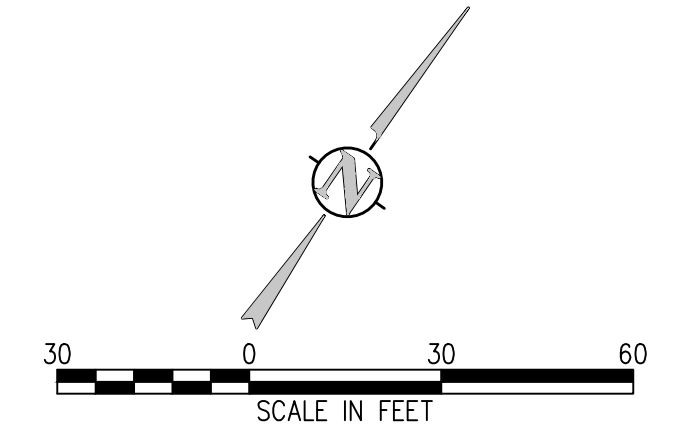
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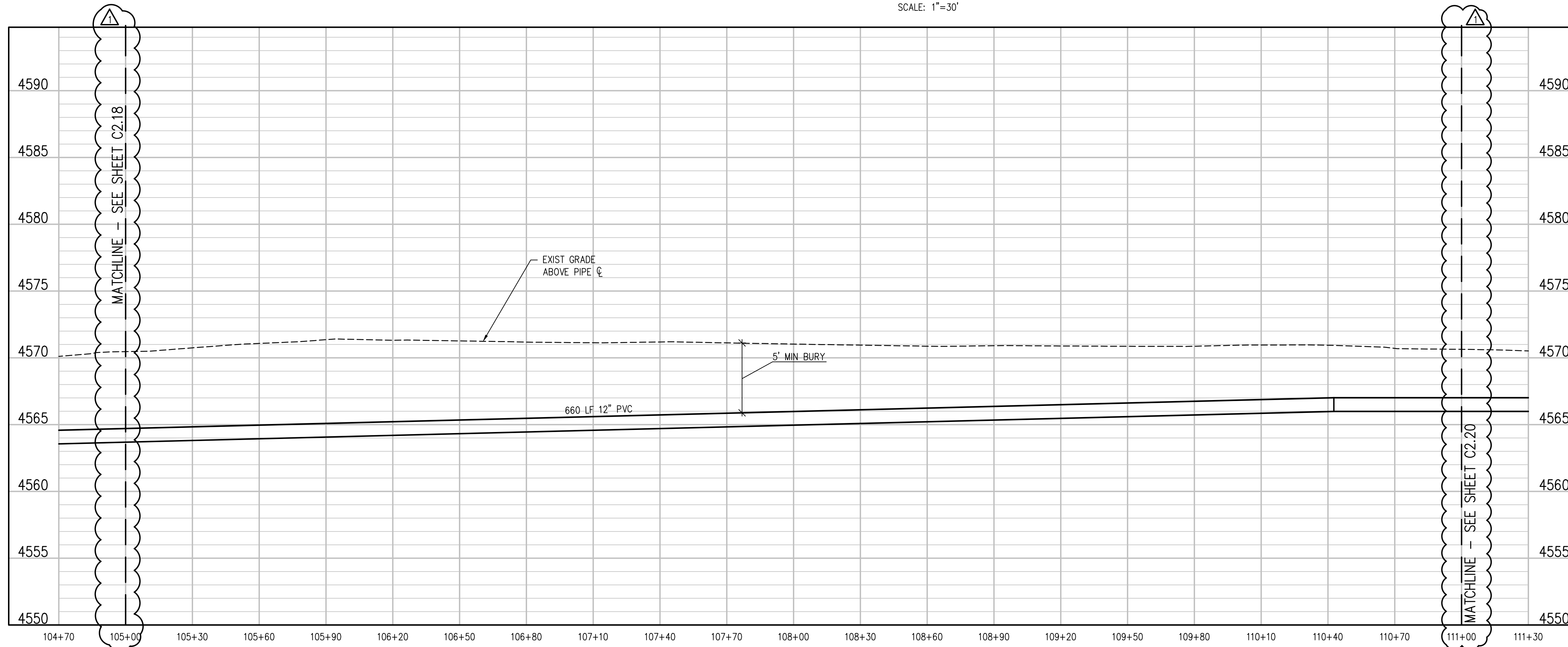
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IRRIGATION LINE PLAN
SCALE: 1"=30'



IRRIGATION LINE PROFILE
SCALE: 1"=30' HORIZ
1"=5' VERT

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

DESIGNED BY: BLM
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 JOB #: 2538.3c
 DATE: FEBRUARY 2019

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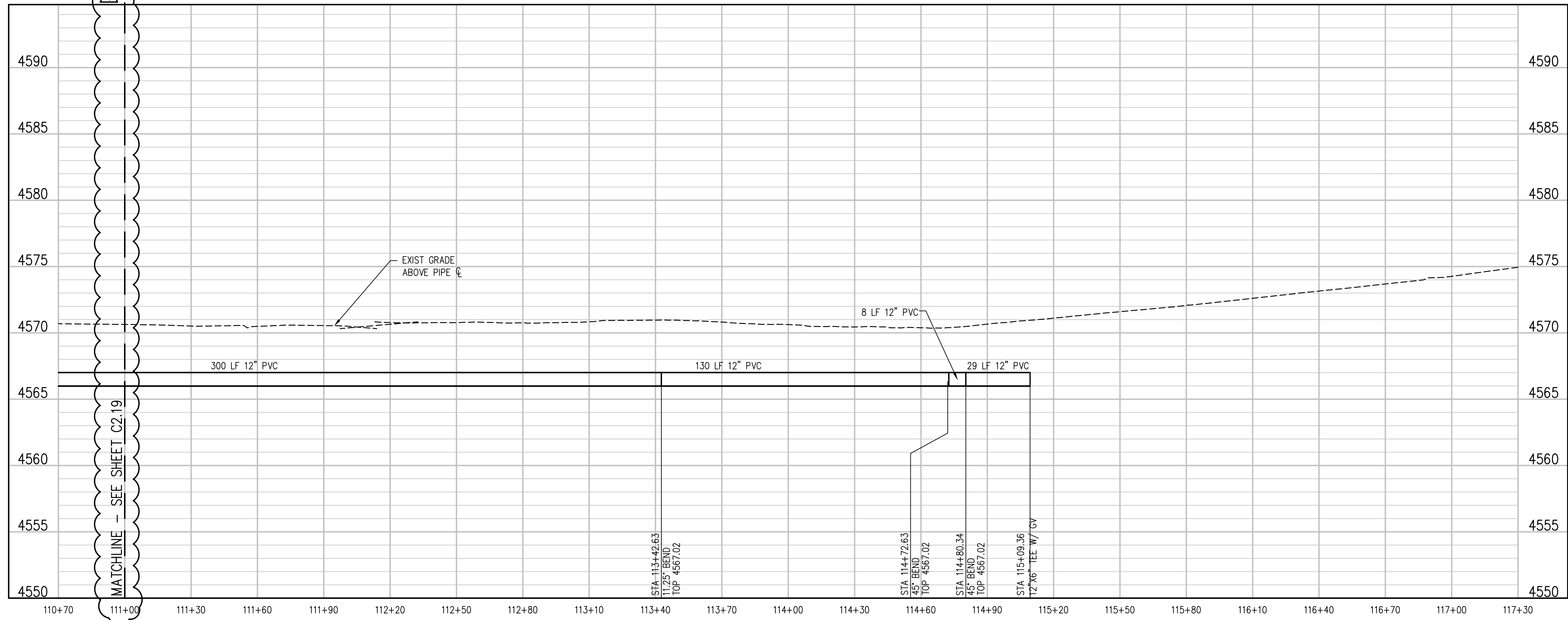
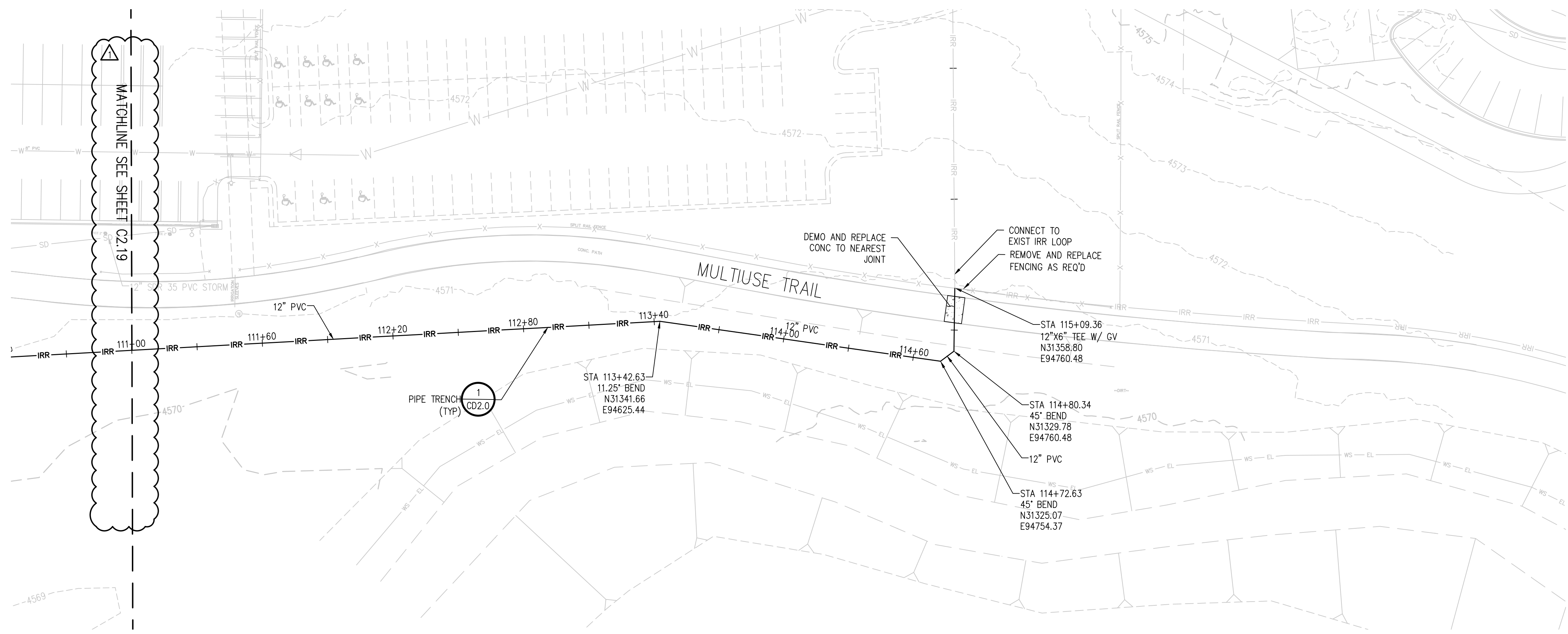
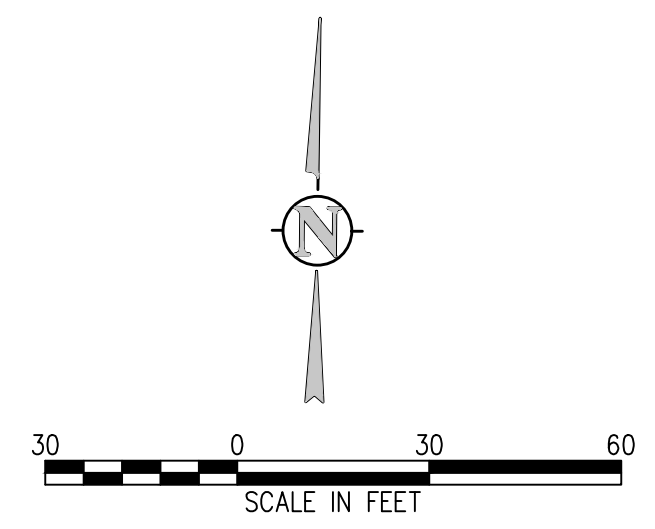
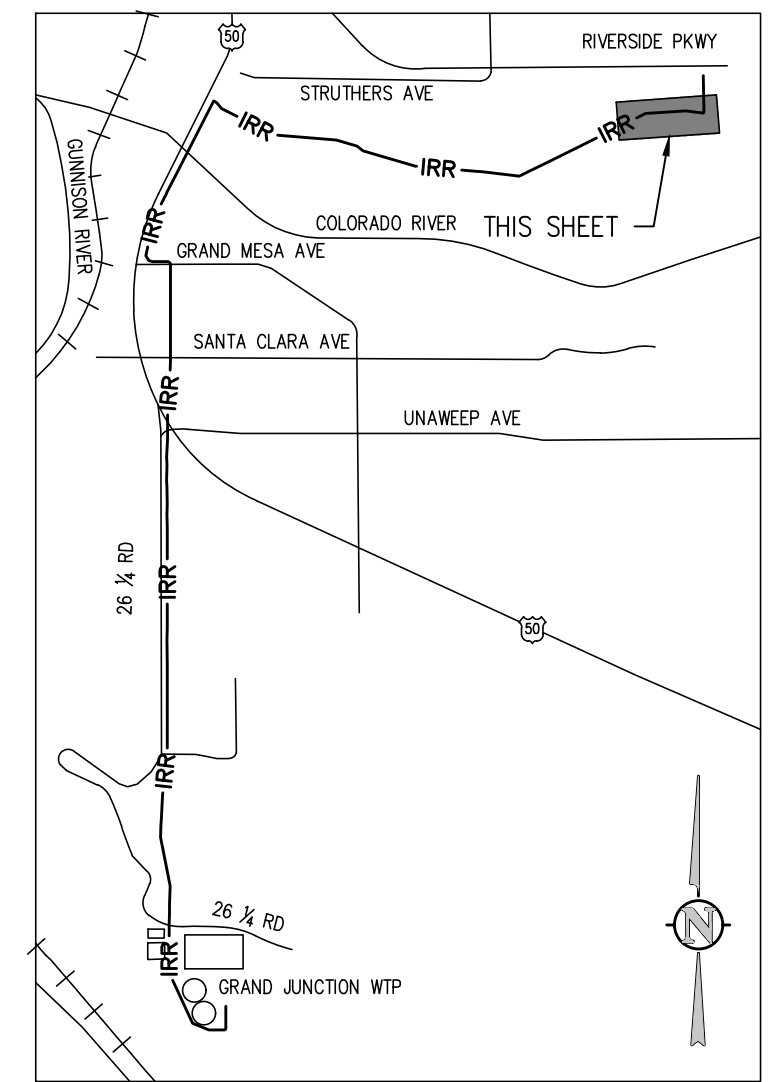
RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION LINE STA 105+00.00
 - 111+00.00

SHEET NO.
C2.19

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NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

