



**SAN ANTONIO WATER SYSTEM
REGIONAL CARRIZO PROGRAM (RCP):
WATER DELIVERY PIPELINE PROJECT
SAWS Job No. 10-8607 (WATER)
Solicitation No. B-12-002-CM**

ADDENDUM NO. 2

March 23, 2012

TO BIDDER OF RECORD:

The following changes, additions, and/or deletions are hereby made a part of the Contract Documents for the construction of the Water Delivery Pipeline Project, for the San Antonio Water System, San Antonio, Texas, Dated February 2012, as fully and completely as if the same were set forth therein.

PART 1 – BIDDING AND CONTRACT DOCUMENTS

1. BID PROPOSAL: REPLACE this section in its entirety with the attached section.
2. CONTRACT AGREEMENT: REPLACE this section in its entirety with the attached section.
3. SUPPLEMENTAL CONDITIONS, ARTICLE IV.4.11.3: REVISE the first sentence as follows: “No trees shall be removed outside the permanent easement and temporary construction easement, except where authorized by the OWNER.
4. SPECIAL CONDITIONS: REPLACE this section in its entirety with the attached section.

PART 2 – TECHNICAL SPECIFICATIONS

1. SECTION 01110 SUMMARY OF WORK, Paragraph 1.03.A.1: REPLACE “Station 605+59.” with “Station 605+15.”
2. SECTION 01270 MEASUREMENT AND PAYMENT: REPLACE this section in its entirety with the attached section.
3. SECTION 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS:
 - a. Paragraph 1.03.A: REVISE the last sentence as follows: “Detailed specifications of the signs can be found in SAWS Standard Specification, Item No. 869, Drawing No. DD-869-01.
 - b. Paragraph 1.06.B.2: REPLACE this paragraph in its entirety with the following:
 - “2. Limits of Clearing: No trees may be removed outside the easement area and designated clearing width. Clearing width shall be considered the full width of the permanent pipeline easement and temporary construction easement. Trees shall be

removed or protected as indicated on the Tree Protection Plans. If in specific areas, additional clearing (exceeding the permanent and temporary easement area) is required, a clearing and grubbing plan shall be provided by the CONTRACTOR and approved by the OWNER.”

4. SECTION 01720 FIELD ENGINEERING, Paragraph 1.02.A: DELETE this paragraph in its entirety.
5. SECTION 02270 SOIL EROSION AND SEDIMENT CONTROL: REPLACE this section in its entirety with the attached section.
6. SECTION 02273 CONCRETE CABLE MATS:
 - a. Paragraph 2.01.C: REPLACE the first sentence of this paragraph with the following: “The cables shall be made of stainless steel aircraft cable of type 304 or UV resistant polymeric cable.”
 - b. Paragraph 2.01.D: REPLACE the second sentence of this paragraph with the following: “The geotextile shall be placed under the base of the concrete block mats.”
7. SECTION 02400 JACKING AND BORING:
 - a. Paragraph 2.01.A: ADD the following sentence at the end of the paragraph: “After the pipe is welded, coating shall be repaired in accordance with AWWA C210.”
 - b. Paragraph 2.01.B: REPLACE “TABLE 1” with the following table:

TABLE 1					
		Casing Pipe		Union Pacific Crossing	
Carrier Pipe Size (in.)	Casing Pipe Size (in.)	Thickness (in.)	Weight (lbs/ft.)	Casing Pipe Thickness	Casing Pipe Weight (lbs/ft.)
36	54	0.50	295.0	*0.75	*445.7

*** Casing pipe over 48" must be approved by Railroad Company.**

8. SECTION 02571 STEEL PIPE, MORTAR LINED (AWWA C200, MODIFIED):
 - a. Paragraph 1.01.B: REPLACE the second to last sentence of this paragraph with the following: “No ocean going shipment of pipe will be allowed. Shipment by rail will be unacceptable, unless it can be demonstrated that it will not damage the pipe.”
 - b. Paragraph 3.01.F. Add Paragraph 3.01.F.8 as follows:

“8. Pipe shall be hauled direct from pipe plant to the Site and strung along pipeline route, thus avoiding re-handling of pipe and the possibility of damage thereto. Where fully loaded truck and trailer cannot operate along the pipeline route, pipe may be unloaded at access points along the route, and brought to the trench side by approved methods; however, the Contractor shall be responsible to ensure that pipe is undamaged at the time of laying. If the pipe cannot be hauled directly from the pipe plant to the laying site, a maximum of two (2) handlings is allowed. Shipment by rail will be unacceptable unless it can be demonstrated that it will not damage the pipe. No more than two (2) repairs on either lining or coating per joint will be allowed for delivery by rail.”

- c. Paragraph 2.02.R.2.b: REPLACE this paragraph in its entirety with the following:
 - “b. For pipe joints up to 36 feet long, stulls shall be placed at a maximum spacing 12 feet apart. For pipe joints 36 to 50 feet long, a minimum of 4 stulls shall be placed at a maximum spacing of 15 feet apart.”

9. SECTION 15117 AIR RELEASE AND VACUUM VALVES:

- a. Paragraph 1.02.C: REPLACE “RBX” with “RBX PN16”
- b. Paragraph 2.01: ADD Paragraph 2.01.F as follows:
 - “F. Combination Air Valves with Surge Check shall have ductile iron flanges with a fusion bonded coating.”

PART 3 - DRAWINGS

- 1. SHEET G2, TABLE OF CONTENTS AND DRAWING LEGEND: REPLACE this drawing in its entirety with the attached sheet.
- 2. SHEET G3, GENERAL NOTES:
 - a. REPLACE GENERAL CONSTRUCTION Note 4 with the following note: “Clearing and grubbing may begin no sooner than thirty (3) calendar days prior to pipe trenching operations. Erosion control must be in place before clearing and grubbing. Pipe stringing shall be no more than thirty (30) calendar days prior to pipe laying. Backfill, clean-up, and surface restoration shall be completed no more than thirty (30) calendar days after pipe laying. The site shall be kept clean of trash at all times. Failure to comply with these requirements may result in withholding some or all payment to the Contractor.”
 - b. REPLACE GENERAL CONSTRUCTION Note 6 with the following note: “Contractor shall be required to install temporary test plugs for hydrostatic testing at location shown in the Contract Documents. Contractor may install additional test plugs at Contractor’s expense.”
 - c. REPLACE ENVIRONMENTAL Note 2 with the following note: “No trees may be removed outside the easement area and designated clearing width. Clearing width shall be considered the full width of the permanent pipeline easement and temporary construction easement. Trees shall be removed or protected as indicated on the Tree Protection Plans, Sheets T1 – T15.”
 - d. REPLACE ENVIRONMENTAL Note 13 with the following note: “Within grass lined channels restore surface to pre-construction grade and install Soil Retention Blankets within limits of permanent and temporary construction easements, or within limits shown on plans. Install Turf Reinforcement Mats within limits shown on plans.”
 - e. REPLACE ENVIRONMENTAL Note 15 with the following note: “Contractor shall complete site restoration as construction progresses, no later than thirty (30) calendar days after pipe has been installed in trench and backfilled to grade. Site restoration includes but is not limited to preparation and placement of topsoil, seeding, sodding, trees, plants, ground cover, erosion and sediment controls, and all work required to restore surface to pre-existing conditions.”

3. SHEET G4, GENERAL NOTES, QUANTITIES, PROJECT CONTROL AND BENCHMARKS: REPLACE this drawing in its entirety with the attached sheet.
4. SHEET OA1, OVERALL PROFILE OF PRESSURE CLASS AND TEST PRESSURE:
 - a. MODIFY PLAN VIEW CALLOUT at STA. 596+56 as follows: "STA. 596+46 36" Butterfly Valve."
 - b. MODIFY PLAN VIEW CALLOUT at STA. 1+10 LINE 'A' as follows: "STA. 1+00 Line 'A' 36" Butterfly Valve."
 - c. MODIFY PROFILIE VIEW CALLOUT at STA. 256+76 as follows: "STA. 256+81 Air Valve Assembly."
5. SHEET W1, PLAN AND PROFILE: REPLACE this drawing in its entirety with the attached sheet.
6. SHEET W2, PLAN AND PROFILE: REPLACE Note 2 with the following note: "Within grass lined channels restore surface to pre-construction grade and install Soil Retention Blankets within limits of permanent and temporary construction easements (8889 SY Soil Retention Blankets this sheet)."
7. SHEETS W3 through W9, PLAN AND PROFILE: REPLACE these drawings in their entirety with the attached sheets.
8. SHEET W10, PLAN AND PROFILE: REPLACE Note 2 with the following note: "Within grass lined channels restore surface to pre-construction grade and install Soil Retention Blankets within limits of permanent and temporary construction easements (8367 SY Soil Retention Blankets this sheet)."
9. SHEETS W11 through W13, PLAN AND PROFILE: REPLACE these drawings in their entirety with the attached sheets.
10. SHEET W14, PLAN AND PROFILE: REPLACE Note 2 with the following note: "Within grass lined channels restore surface to pre-construction grade and install Soil Retention Blankets within limits of permanent and temporary construction easements (8778 SY Soil Retention Blankets this sheet)."
11. SHEETS W15 and W16, PLAN AND PROFILE: REPLACE these drawings in their entirety with the attached sheets.
12. SHEETS W17 through W67, PLAN AND PROFILE: REPLACE all notes and references for Turf Reinforcement Mats to: "Soil Retention Blankets"
13. SHEET W29, PLAN AND PROFILE:
 - a. MODIFY PLAN VIEW CALLOUT at STA. 256+76 as follows: "STA. 256+81, 4" Type 1, Style B, Air Valve Assembly, Refer to Detail Sht. DT5."
 - b. MODIFY PROFILIE VIEW CALLOUT at STA. 256+76 as follows: "STA. 256+81, 4" Type 1, Style B, Air Valve Assembly."