DESIGNED BY: BLM
DRAWN BY: NAS
CHECKED BY: JJM
JOB #: 2538.3c
DATE: FEBRUARY 2019

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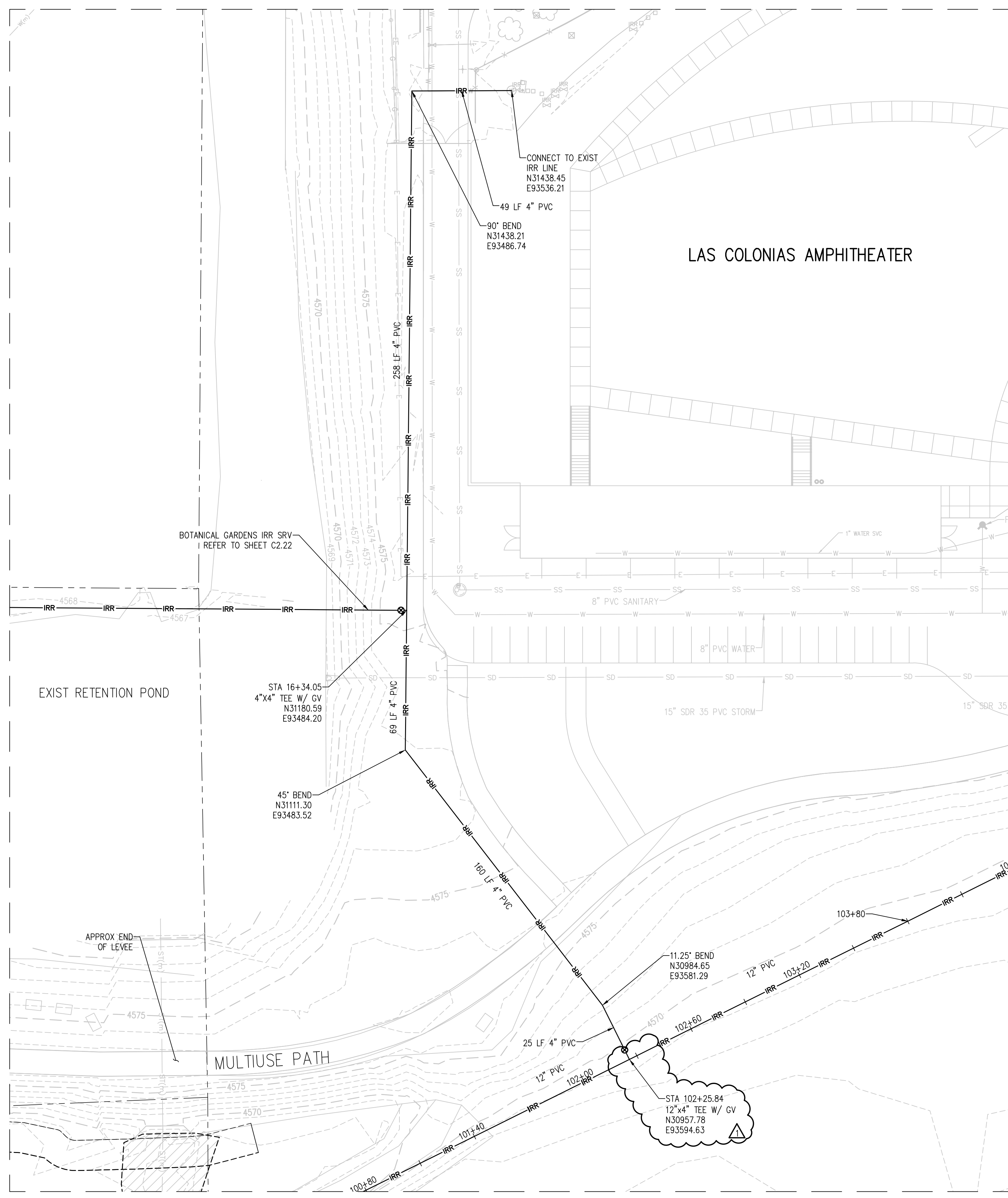
RAW WATER IRRIGATION SUPPLY
AND WATER LINE REPLACEMENT
GRAND JUNCTION, COLORADO

RAW WATER IRRIGATION LINE STA 111+00.00
- 117+00.00

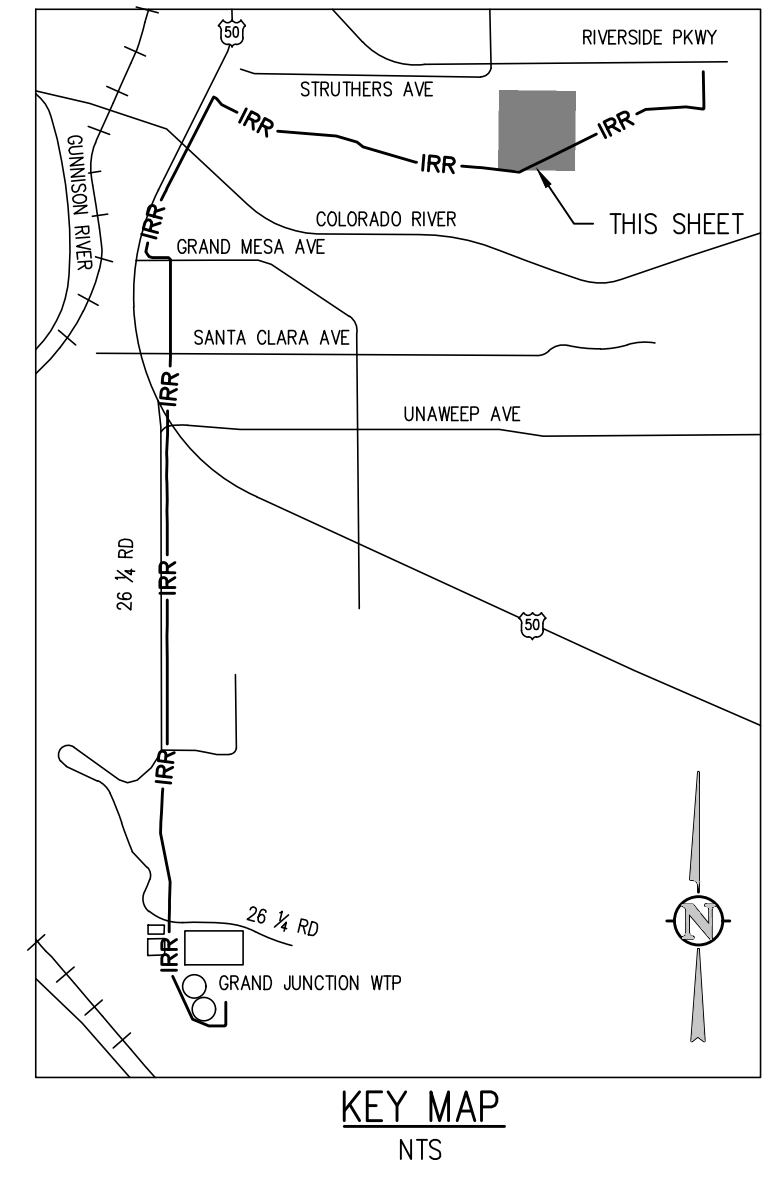
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C2.20

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LAS COLONIAS AMPHITHEATER IRRIGATION SERVICE LINE
SCALE: 1"=30'



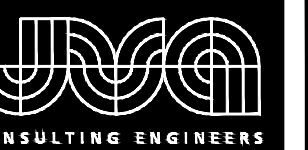
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NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

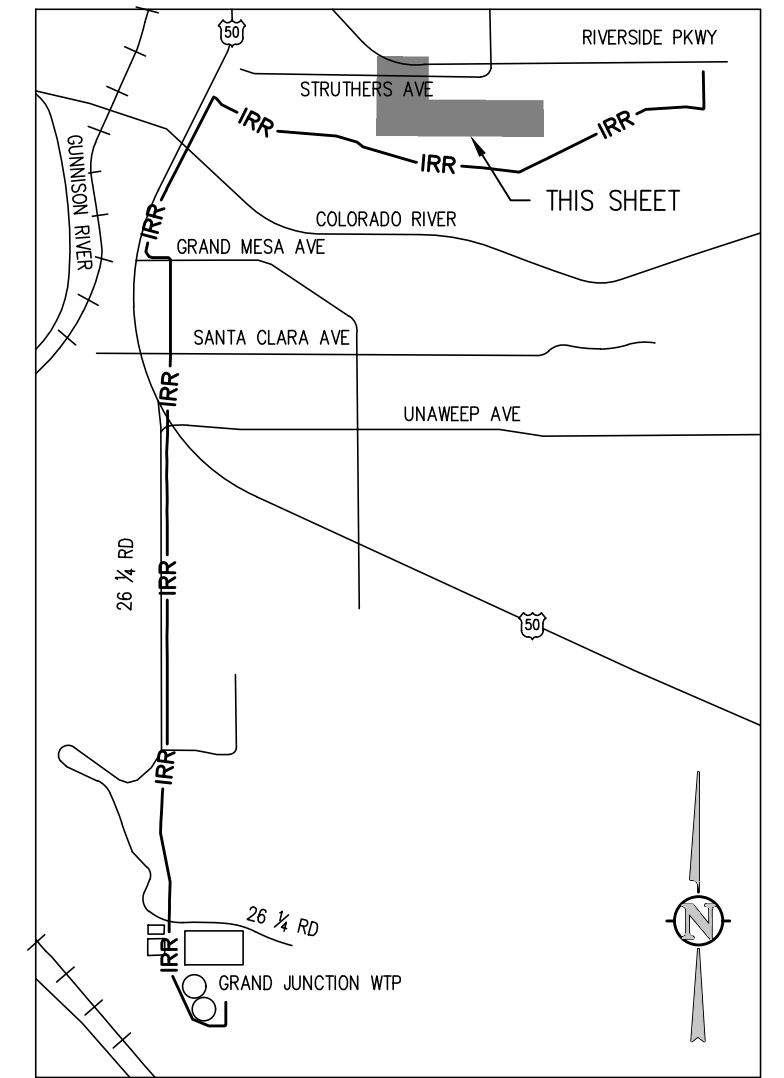
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 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019
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RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION SERVICE
 CONNECTIONS

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KEY MAP
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- NOTES:**
1. CONTRACTOR TO COORDINATE ALIGNMENT WITH CITY PRIOR TO START OF CONSTRUCTION AND PROVIDE NOTICE FOR PARK CLOSURE DURING CONSTRUCTION EFFORTS.
 2. COORDINATE REMOVAL AND REINSTALLATION OF ALL LANDSCAPING FEATURES, BENCHES, VEGETATION, ETC.

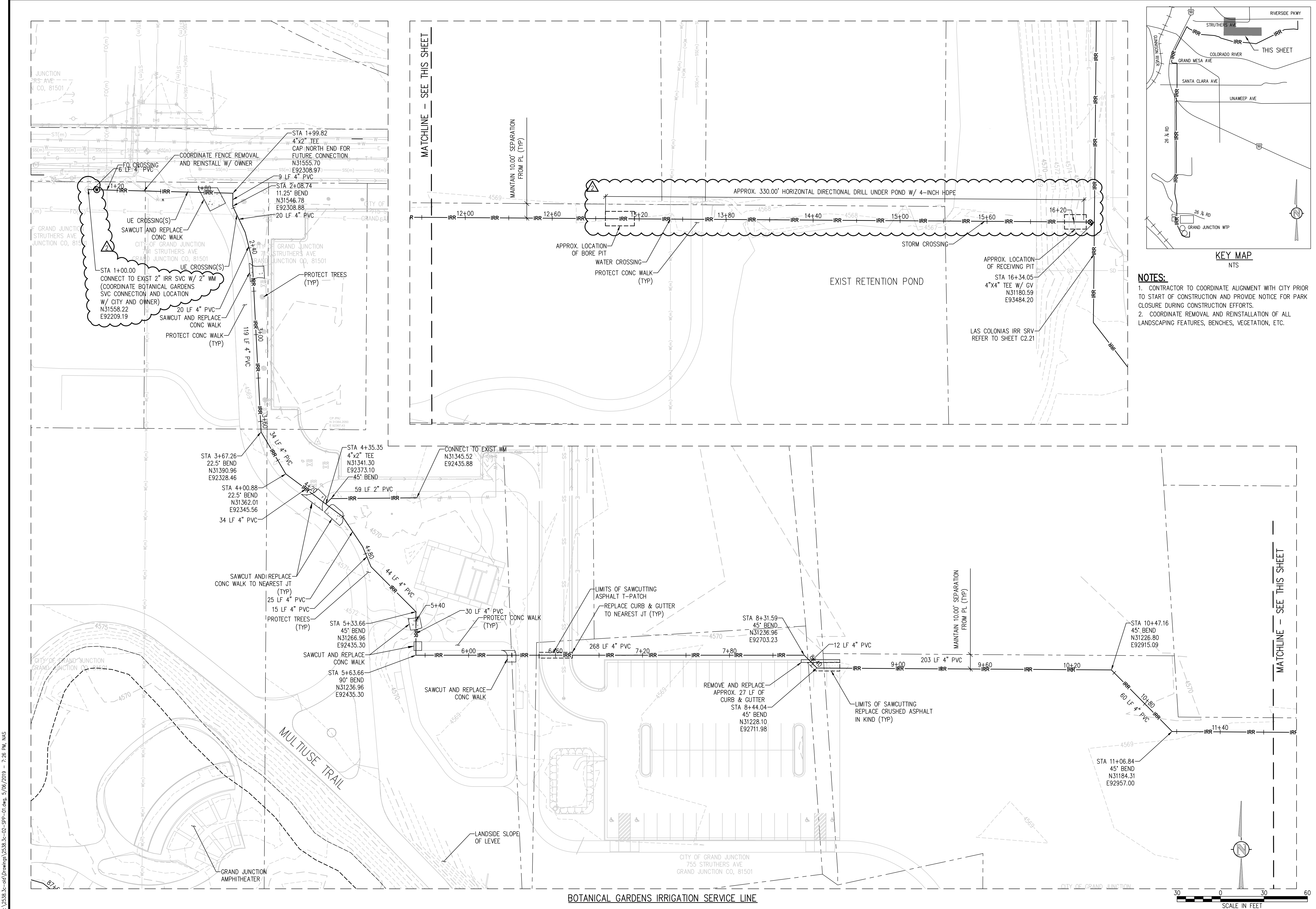
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2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

DESIGNED BY: BLM
 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019
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RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 RAW WATER IRRIGATION SERVICE
 CONNECTIONS

SHEET NO.