14. SHEET W32, PLAN AND PROFILE: ADD Note 2 as follows: "Contractor shall clear all brush within permanent and temporary easement from STA 286+50 to STA 293+50."
15. SHEET W33, PLAN AND PROFILE: ADD Note 4 as follows: "Contractor shall clear all brush within permanent and temporary easement from STA 286+50 to STA 293+50."
16. SHEET W34, PLAN AND PROFILE: MODIFY PROFILIE VIEW CALLOUT at STA. 300+01 as follows: "STA. 300+01, 4" Type 1, Style B, Air Valve Assembly."
17. SHEET W40, PLAN AND PROFILE: REPLACE this drawing in its entirety with the attached sheet.
18. SHEET W41, PLAN AND PROFILE: REPLACE this drawing in its entirety with the attached sheet.
19. SHEET W42, PLAN AND PROFILE: MODIFY STA. 371+64 Air Valve Assembly in plan view to be located on the West side of the pipe centerline away from Lookout Road.
20. SHEET DT2, PIPE ENCASMENT AND PAVING DETAILS:
 - c. DETAIL 1, CONCRETE PIPE ENCASMENT: REPLACE 8" dimension for depth of concrete encasement above top of pipe to read as follows: "12-inches".
 - d. DETAIL 2, FLOWABLE FILL PIPE ENCASMENT: REPLACE 8" dimension for depth of flowable fill encasement above top of pipe to read as follows: "12-inches".
21. SHEET DT3, ISOLATION VALVE DETAILS, DETAIL A, STEEL PIPE TIE BOLT SCHEDULE FOR HARNESSSED JOINTS: REPLACE Note 1 with the following note: "For design of harnesssed joints, pressure shall be 1.5 X pressure class of the pipe."
22. SHEET DT4, BORE AND CASING DETAILS, NOTES: REPLACE table as follows:

ITEM NO.	CARRIER SIZE (IN) / MATERIAL	MIN. CASING DIAMETER (IN) / MATERIAL	STEEL CASING PIPE WALL THICKNESS (IN)	WEIGHT OF STEEL (LBS/FT)
1	36" STEEL	54" I.D. STEEL	0.50	295.0
2	36" STEEL	54" I.D. STEEL FOR RR CROSSINGS	0.75	445.7

23. SHEET DT5, AIR VALVE ASSEMBLY TYPE 1: ADD Note 9 as follows: "Ductile Iron Pipe shall be provided in accordance with SAWS Standard Specificaion No. 814, Ductile Iron Pipe."
24. SHEET DT6, AIR VALVE ASSEMBLY TYPE 2: ADD Note 7 as follows: "Ductile Iron Pipe shall be provided in accordance with SAWS Standard Specificaion No. 814, Ductile Iron Pipe."
25. SHEET DT7, PIPE DRAIN STRUCTURE, TYPE 3: ADD Note 10 as follows: "Ductile Iron Pipe shall be provided in accordance with SAWS Standard Specificaion No. 814, Ductile Iron Pipe."

- 26. SHEET DT10, PIPE AND MANWAY DETAILS: REPLACE this drawing in its entirety with the attached sheet.
- 27. SHEET DT14, CREEK CROSSING AND EROSION CONTROL BLANKET DETAILS: REPLACE this drawing in its entirety with the attached sheet.
- 28. SHEET DT15, CONCRETE CABLE MAT AND DRAINAGE STRUCTURE DETAILS, DETAIL 1, SECTION A - PROFILE: REPLACE the leader note as follows: "Two layers of non-woven geotextile, one layer is adhered to the block by the Manufacture, one layer is placed on the subgrade by the Contractor."