C2.22



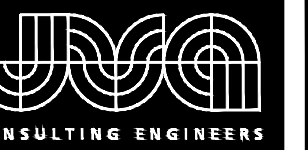
MATCHLINE - SEE THIS SHEET

MATCHLINE - SEE THIS SHEET

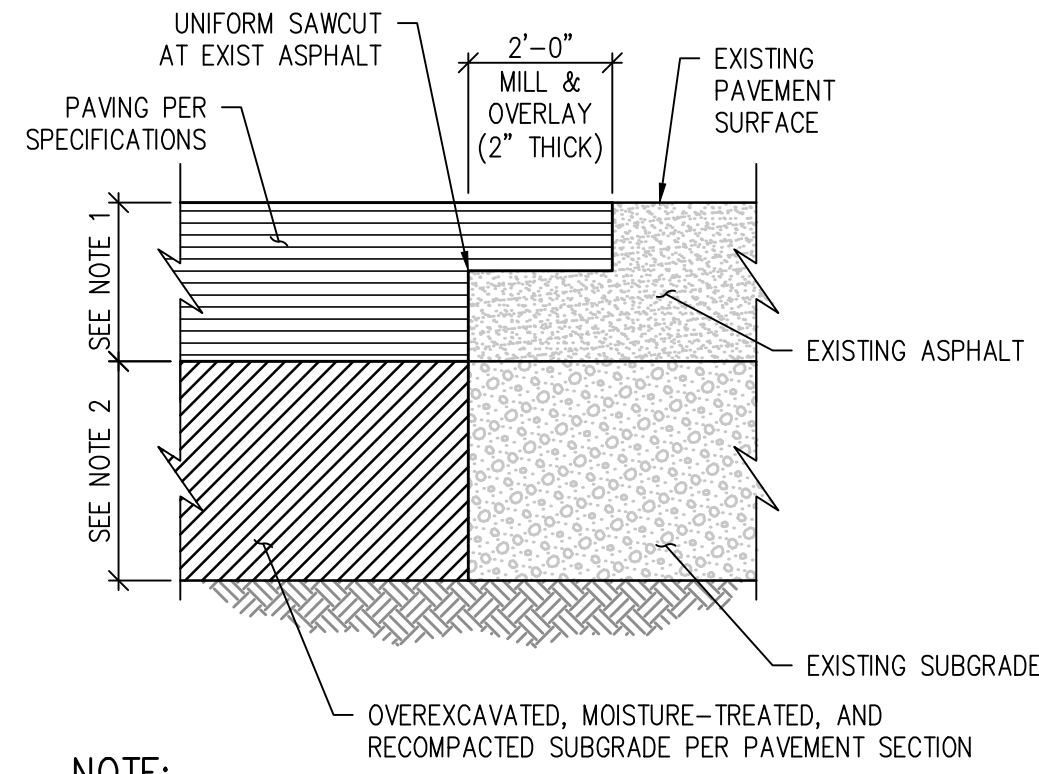
BOTANICAL GARDENS IRRIGATION SERVICE LINE



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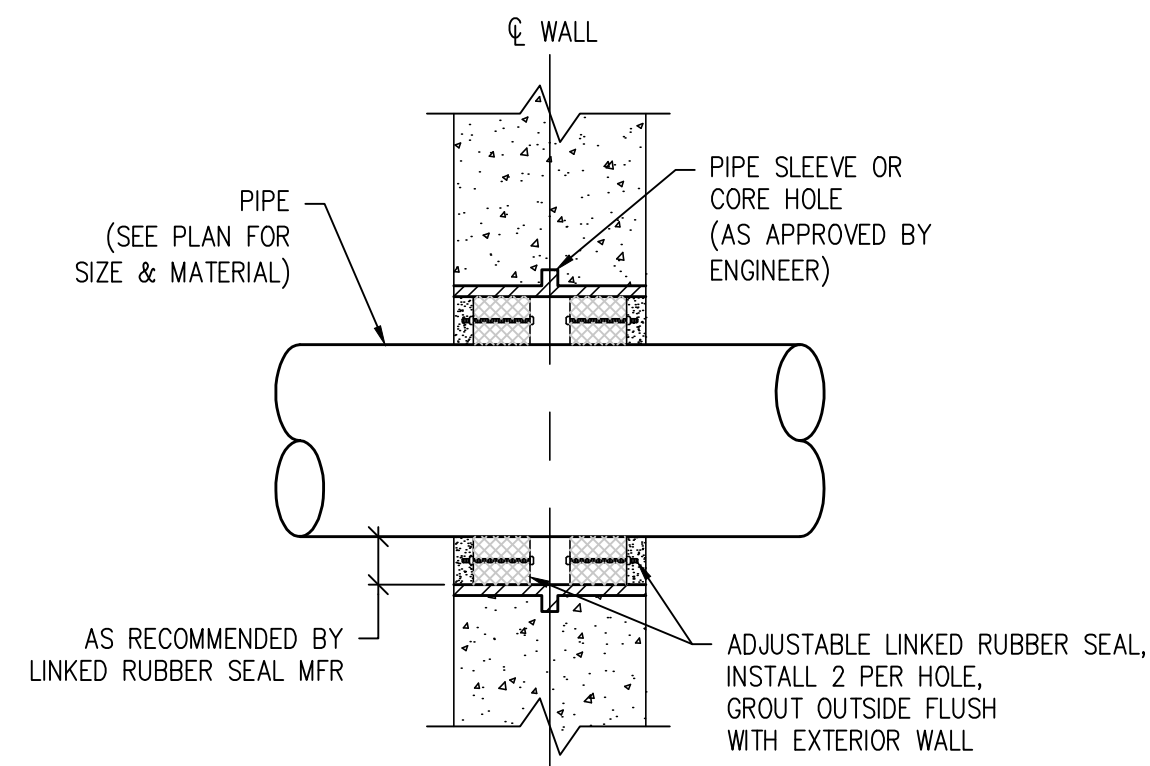


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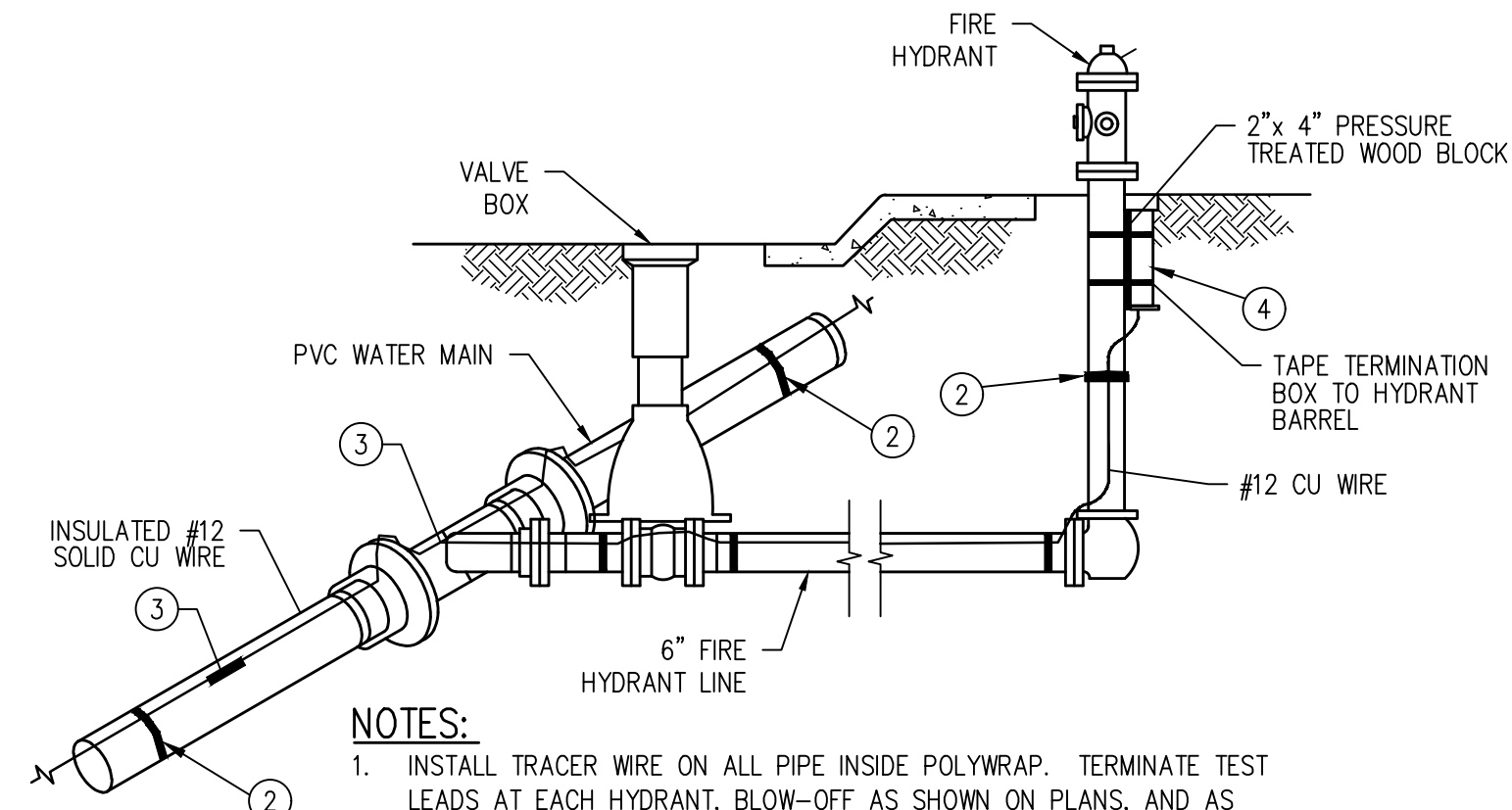


- NOTE:**
1. MATCH EXISTING DEPTH +1"
 2. MATCH EXIST SUBGRADE DEPTH UNLESS OTHERWISE SPECIFIED
 3. APPLY TACKIFIER AT SAWCUT AD MILL PRIOR TO PAVING.

ASPHALT "T" PATCH DETAIL (1)
NTS

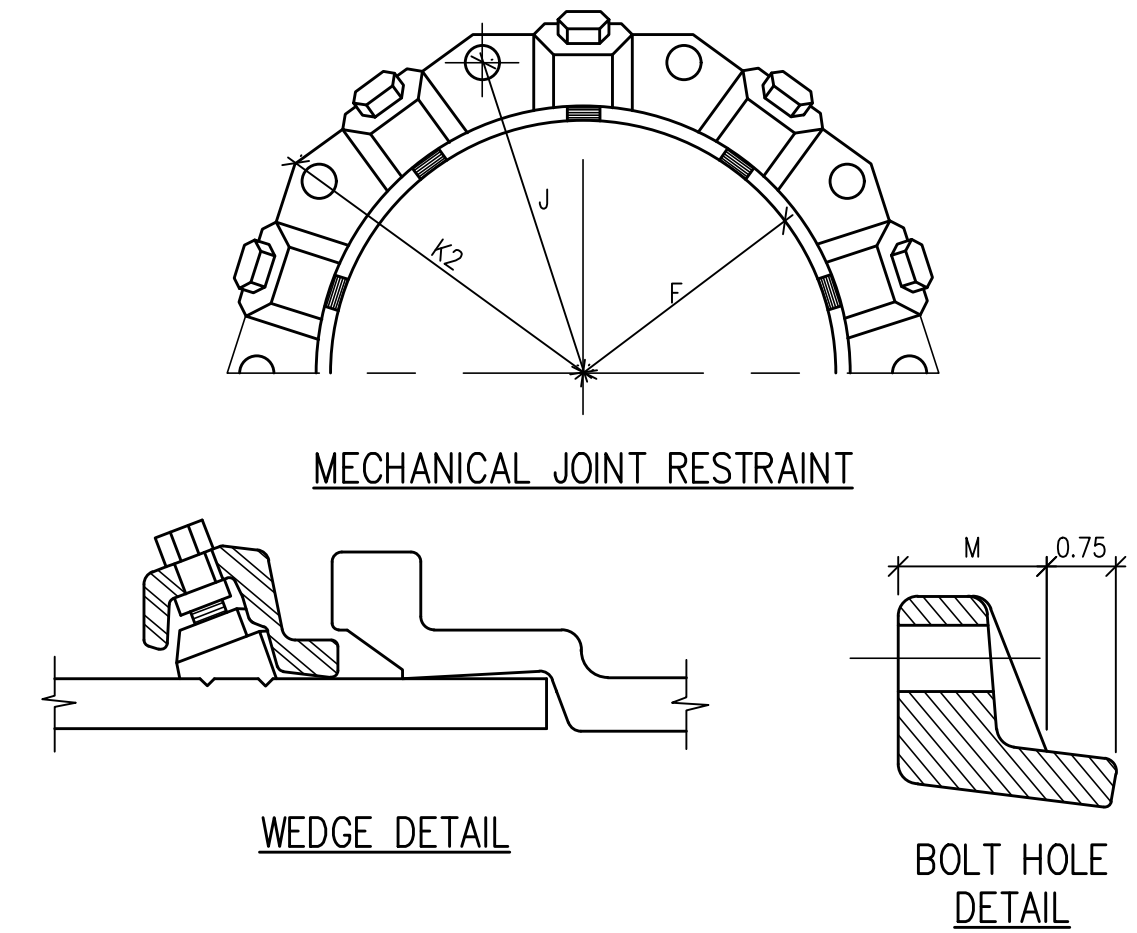


WALL PENETRATION WITH CORE HOLE DETAIL (2)
NTS



- NOTES:**
1. INSTALL TRACER WIRE ON ALL PIPE INSIDE POLYWRAP. TERMINATE TEST LEADS AT EACH HYDRANT, BLOW-OFF AS SHOWN ON PLANS, AND AS DIRECTED BY UTILITY OWNER.
 2. TAPE WIRE ON EACH SIDE OF FITTINGS AND AT 10' MAX ON CENTERS ALONG TOP OF PIPE OR LOOP WIRE AROUND EACH PIPE SECTION 2 OR 3 TIMES W/ 2" PVC TAPE.
 3. USE 12 GAUGE COPPER CONNECTOR DOSSERT NO. DPC2 OR EQUAL FOR SINGLE SPLICE. USE 12 GAUGE COPPER CONNECTOR, BURNOY NO. YC12, 3M TYPE DBY-6 OR EQUAL FOR MULTIPLE SPLICES. SPLICES AT FITTINGS SHALL BE OUTSIDE POLYWRAP.
 4. USE 18" LONG BY 2 1/2" DIA. PVC TERMINATION FITTING W/ CAST IRON LID. CONNECT ALL WIRE(S) TO TERMINAL. (C.P. TEST SERVICES, INC. OR EQUAL). PROVIDE AMPLE TRACER WIRE AT TEST SERVICES, INC. OR EQUAL. PROVIDE AMPLE TRACER WIRE AT TEST STATIONS FOR TESTING.

TRACER WIRE INSTALLATION DETAIL (3)
NTS

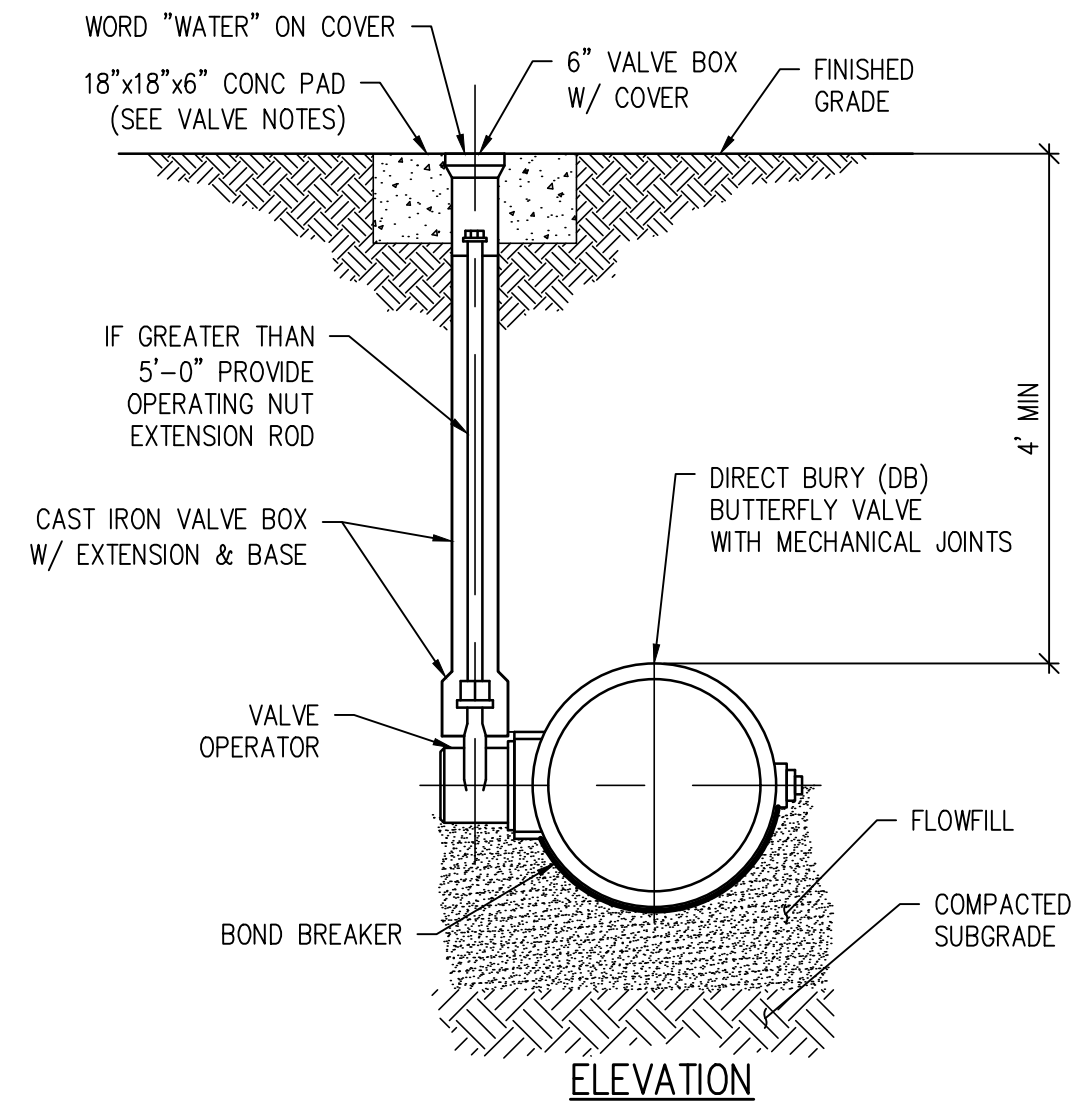
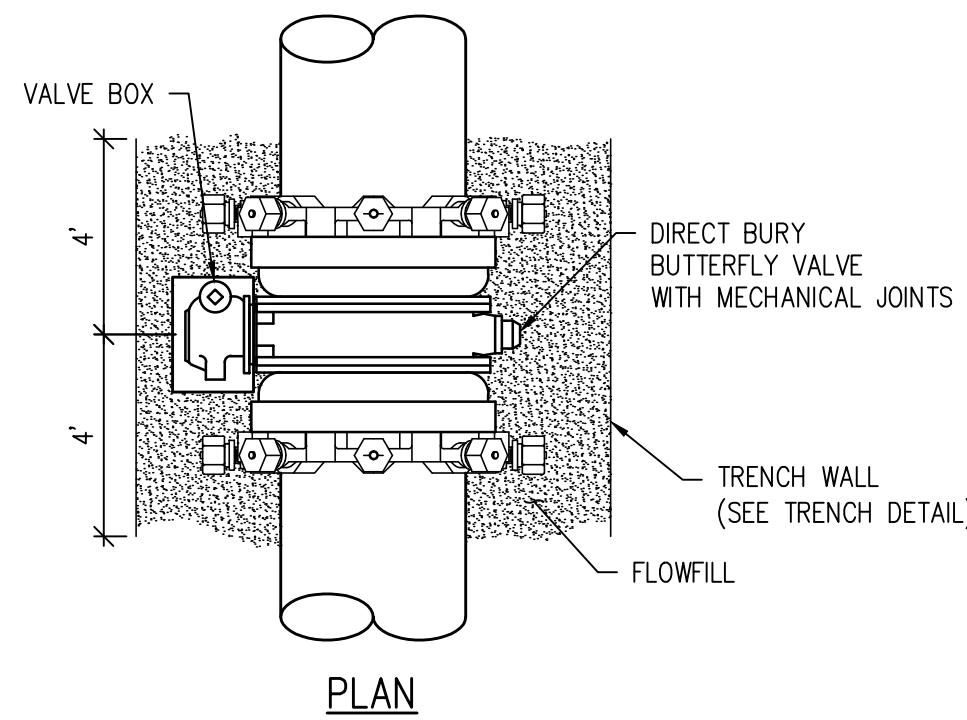


DIMENSIONS

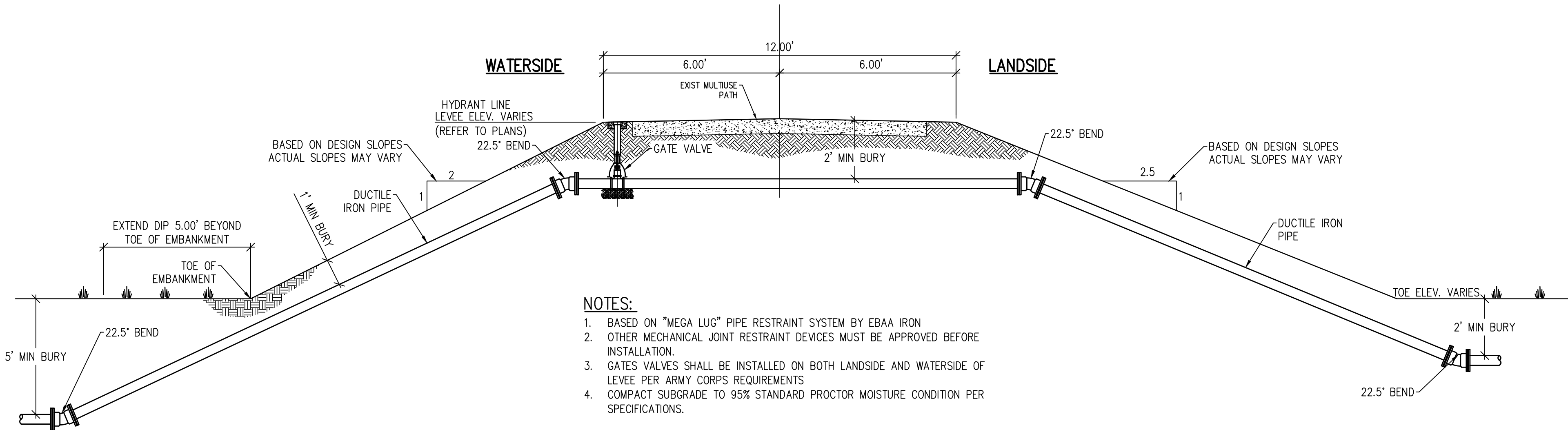
NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES
16"	12	12	22.50	21.00	17.54	1.56
20"	14	14	27.00	25.50	21.74	1.69
24"	16	16	31.50	30.00	25.94	1.81
36"	24	24	46.00	43.75	38.47	2.25

- NOTE:**
1. BASED ON "MEGA LUG" PIPE RESTRAINT SYSTEM BY EBAA IRON
 2. OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.

MECHANICAL JOINT RESTRAINT DETAIL (4)
NTS

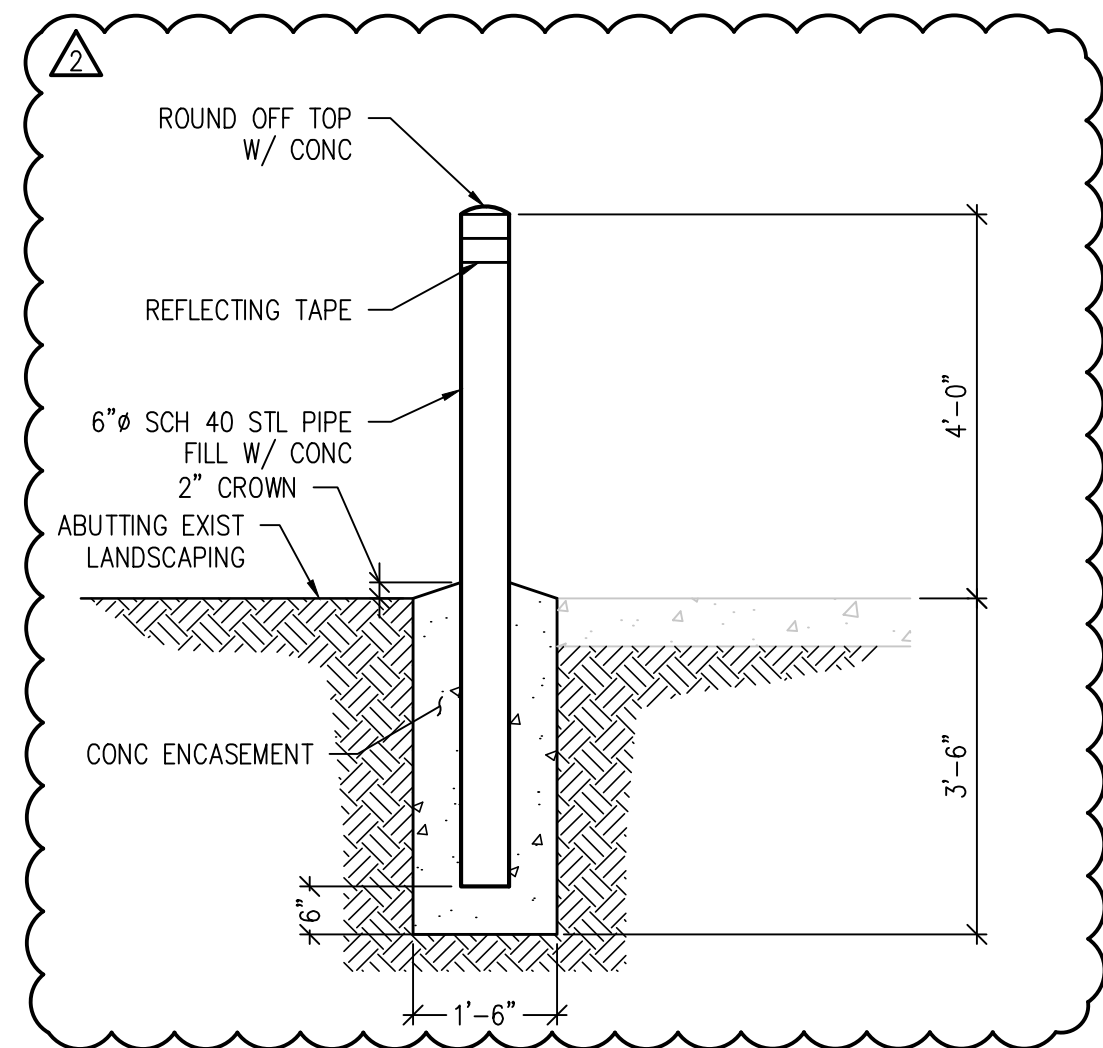


DIRECT BURY BUTTERFLY VALVE INSTALLATION DETAIL (5)
NTS



- NOTES:**
1. BASED ON "MEGA LUG" PIPE RESTRAINT SYSTEM BY EBAA IRON
 2. OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.
 3. GATES VALVES SHALL BE INSTALLED ON BOTH LANDSIDE AND WATERSIDE OF LEVEE PER ARMY CORPS REQUIREMENTS
 4. COMPACT SUBGRADE TO 95% STANDARD PROCTOR MOISTURE CONDITION PER SPECIFICATIONS.

LEVEE CROSSING DETAIL (6)
NTS

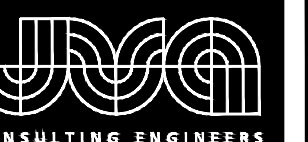


NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
2	05/06/19	NAS	NAS	ADDENDUM 04 REVISIONS
1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

DESIGNED BY: BLM
DRAWN BY: NAS
CHECKED BY: JJM
JOB #: 2538.3c
DATE: FEBRUARY 2019
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RAW WATER IRRIGATION SUPPLY
AND WATER LINE REPLACEMENT
GRAND JUNCTION, COLORADO

RAW WATER IRRIGATION LINE DETAILS



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ADDENDUM 04 REVISIONS			
HIGHWAY 50 RAW WATERLINE REVISIONS			
NO.	DATE	DESIGNED BY	DRAWN BY
2	05/06/19	NAS	NAS
1	04/15/19	NAS	NAS

DESIGNED BY: BLM
 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019
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RAW WATER IRRIGATION SUPPLY
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 GRAND JUNCTION, COLORADO

RAW WATER IRRIGATION LINE DETAILS

SHEET NO.
CD2.2

LEGEND

H = MAXIMUM ALLOWABLE HEIGHT OF COVER OVER THE TOP OF THE PIPE, EXCLUDING PAVEMENT THICKNESS.

FILL HEIGHTS ARE BASED ON AASHTO M304 POLYVINYL CHLORIDE (PVC) PIPE WITH OUTER, RIBBED WALL AND SMOOTH INNER WALL, AND ON AASHTO T180 MINIMUM RELATIVE COMPACTION OF 95% OR 90%.

FILL HEIGHTS, FOR INSTALLATION WITH HIGH WATER TABLE, REQUIRE A SPECIAL DESIGN. THE MAXIMUM HEIGHT IN HIGHWATER LOCATIONS SHOULD BE 15 FEET OR BASED ON AASHTO LRFD DESIGN SPECIFICATIONS.

THE MINIMUM COVER SHALL BE AS SHOWN ON THESE TABLES OR CONFORM TO AASHTO REQUIREMENTS, WHICHEVER IS GREATER. THE MINIMUM COVER FOR PIPE IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT (HMA OR PCCP).

THE MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE SUBGRADE DURING CONSTRUCTION. THE MINIMUM COVER IS BASED ON DUAL AXLE LOADS UP TO 50,000 POUNDS.

L₁ = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.

L₂ = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.

GENERAL NOTES

- ALL PIPES SHALL MEET THE REQUIREMENTS OF AASHTO M304 FOR POLYVINYL CHLORIDE (PVC) PROFILE WALL DRAIN PIPE WITH 46 PSI WALL STIFFNESS PER ASTM F949.
- FOR PIPES WITH DIAMETERS OF 15 INCHES OR LESS, SOLID WALL PVC PIPES MEETING AASHTO M278 MAY BE USED.
- WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL INSTALLATION SHALL BE USED.
- MINIMUM COVER SHALL BE PROVIDED DURING CONSTRUCTION TO PROTECT THE PIPE FROM DAMAGE.
- WHEN INSTALLING A GUARDRAIL OR A SIGN POST DIRECTLY ABOVE A PIPE, THE POST'S BOTTOM MUST BE AT LEAST 1 FOOT ABOVE THE TOP OF THE PIPE. THE HOLE FOR THE POST SHALL BE DRILLED INTO THE SOIL.
- STRUCTURE BACKFILL MATERIAL SHALL BE CLASS 1.
- FOR PIPES 24 INCHES OR LESS IN DIAMETER, H MIN. MAY BE REDUCED TO ONE FOOT FOR LOW VOLUME APPROACH ROADS NOT ON STATE HIGHWAYS.