ALL BIDDERS SHALL ACKNOWLEDGE RECEIPT OF ADDENDUM NO. 2 IN THE BID FORM AND BY HIS/HER SIGNATURE AFFIXED HERETO AND TO FILE SAME AS AN ATTCHMENT TO HIS/HER BID. BID FORMS SUBMITTED WITHOUT THIS ACKNOWLEDGEMENT WILL BE CONSIDERED INFORMAL.


David T. Bennett, P.E.
 Freese and Nichols, Inc.



 FREESE AND NICHOLS, INC.
 TEXAS REGISTERED
 ENGINEERING FIRM
 F-2144

ACKNOWLEDGEMENT BY BIDDER

THE UNDERSIGNED ACKNOWLEDGES RECEIPT OF THIS ADDENDUM NO. 2 AND THE BID SUBMITTED HERewith IS IN ACCORDANCE WITH THE INFORMATION AND STIPULATION SET FORTH.

Date Signature of bidder

Appended hereto and part of Addendum No. 2 are:

1. BID PROPOSAL
2. CONTRACT AGREEMENT
3. SPECIAL CONDITIONS
4. SECTION 01270 MEASUREMENT AND PAYMENT
5. SECTION 02270 SOIL EROSION AND SEDIMENT CONTROL
6. PLANS (Revised Sheets):
 - a. SHEET G2, TABLE OF CONTENTS AND DRAWING LEGEND
 - b. SHEET G4, GENERAL NOTES, QUANTITIES, PROJECT CONTROL AND BENCHMARKS
 - c. SHEET W1, PLAN AND PROFILE
 - d. SHEETS W3 through W9, PLAN AND PROFILE
 - e. SHEETS W11 through W13, PLAN AND PROFILE
 - f. SHEET W15, PLAN AND PROFILE
 - g. SHEET W16, PLAN AND PROFILE
 - h. SHEET W40, PLAN AND PROFILE
 - i. SHEET W41, PLAN AND PROFILE
 - j. SHEET DT10, PIPE AND MANWAY DETAILS
 - k. SHEET DT14, CREEK CROSSING AND EROSION CONTROL BLANKET DETAILS
7. Agenda from the Pre-Bid meeting held 3/16/2012
8. Contractor Questions and Clarifications
9. List of Approved Bidders

BID PROPOSAL

PROPOSAL OF _____, a corporation
 a partnership consisting of _____
 an individual doing business as _____.

THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instructions and Invitations to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the execution of the **REGIONAL CARRIZO PROGRAM: WATER DELIVERY PIPELINE PROJECT**, San Antonio Water System Job. No. 10-8607, in accordance with the Plans and Specifications for the following prices, to wit:

BID ITEMS:

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY.	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
	<p align="center"><u>BIDDER MUST SELECT TYPE OF PIPE</u> <u>INCLUDED IN BID:</u> *Same type of pipe shall be provided for Bid Items No. 1 and No. 2.</p>		<p align="center">CHECK ONE BOX</p>	<input type="checkbox"/> Polyurethane Coated Steel Pipe <input type="checkbox"/> Tape Coated Steel Pipe	
1.	36" Class 150 Water Transmission Main (Specification 02571) _____ Dollars and _____ Cents	34,965	LF	\$ _____	\$ _____
2.	36" Class 200 Water Transmission Main (Specification 02571) _____ Dollars and _____ Cents	25,607	LF	\$ _____	\$ _____
3.	54" Steel Casing by Bore (Specification 02400) _____ Dollars and _____ Cents	3,491	LF	\$ _____	\$ _____
4.	54" Steel Casing by Open Cut (Specification 02400) _____ Dollars and _____ Cents	555	LF	\$ _____	\$ _____
5.	Trench Excavation Safety Protection (Specification 02318) _____ Dollars and _____ Cents	57,022	LF	\$ _____	\$ _____