INSTALLATION OF PIPE

INSTALLATION OF MULTIPLE PIPES

** TRENCH WIDTH ASSUMES STABLE IN-SITU SIDE WALL

PIPE WITH END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

PIPE DIAMETER, d (IN.)	H MINIMUM HEIGHT OF COVER (FT.)	H MAXIMUM HEIGHT OF COVER (FT.)	
		95% COMPACTION	90% COMPACTION
12	2	65	55
15	2	59	51
18	2	63	53
21	2	58	49
24	2	58	49
30	2	56	47
36	2	56	47

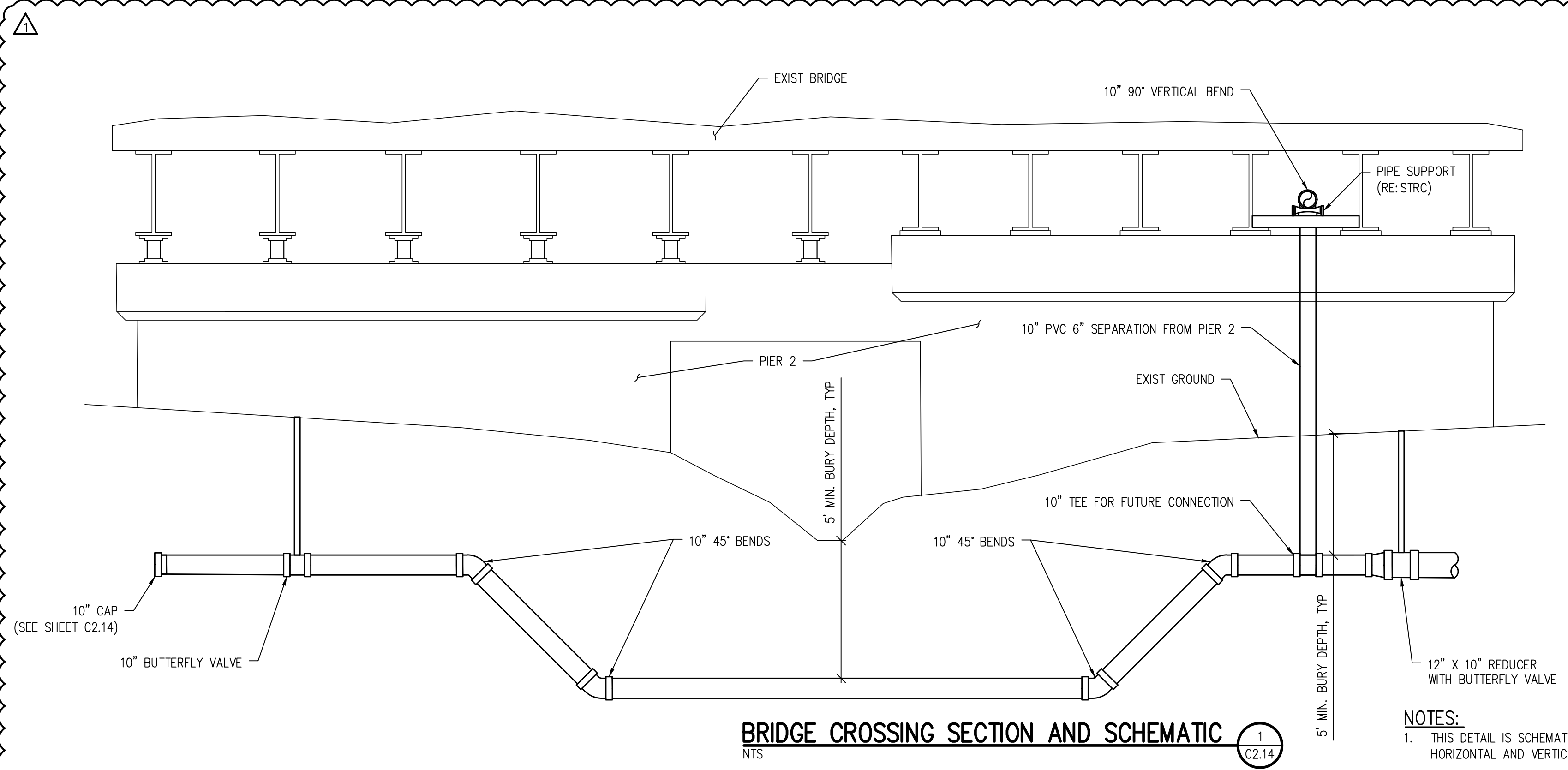
MINIMUM AND MAXIMUM COVER

CONSTRUCTION MINIMUM COVER FOR PIPE

NOMINAL PIPE DIAMETER (IN.)	MINIMUM COVER (IN.) FOR INDICATED AXLE LOADS (KIPS)			
	18.0-50.0	50.0-75.0	75.0-110.0	110.0-150.0
24 - 36	24.0	30.0	36.0	36.0

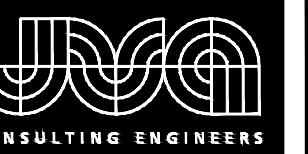
AASHTO MINIMUM COVER FOR CONSTRUCTION LOADS

Computer File Information Creation Date: 07/04/12 Initials: DLM Last Modification Date: 10/02/14 Initials: LTA Full Path: www.coloradadot.info/business/designsupport Drawing File Name: 603050101.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	Sheet Revisions Date: 1/07/13 Comments: Edited Legend and General Notes.	Colorado Department of Transportation 4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) Issued By: Project Development Branch on July 4, 2012	STANDARD PLAN NO. M-603-5 Sheet No. 1 of 1
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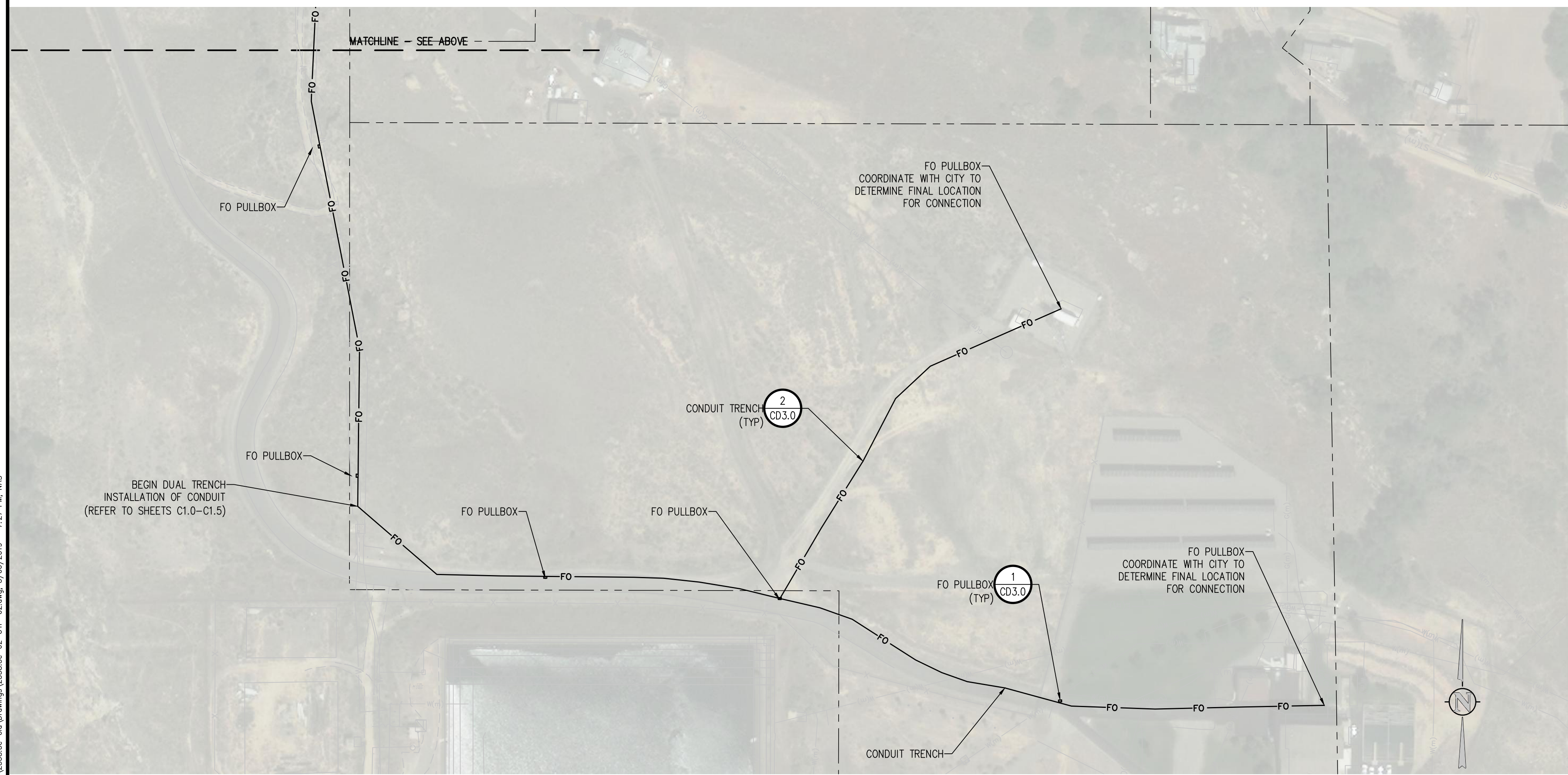
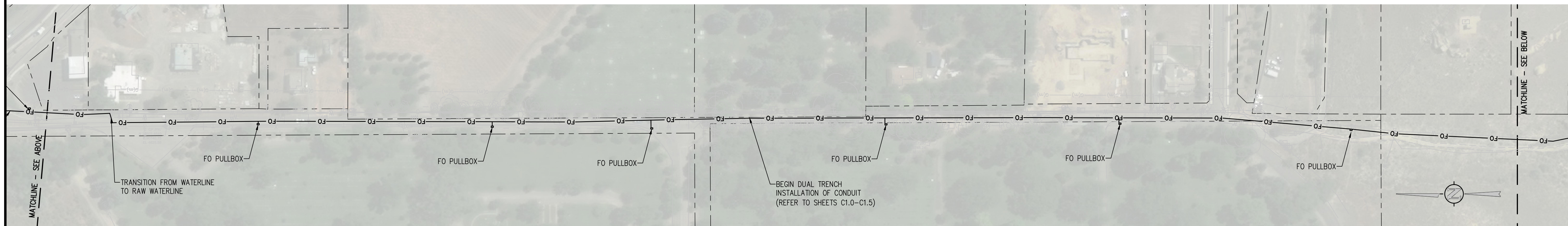


NOTES:
 1. THIS DETAIL IS SCHEMATIC, SEE SHEET C2.14 FOR HORIZONTAL AND VERTICAL DESIGN INFORMATION.

A:\2538.3c-cd\Drawings\2538.3c-cd-UTP-BET-01.dwg, 5/06/2019 - 7:26 PM, WMS



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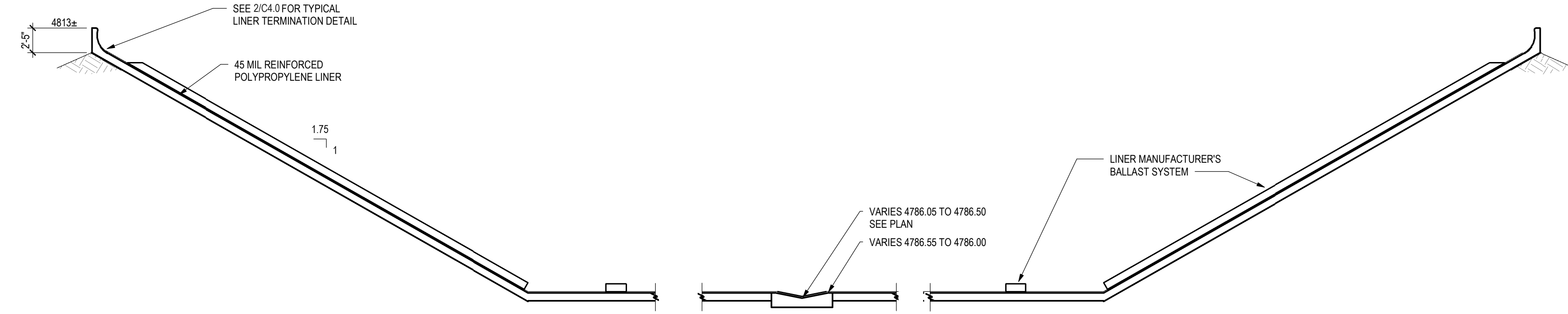


NO.	DATE	DES'D	DWN	REVISION DESCRIPTION
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1	04/15/19	NAS	NAS	HIGHWAY 50 RAW WATERLINE REVISIONS

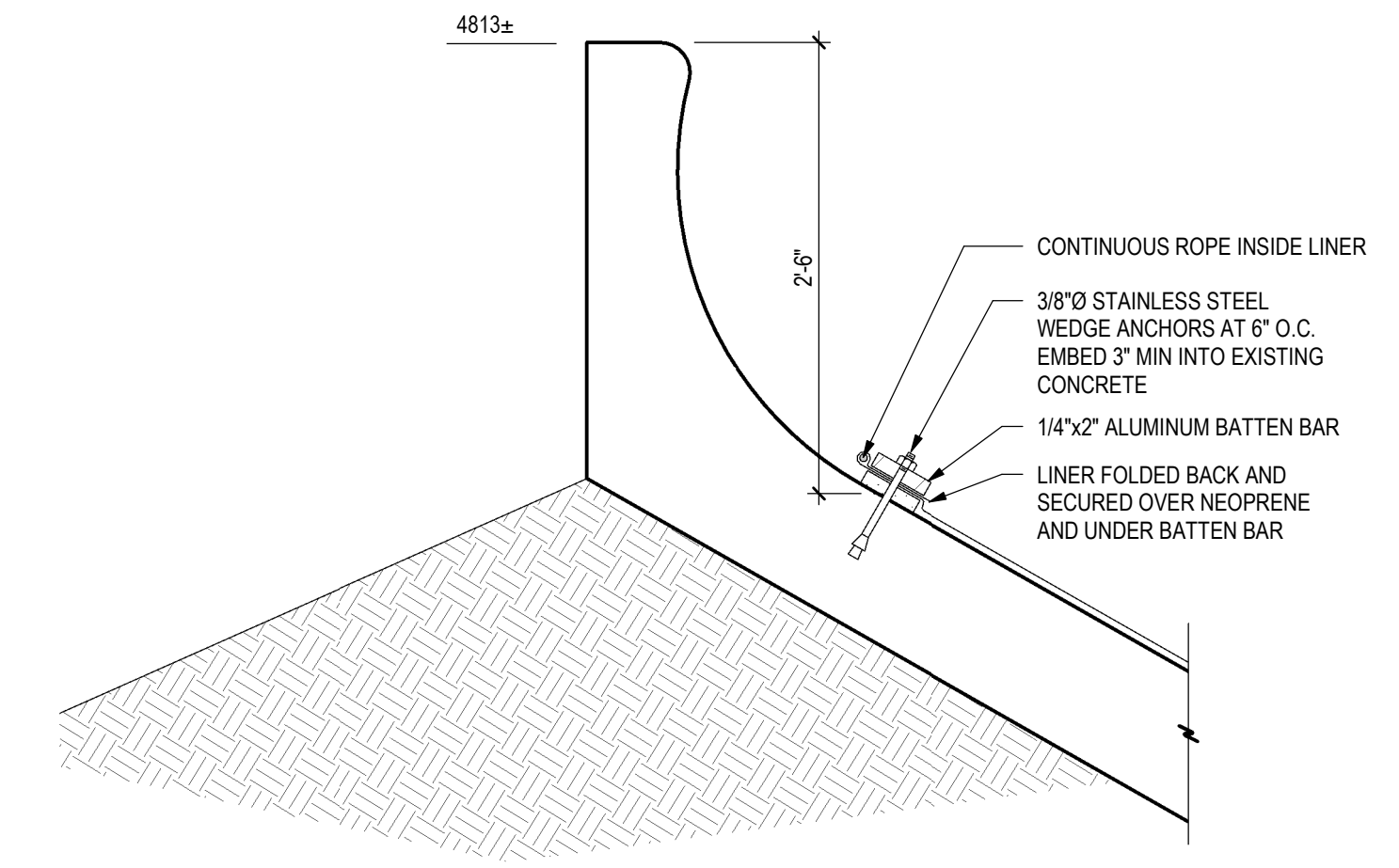
DESIGNED BY: BLM
 DRAWN BY: NAS
 CHECKED BY: JJM
 JOB #: 2538.3c
 DATE: FEBRUARY 2019
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RAW WATER IRRIGATION SUPPLY
 AND WATER LINE REPLACEMENT
 GRAND JUNCTION, COLORADO
 OVERALL UTILITY PLAN