REGIONAL CARRIZO PROGRAM: WATER DELIVERY PIPELINE PROJECT

Job No. 10-8607

SAWS Solicitation No: B-12-002-CM

BID PROPOSAL

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY.	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
6.	36" Butterfly Valve (Specification 15103) _____ Dollars and _____ Cents	12	EA	\$ _____	\$ _____
7.	6" Air Valve Assembly (Specification 15117) _____ Dollars and _____ Cents	2	EA	\$ _____	\$ _____
8.	4" Air Valve Assembly (Specification 15117) _____ Dollars and _____ Cents	14	EA	\$ _____	\$ _____
9.	Drain Structure (Specification 02571) _____ Dollars and _____ Cents	17	EA	\$ _____	\$ _____
10.	30" Manway (Specification 02571) _____ Dollars and _____ Cents	22	EA	\$ _____	\$ _____
11.	36" Temporary Blow Off Assembly (Specification 02571) _____ Dollars and _____ Cents	3	EA	\$ _____	\$ _____
12.	36" Pipeline Closure Assembly (Specification 02571) _____ Dollars and _____ Cents	3	EA	\$ _____	\$ _____
13.	Internal Test Bulkhead (Specification 02571) _____ Dollars and _____ Cents	6	EA	\$ _____	\$ _____

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BID PROPOSAL

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY.	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
14.	Water Transmission Main Disinfection (Specification 02519) _____ Dollars and _____ Cents	7	EA	\$ _____	\$ _____
15.	Hydrostatic Testing (Specification 02643) _____ Dollars and _____ Cents	7	EA	\$ _____	\$ _____
16.	AC Rectifier/Anode System (Specification 13110) _____ Dollars and _____ Cents	2	EA	\$ _____	\$ _____
17.	Cathodic Protection Test Station (Specification 13110) _____ Dollars and _____ Cents	92	EA	\$ _____	\$ _____
18.	36" Monolithic Insulating Joint (Specification 13110) _____ Dollars and _____ Cents	3	EA	\$ _____	\$ _____
19.	Pavement Replacement (Crushed Stone) (Specification 02730) _____ Dollars and _____ Cents	89	LF	\$ _____	\$ _____
20.	Pavement Replacement (Asphalt) (Specification 02750) _____ Dollars and _____ Cents	353	LF	\$ _____	\$ _____
21.	Pavement Replacement (Concrete) (Specification 02775) _____ Dollars and _____ Cents	50	LF	\$ _____	\$ _____

REGIONAL CARRIZO PROGRAM: WATER DELIVERY PIPELINE PROJECT

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BID PROPOSAL

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY.	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
22.	Remove and Replace Concrete Curb (Specification 02775) _____ Dollars and _____ Cents	33	LF	\$ _____	\$ _____
23.	Remove and Replace Concrete Drop Structure (Specification 03300) _____ Dollars and _____ Cents	161	LF	\$ _____	\$ _____
24.	Remove and Replace Rock Filter Dam (Specification 02270) _____ Dollars and _____ Cents	20	LF	\$ _____	\$ _____
25.	Remove and Replace Concrete Drainage Flume (Specification 03300) _____ Dollars and _____ Cents	12	LF	\$ _____	\$ _____
26.	Remove and Replace Concrete Channel Rip Rap (Specification 03300) _____ Dollars and _____ Cents	10	LF	\$ _____	\$ _____
27.	Rock Rip Rap Creek Crossing (Specification 02271) _____ Dollars and _____ Cents	179	LF	\$ _____	\$ _____
28.	Concrete Cable Mats (Specification 02273) _____ Dollars and _____ Cents	472	LF	\$ _____	\$ _____
29.	Turf Reinforcement Mat (Specification 02270) _____ Dollars and _____ Cents	4,987	SY	\$ _____	\$ _____

REGIONAL CARRIZO PROGRAM: WATER DELIVERY PIPELINE PROJECT

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BID PROPOSAL

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY.	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
30.	Soil Retention Blanket (Specification 02270) _____ Dollars and _____ Cents	213,854	LF	\$ _____	\$ _____
31.	Flowable Fill (Specification 02253) _____ Dollars and _____ Cents	1,528	LF	\$ _____	\$ _____
32.	Trench Dam (Specification 02571) _____ Dollars and _____ Cents	15	EA	\$ _____	\$ _____
33.	Remove and Replace Existing Fence (Specification 02820) _____ Dollars and _____ Cents	1,250	LF	\$ _____	\$ _____
34.	Install Type 1 Gate (Specification 02820) _____ Dollars and _____ Cents	15	EA	\$ _____	\$ _____
35.	Pipeline Markers (Specification 02571) _____ Dollars and _____ Cents	38	EA	\$ _____	\$ _____
36.	Revegetation (Specification 02232) _____ Dollars and _____ Cents	94	AC	\$ _____	\$ _____
37.	Tree Protection (Specification 02232) _____ Dollars and _____ Cents	1	LS	\$ <u>XXXX.XX</u>	\$ _____
38.	Erosion and Sedimentation Controls (Specification 02270) _____ Dollars and _____ Cents	1	LS	\$ <u>XXXX.XX</u>	\$ _____

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BID PROPOSAL

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY.	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
39.	Traffic Control (Specification 01500) _____ Dollars and _____ Cents	1	LS	\$ <u>XXXX.XX</u>	\$ _____
40.	Bid Allowance for Miscellaneous Property Repairs, for work directed by OWNER (Specification 01020) Fifty Thousand Dollars and no Cents	1	LS	\$ 50,000.00	\$ 50,000.00
A. SUBTOTAL BASE BID AMOUNT					
_____ Dollars and _____ Cents				\$ _____	
100.	Mobilization and Demobilization: this item includes project move-in and move-out of personnel and equipment, for work shall include furnishing all labor, materials, tools, equipment and incidentals required to mobilize, demobilize, bond and insure the Work for the <i>REGIONAL CARRIZO PROGRAM: WATER DELIVERY PIPELINE PROJECT</i> , in accordance with the contract documents, complete in place. (Specification 01270) _____ Percent (Maximum of 10% of the <u>Line Item "A"</u> Sub-total Base Bid amount)	1	LS	\$ <u>XXXX.XX</u>	\$ _____
101.	Preparing Right-of-Way: This item includes remove and disposing of all obstructions from the right-of-way and from designated easements where removal of such obstructions is not otherwise provided for in the Drawings and Specifications. Work shall include furnishing all labor, materials, tools, equipment, incidentals required, complete in place. (Specification 02200) _____ Percent (Maximum of 5% of the <u>Line Item "A"</u> Sub-total Base Bid amount)	1	LS	\$ <u>XXXX.XX</u>	\$ _____
TOTAL BID AMOUNT (<u>Line Item "A"</u>, Mobilization & Preparing Right of Way)					
_____ Dollars and _____ Cents				\$ _____	

Mobilization and Demobilization lump sum bid shall be limited to a maximum 10% of the Line Item "A." Subtotal Base Bid Amount. Preparing Right-of-Way lump sum bid shall be limited to a maximum of 5% of the Line Item "A" Subtotal Base Bid Amount. The Line Item "A." Subtotal Base Bid Amount is defined as all bid items EXCLUDING Item 100, Mobilization and Demobilization and Item 101, Preparing Right-of-Way. **In the event of a discrepancy between the written percentage and dollar amount shown for Mobilization and Demobilization and/or Preparing Right-of-Way bid items, the bid item's written percentage will govern. If the percentage written exceeds the allowable maximum stated for Mobilization and Demobilization and/or Preparing Right-of-Way, SAWS reserves the right to cap the amount at the percentage shown and adjust the extensions of the bid item accordingly.**

BIDDER'S SIGNATURE & TITLE

FIRM'S NAME (TYPE OR PRINT)

FIRM'S ADDRESS

FIRM'S PHONE NO./FAX NO.

The Contractor herein acknowledges receipt of the following:

Addendum Nos. _____

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and that the Project shall be Substantially Complete by August 25, 2013, and Final Completion shall occur by October 25, 2013. **The Bidder understands and accepts the provisions of the Contract Documents relating to liquidated damages of the Project if not completed on time.** Complete the additional requirements of the Proposal which are included on the following pages.

PROPOSAL CERTIFICATION

Accompanying this proposal is a Bid Bond or Certified or Cashier's, Check on a State or National Bank payable to the Order of the San Antonio Water System for _____ dollars (\$_____), which amount represents five percent (5%) of the total bid price. Said bond or check is to be returned to the Bidder unless the proposal is accepted and the Bidder fails to execute and file a contract within 10 calendar days after the award of the Contract, in which case the check shall become the property of said San Antonio Water System, and shall be considered as payment for damages due to delay and other inconveniences suffered by said San Antonio Water System due to the failure of the Bidder to execute the contract. The San Antonio Water System reserves the right to reject any and all bids.

It is anticipated that the OWNER will act on this proposal within 60 calendar days after the bid opening. Upon acceptance and award of the contract to the undersigned by the OWNER, the undersigned shall execute standard San Antonio Water System Contract Documents and make Performance and Payment Bonds for the full amount of the contract within 10 calendar days after the award of the Contract to secure proper compliance with the terms and provisions of the contract, to insure and guarantee the work until final completion and acceptance, and the guarantee period stipulated, and to guarantee payment of all lawful claims for labor performed and materials furnished in the fulfillment of the contract.