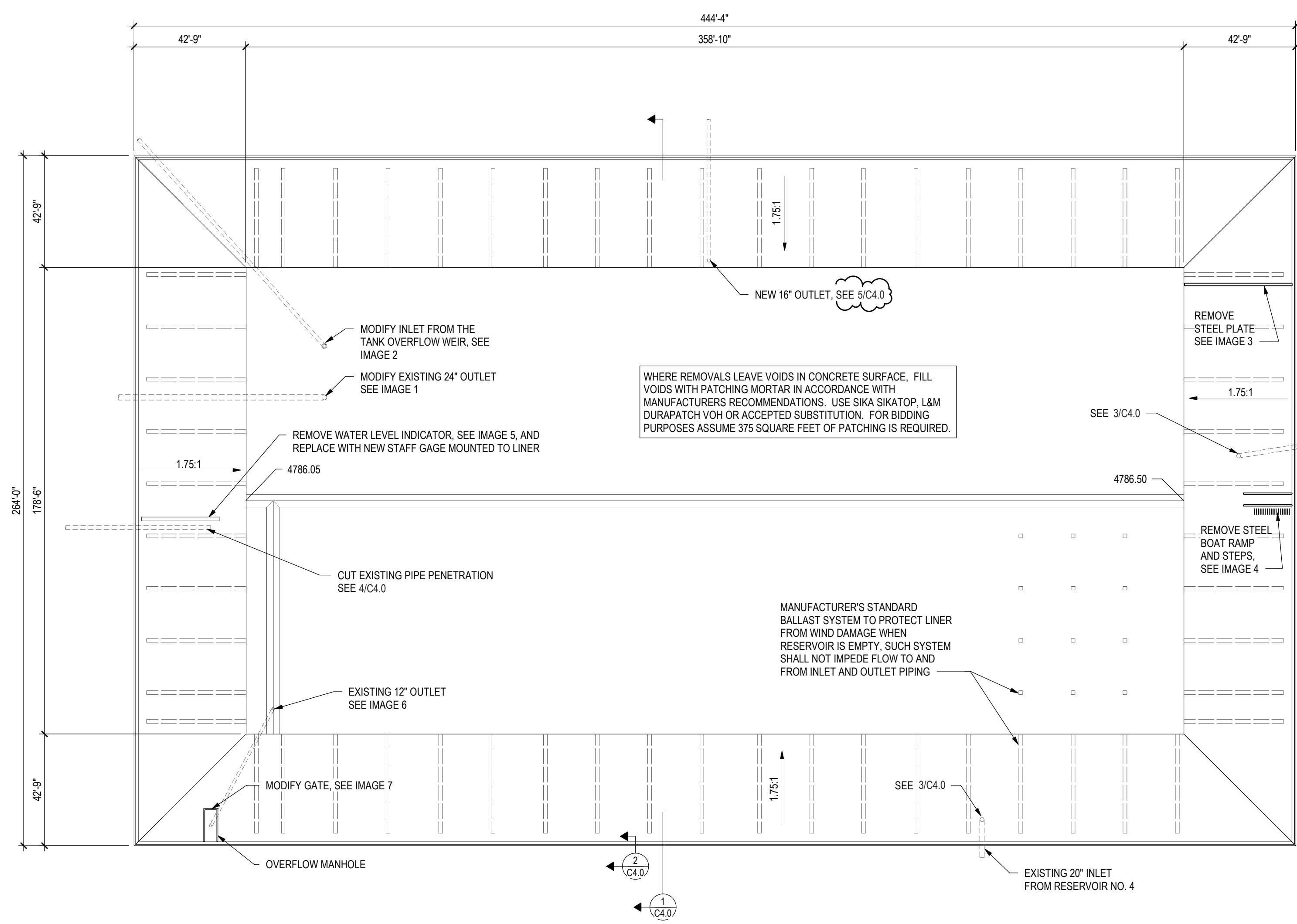
SHEET NO.
C3.0



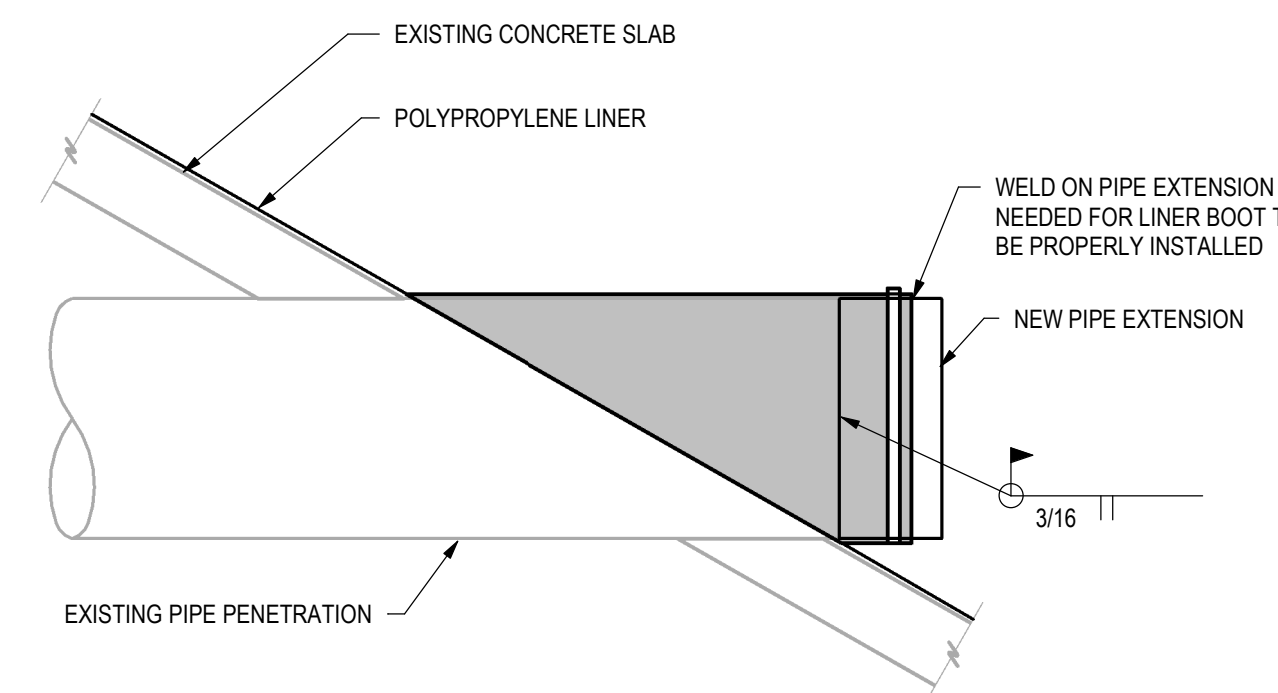
1 SECTION
 C4.0 1/8" = 1'-0"



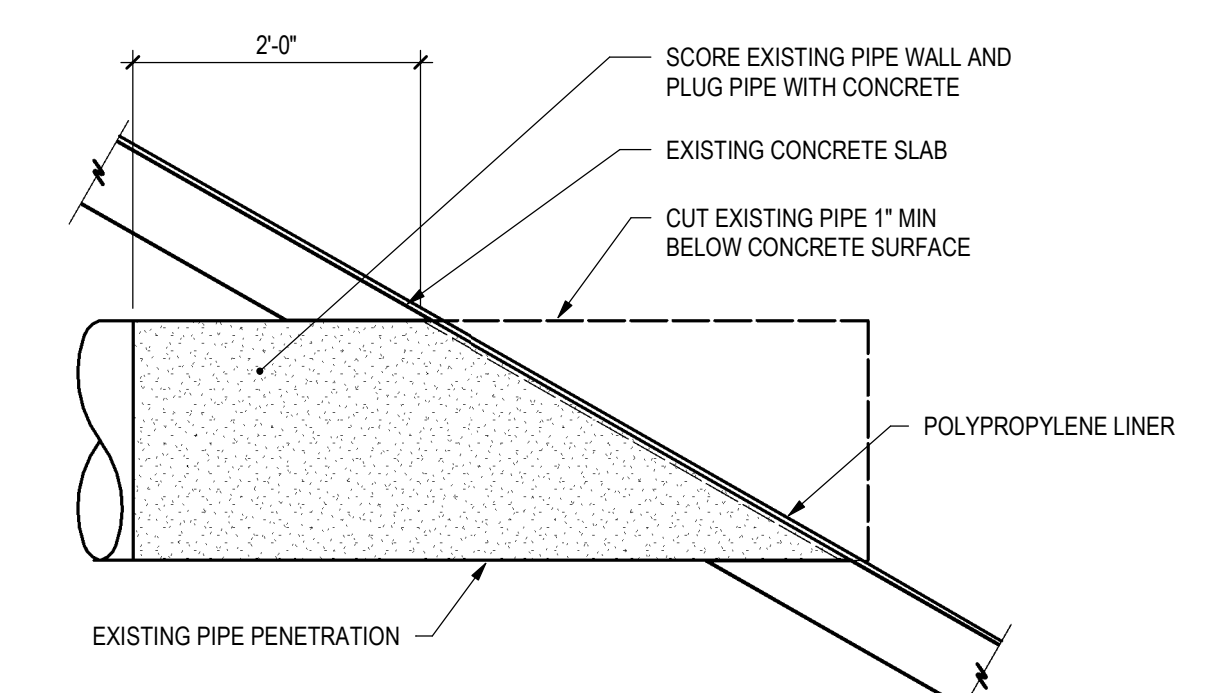
2 DETAIL
 C4.0 1" = 1'-0"



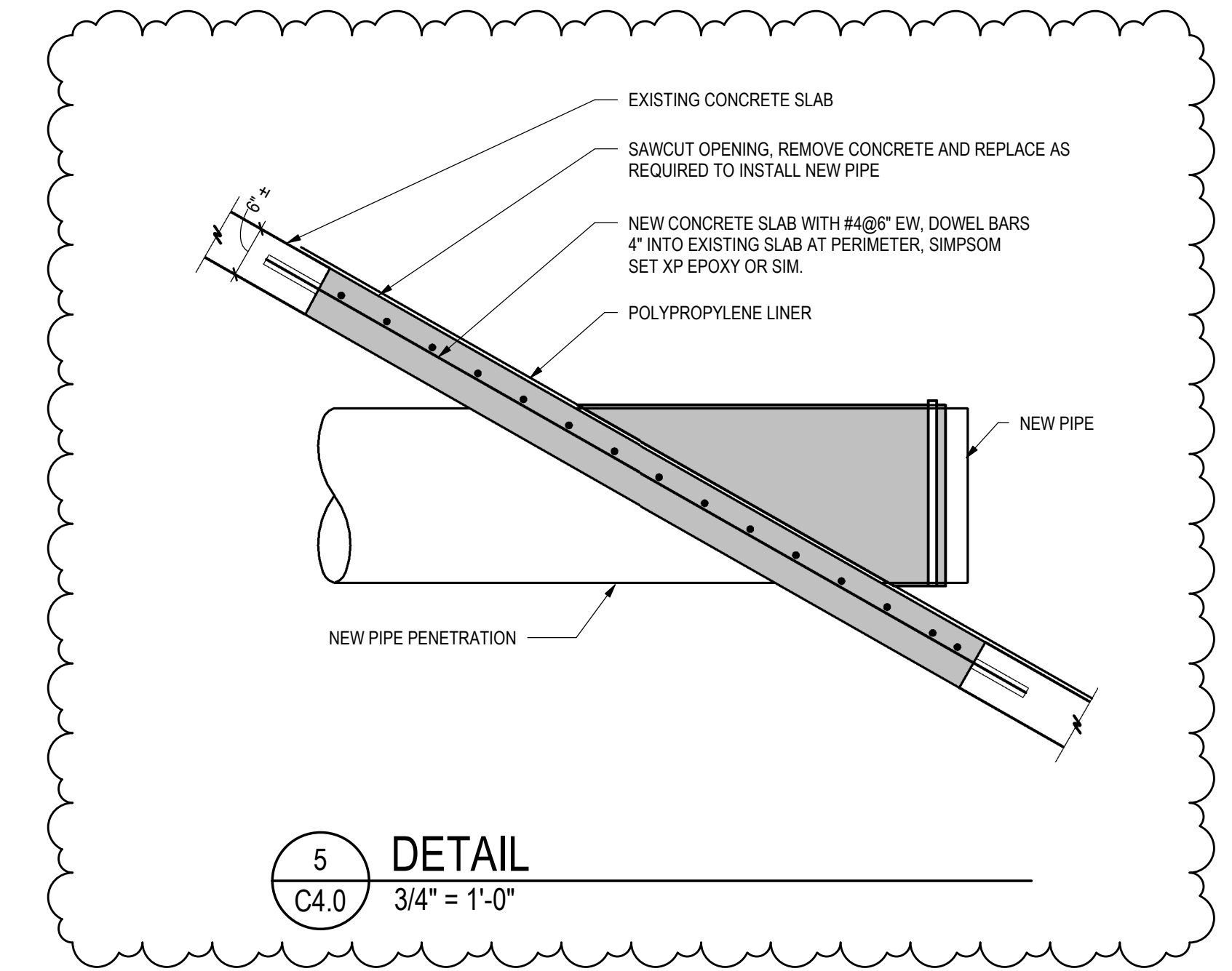
RESERVOIR PLAN
 NORTH
 1/8" = 1'-0"