It is anticipated that the OWNER will provide written Authorization to Proceed within 30 days after the award of the Contract.

The CONTRACTOR hereby agrees to commence work under this Contract within seven (7) calendar days after issuance by the SAWS of the written Authorization to Proceed. Under no circumstances shall the work commence prior to CONTRACTOR'S receipt of SAWS issued, written Authorization to Proceed. Work shall be Substantially Complete by August 25, 2013, and Final Completion shall occur by October 25, 2013.

The undersigned certifies that the bid prices contained in the proposal have been carefully checked and are submitted as correct and final.

In completing the work contained in this proposal the undersigned certifies that bidder's practices and policies do not discriminate on the grounds of race, color, religion, sex or national origin and that the bidder will affirmatively cooperate in the implementation of these policies and practices.

Signed:

Company Representative

Company Name

Address

Please return bidder's check to:

Company Name

Address

SECTION B. – SMWB COMMITMENTS

The SMWB goal on this project is 17 %

1. The undersigned proposer has satisfied the requirements of the BID specification in the following manner (please check the appropriate space):

_____ The proposer is committed to a minimum of 17 % SMWB utilization on this contract.

_____ The proposer, (if unable to meet the SMWB goal of 17%), is committed to a minimum of _____% SMWB utilization on this contract. *(If contractor is unable to meet the goal, please fill out Section C and submit documentation demonstrating good faith efforts).*

2. Name and phone number of person appointed to coordinate and administer the SMWB requirements on this project.

Name: _____

Title: _____

Phone Number: _____

IF THE SMWB GOAL WAS MET, PROCEED TO AFFIRMATION AND SIGN THE GFEP. IF GOAL WAS NOT MET, PROCEED TO SECTION C.

SECTION C – GOOD FAITH EFFORTS (Fill out only if the SMWB goal was not achieved).

1. List all firms you contacted with subcontracting/supply opportunities for this project that will not be utilized for the contract by choice of the proposer, subcontractor, or supplier. Written notices to firms contacted by the proposer for specific scopes of work identified for subcontracting/supply opportunities must be provided to subcontractor/supplier **not less than five (5) business days prior to bid/proposal due date**. The following information is required for all firms that were contacted of subcontracting/supply opportunities.

Name & Address of Company	Scope of Work/Supplies to be Performed/Provided by Firm	Is Firm SMWB Certified?	Date Written Notice was Sent & Method (Fax, Letter, E-Mail, etc.)	Reason Agreement was not reached?
1.				
2.				
3.				
4.				
5.				
6.				
7.				

(Use additional sheets as needed)

In order to verify a proposer's good faith efforts, please provide to SAWS copies of the written notices to all firms contacted by the proposer for specific scopes of work identified in relation to the subcontracting/supply opportunities in the above named project. Copies of said notices must be provided to the SMWB Program Manager within five (5) business days after the response is due. Such notices shall include information on the plans, specifications, and scope of work.

2. Did you attend the pre-bid conference scheduled for this project? ____ Yes ____ No

3. List all SMWB listings or directories, contractor associations, and/or any other associations utilized to solicit SMWB Subcontractors/suppliers.

4. Discuss efforts made to define additional elements of the work proposed to be performed by SMWBs in order to increase the likelihood of achieving the goal:

5. Indicate advertisement mediums used for soliciting bids from SMWBs. (Please attach a copy of the advertisement(s):

AFFIRMATION

I hereby affirm that the above information is true and complete to the best of my knowledge. I further understand and agree that, this document shall be attached thereto and become a binding part of the contract.

Name and Title of Authorized Official:

Name: _____

Title: _____

Signature: _____ Date: _____

NOTE:

This Good Faith Effort Plan is reviewed by SAWS Contracting Department. For questions and/or clarifications, please contact Marisol V. Robles, SMWB Manager, at 210-233-3420.

DEFINITIONS:

Prime Consultant/Contractor: Any person, firm partnership, corporation, association or joint venture which has been awarded a San Antonio Water System contract.

Subconsultants/contractor: Any named person, firm partnership, corporation, association or joint venture identified as providing work, labor, services, supplies, equipment, materials or any combination of the foregoing under contract with a prime consultant/contractor on a San Antonio Water System contract.