3 DETAIL
 C4.0 3/4" = 1'-0"



4 DETAIL
 C4.0 3/4" = 1'-0"



5 DETAIL
 C4.0 3/4" = 1'-0"

NO.	DATE	DESIGNED BY	DESCRIPTION

DESIGNED BY: AJT
 DRAWN BY: AJT
 CHECKED BY: CDB
 JOB #: 19286
 DATE: FEBRUARY 2019
 © JVA INC

CITY OF GRAND JUNCTION
PARKS RAW WATER IRRIGATION SUPPLY
 GRAND JUNCTION, COLORADO
RESERVOIR 3 PLAN AND SECTIONS

SHEET NO.
C4.0

NO. | DATE | DES'D | D'WN | REVISION DESCRIPTION

DESIGNED BY: BAR
 DRAWN BY: SCR
 CHECKED BY: BAR
 JOB #: 19086
 DATE: 07/17/18

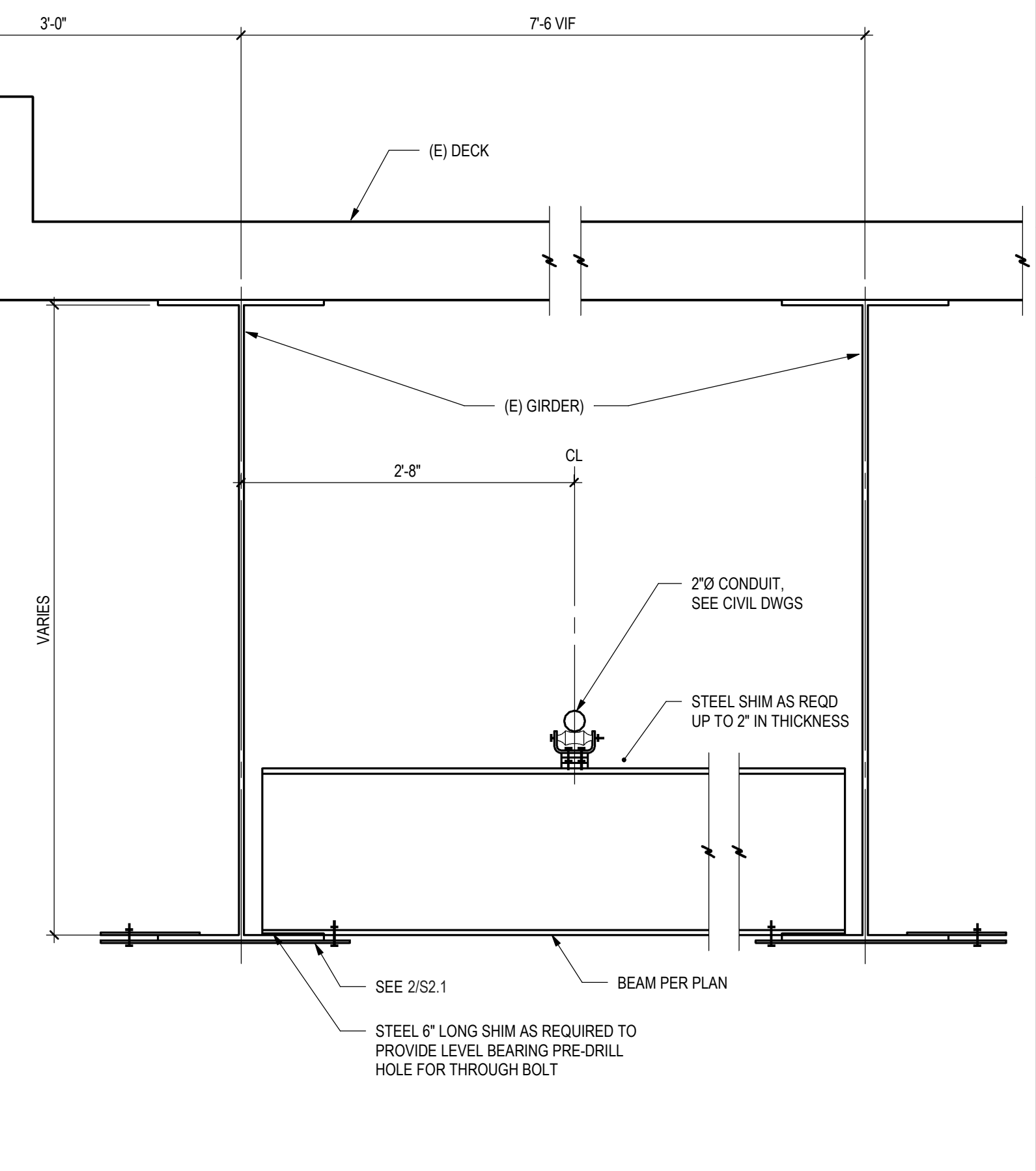
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**CITY OF GRAND JUNCTION
 PARKS RAW WATER IRRIGATION SUPPLY
 GRAND JUNCTION, COLORADO**

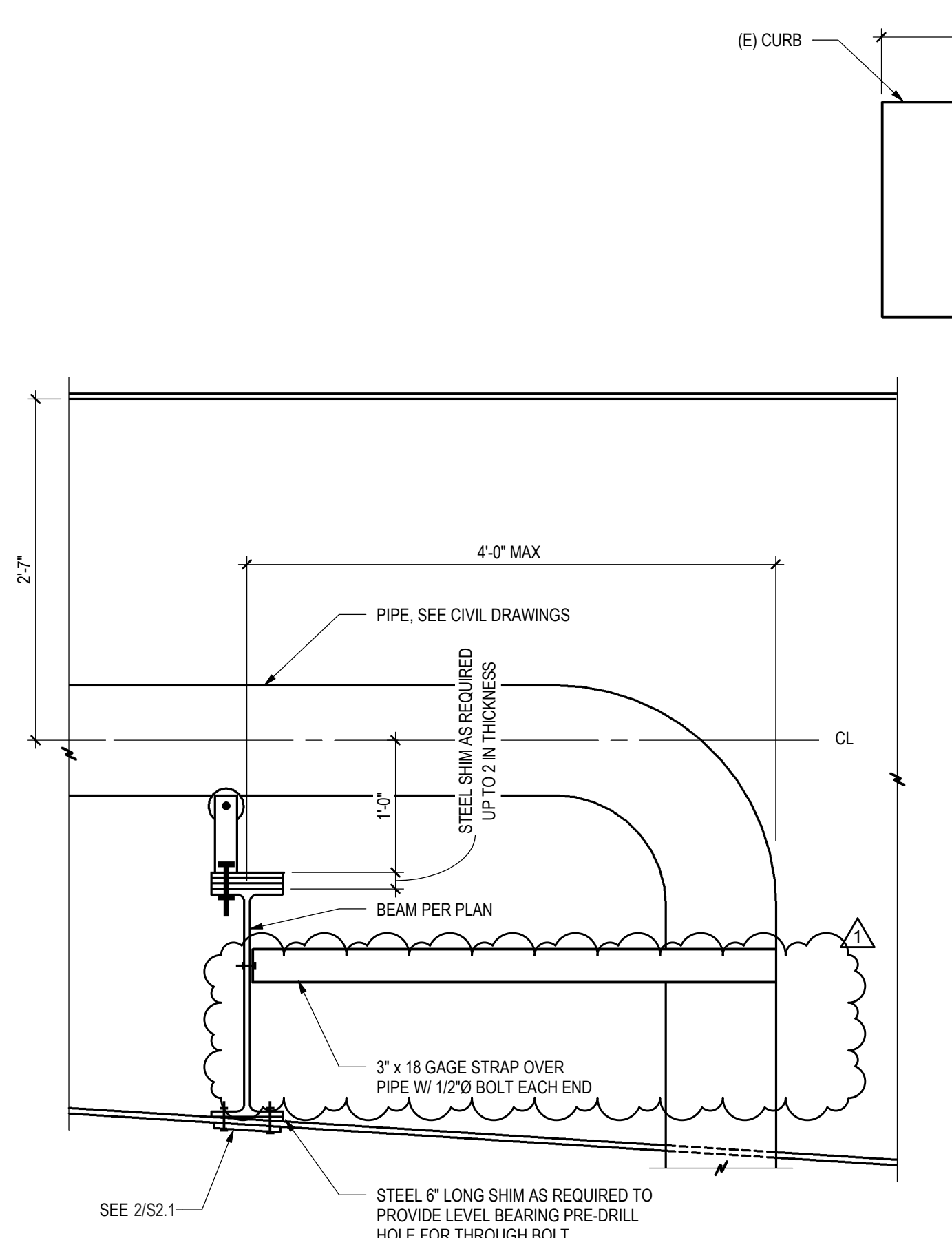
SECTIONS

SHEET NO.

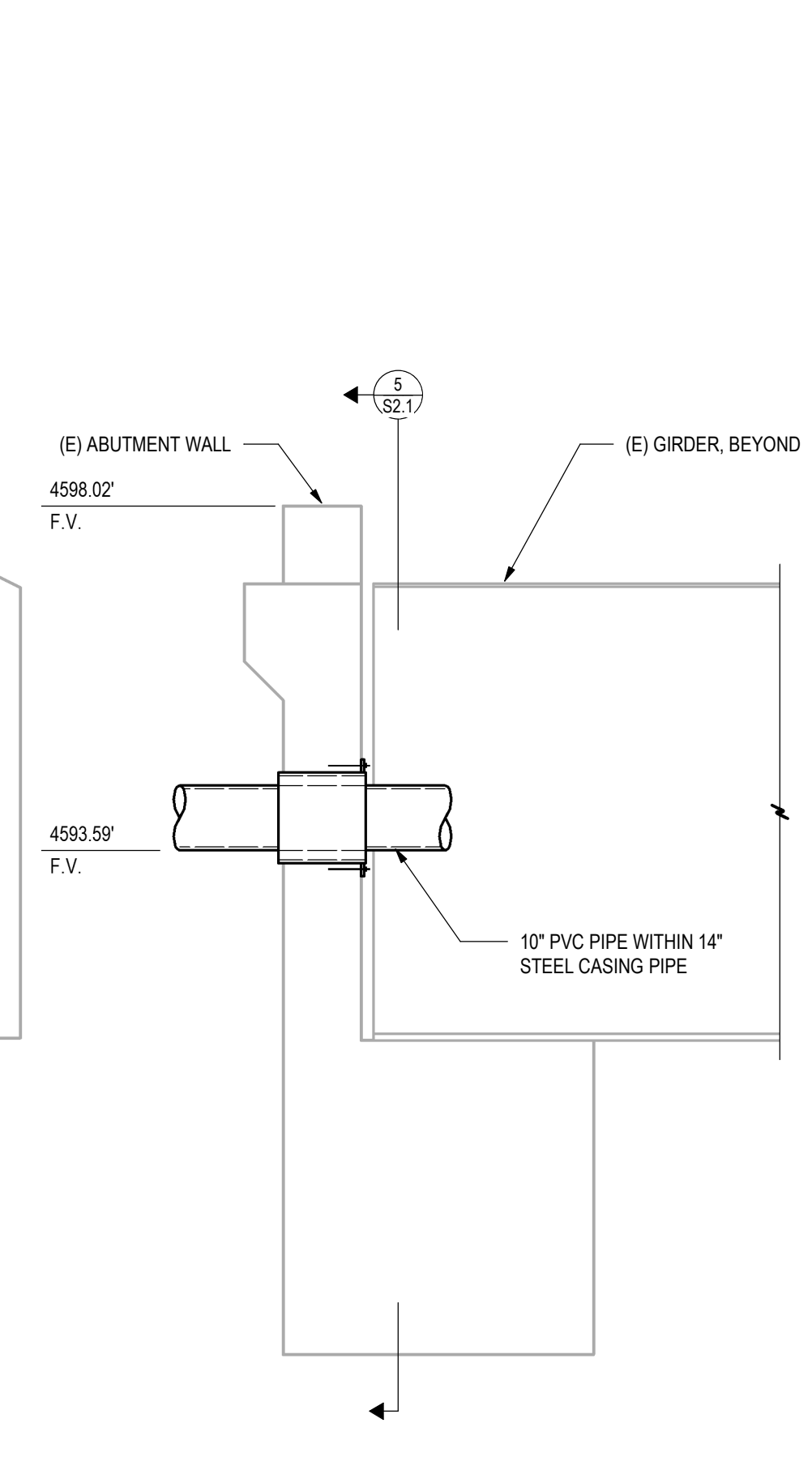
S2.1



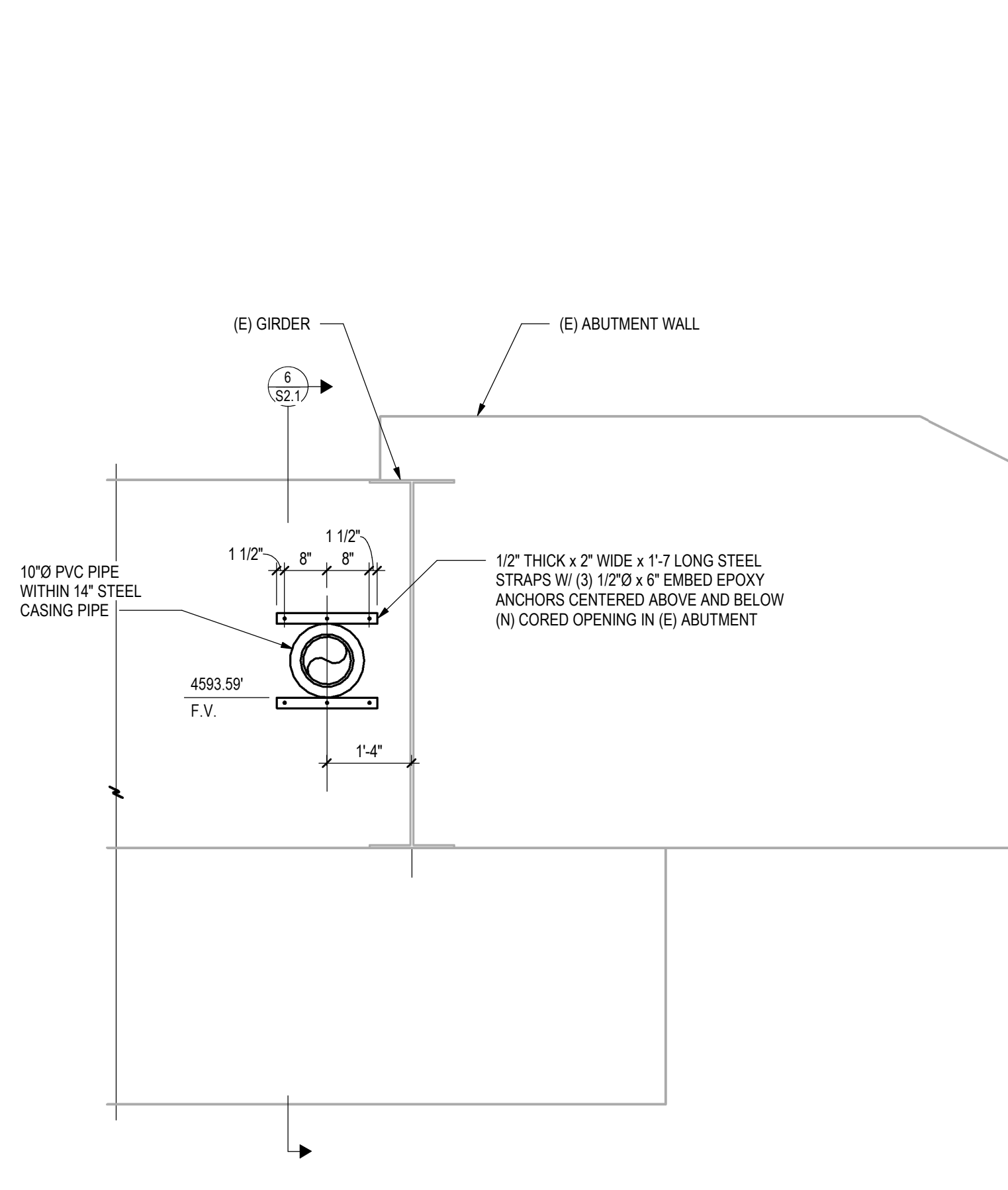
8 SECTION
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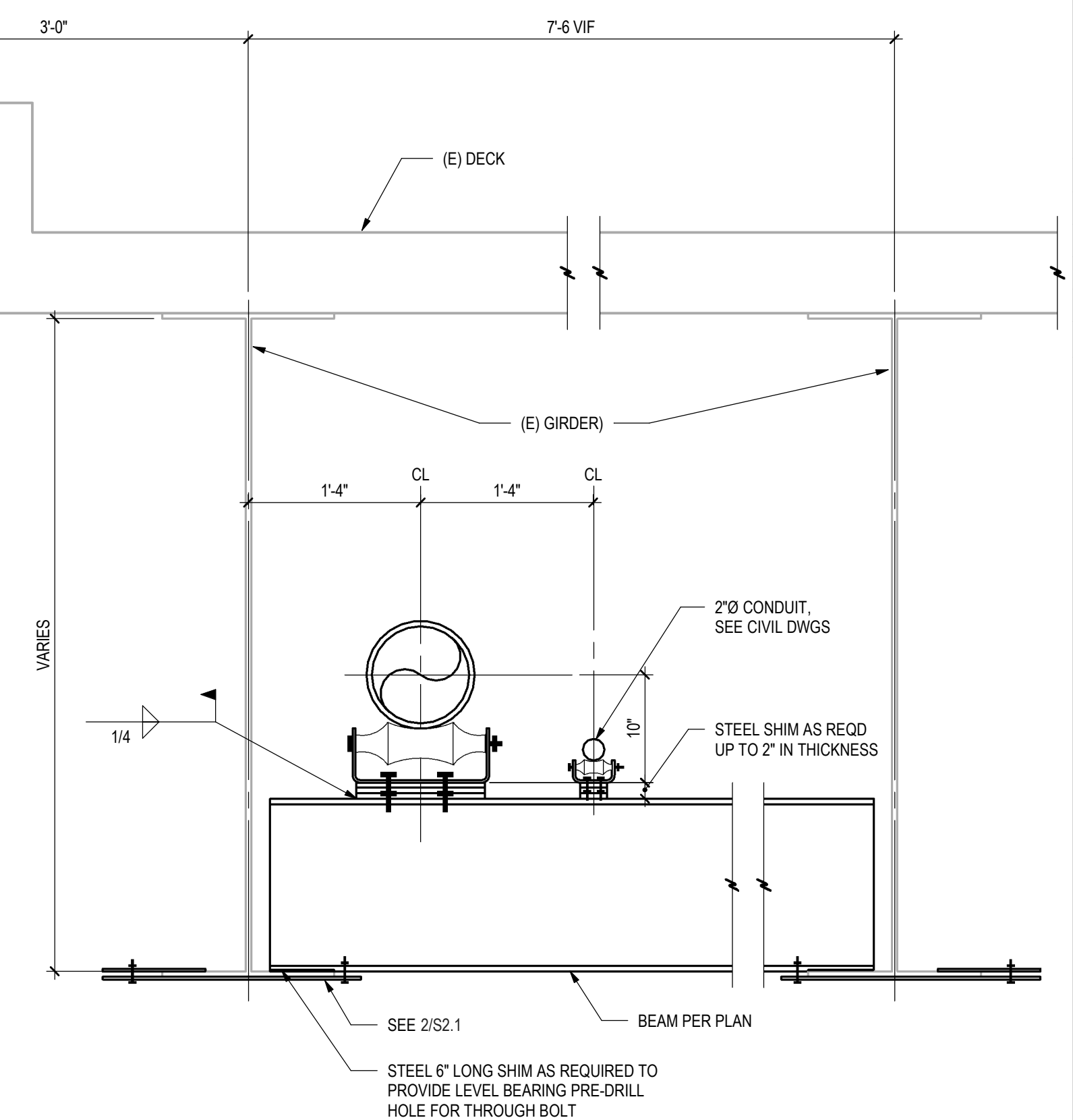
7 SECTION
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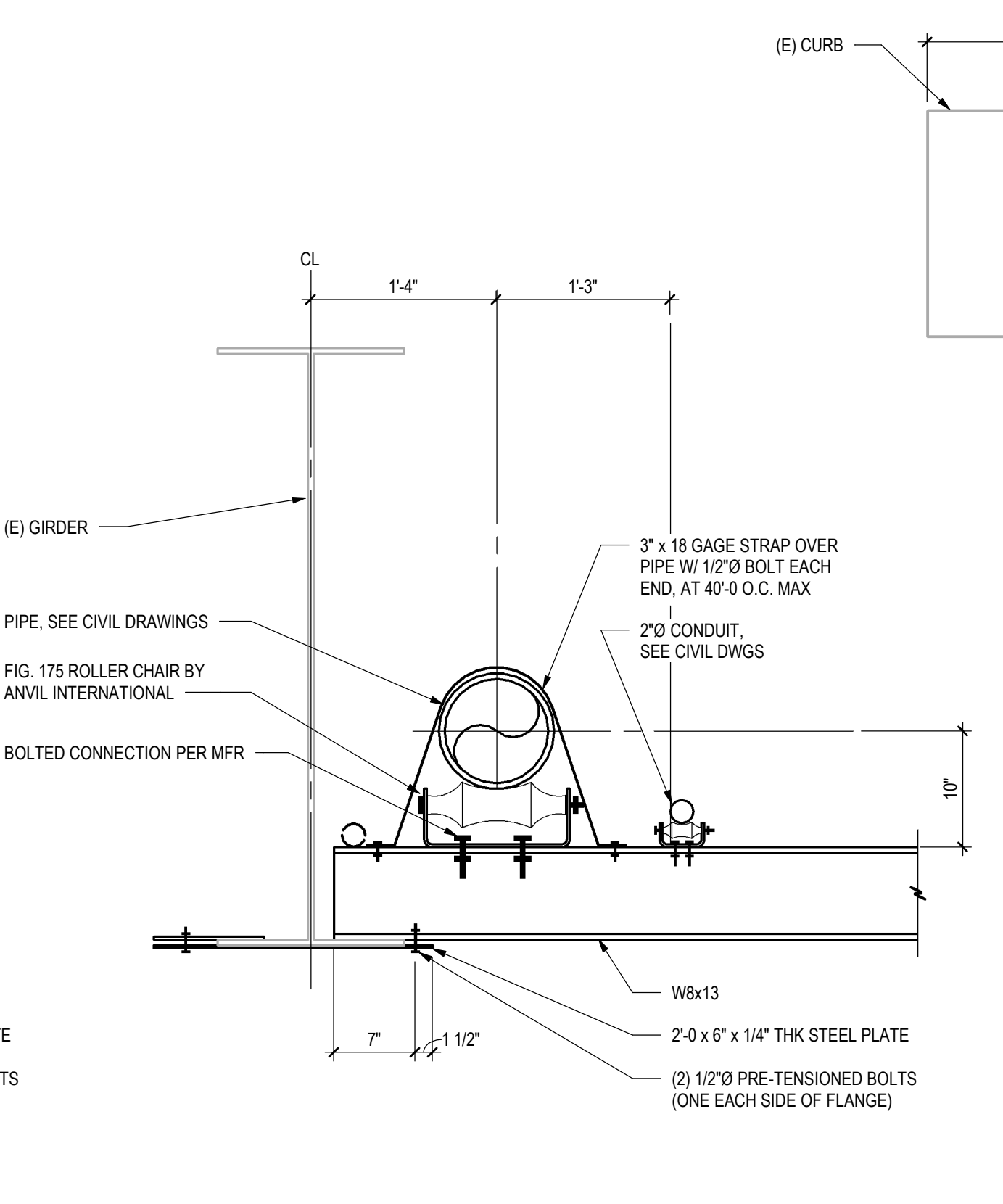
6 SECTION
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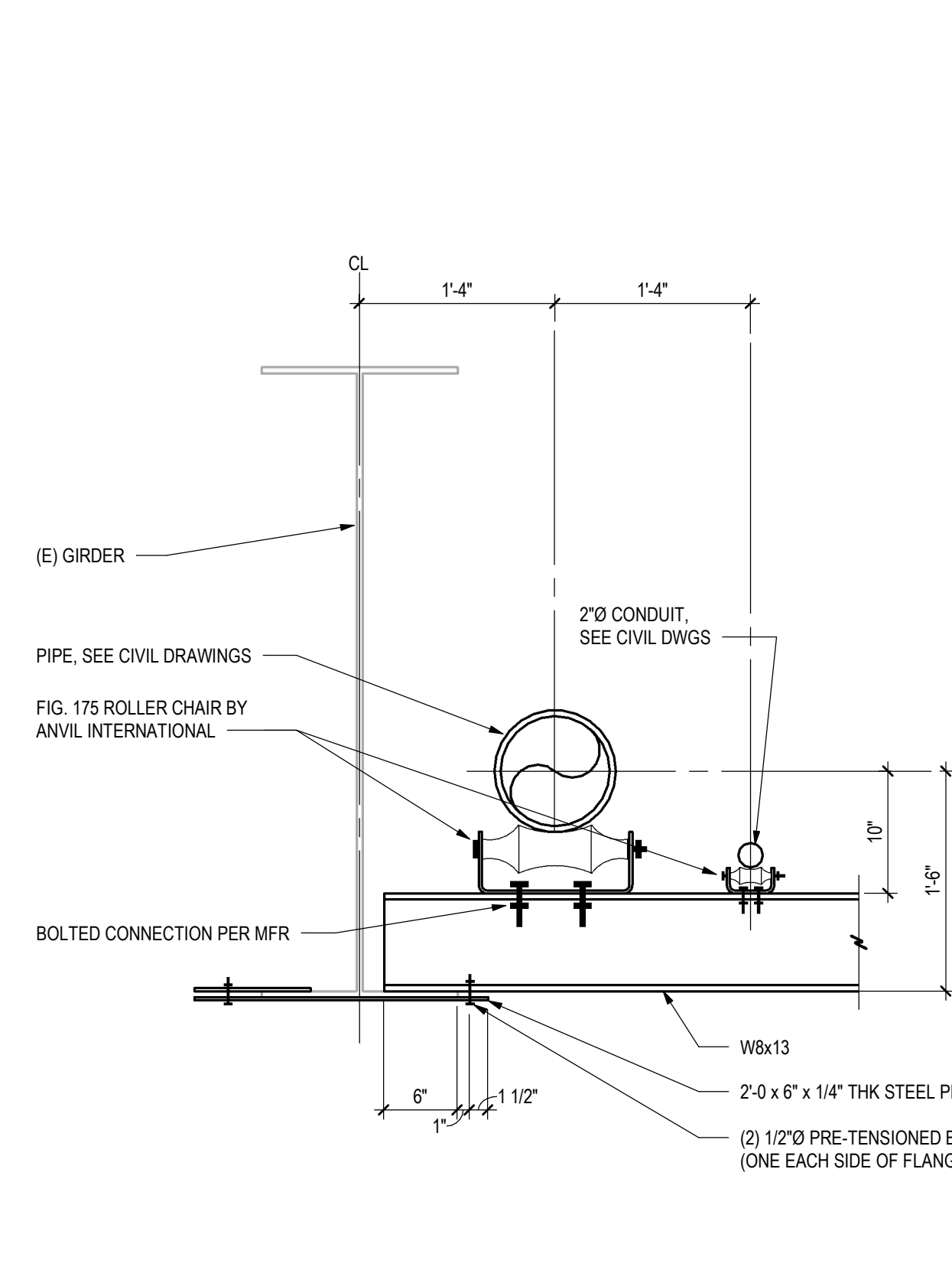
5 SECTION
 S2.1 1/2" = 1'-0"



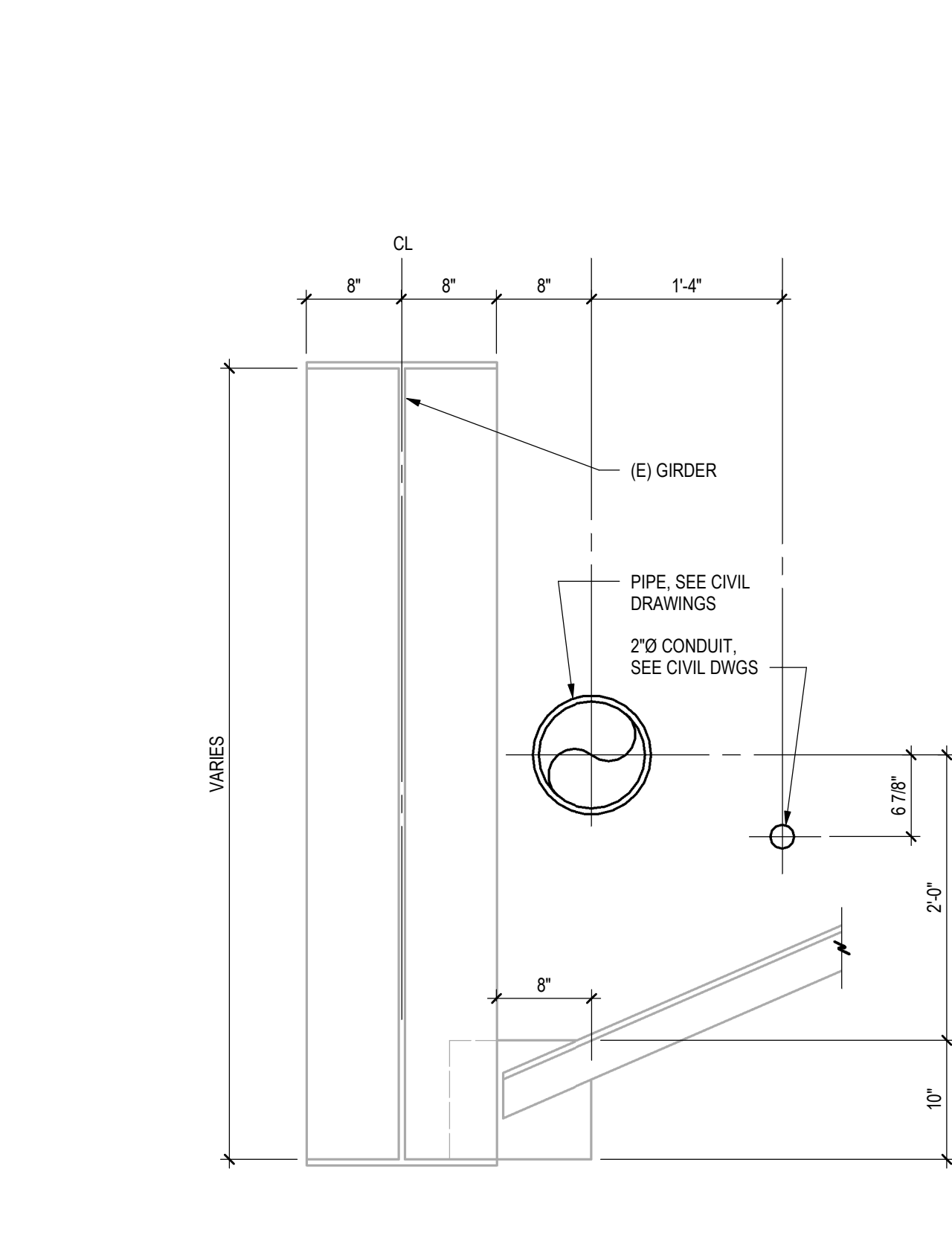
4 SECTION
 S2.1 1" = 1'-0"



3 SECTION
 S2.1 1" = 1'-0"



2 SECTION
 S2.1 1" = 1'-0"



1 SECTION
 S2.1 1" = 1'-0"