Small, Minority and Woman Business (SMWB): All business structures Certified by the Small Business Administration, Texas State Comptroller's Office, or the South Central Texas Regional Certification Agency that are 51% owned, operated, and controlled by a Small Business Enterprise, a Minority Business Enterprise, or a Woman-owned Business Enterprise.

Small Business Enterprise (SBE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by someone who is legally residing in or a citizen of the United States, and the business structure meets the U.S. Small Business Administration's (SBA) size standard for a small business within the appropriate industry category

Minority Business Enterprise (MBE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated, and controlled by an ethnic minority group member(s) who is legally residing in or a citizen of the United States. For purposes of the SMWB program, the following are recognized as minority groups:

- a. **African American** – Persons having origins in any of the black racial groups of Africa as well as those identified as Jamaican, Trinidadian or West Indian.
- b. **Hispanic American** – Persons of Mexican, Puerto Rican, Cuban, Spanish or Central or South American origin.
- c. **Asian-Pacific American** – Persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands.
- d. **Asian-Indian American** – Persons whose origins are from India, Pakistan, Bangladesh or Sri Lanka.
- e. **American Indian/Native American** – Persons having no less than 1/16 percentage origin in any of the American Indian Tribes, as recognized by the U.S. Department of the Interior's Bureau of Indian Affairs and as demonstrated by possession of personal tribal role documents.

Women Business Enterprise (WBE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by a woman or women who are legally residing in or citizens of the United States.

African American Business Enterprise (AABE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by African American minority group member(s) who are legally residing in or are citizens of the United States.

Joint Venture: A limited association of two or more persons to carry out a single business enterprise for profit, for which purpose they combine their property, money, efforts, skills and knowledge.

Contractor's Payment to Sub-Contractors:

The contractor will be required to report the actual payments to all subcontractors, utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System, in the time intervals and format prescribed by SAWS. This information will be utilized for SMWB participation tracking purposes. Any unjustified failure to comply with the committed SWMB levels may be considered breach of contract.

Web Submittal of Subcontractor Payment Reports:

The Contractor is required to electronically submit monthly subcontractor payment information utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System, beginning with the first SAWS payment for services under the contract, and with every payment thereafter (for the duration of the contract).

Electronic submittal of monthly subcontractor payment information will be accessed through a link on SAWS' "Business Center" web page.

The Contractor and all subcontractors will be provided a unique log-in credential and password to access the SAWS subcontractor payment reporting system. The link may also be accessed through the following internet address: <https://saws.smwbe.com/>

CONFLICT OF INTEREST QUESTIONNAIRE NOTE:

“Effective January 1, 2006, Chapter 176 of the Texas local Government Code requires that persons, or their agents, who seek to contract for the sale or purchase of property, goods, or services with SAWS shall file a completed conflict of interest questionnaire with the SAWS Manager of Contract Administration no later than the 7th business day after the date that the person: (1) begins contract discussions or negotiations with SAWS; or (2) submits to SAWS an application, response to a request for proposals or bids, correspondence, or another writing related to a potential agreement with SAWS. The Conflict of Business questionnaire is attached on the following page and is available from the Texas Ethics Commission at www.ethics.state.tx.us. Completed Conflict of Interest questionnaires should be included with your bid or may be delivered by hand, within 7 business days of the bid opening, to the Manager of Contract Administration. If mailing a completed Conflict of Interest questionnaire, mail to: David Gonzales, Manager, Contract Administration, 2800 U.S. Hwy 281 North, San Antonio, TX 78212. If delivering a completed Conflict of Interest questionnaire, deliver to Contract Administration, Tower 2, 1st Floor, Room 171, 2800 U.S. Hwy 281 North, San Antonio, TX 78212. Please consult your own legal advisor if you have questions regarding the statute or form.”

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of person who has a business relationship with local governmental entity.

2 Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 Name of local government officer with whom filer has employment or business relationship.

Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

Yes No

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

Yes No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

Yes No

D. Describe each employment or business relationship with the local government officer named in this section.

4

Signature of person doing business with the governmental entity

Date

CONTRACT

Contract ID #

STATE OF TEXAS §
COUNTY OF BEXAR §

KNOW ALL MEN BY THESE PRESENTS:

That this Agreement made and entered into this ___ day of ___, A.D, 2012, by and between **THE SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES**, hereinafter called **THE SAN ANTONIO WATER SYSTEM, COUNTY OF BEXAR, STATE OF TEXAS**, Acting through its Contracting Officer, First Party, hereinafter termed the Owner, and _____, of the City of _____, County of *Bexar*, State of _____, Second Party, hereinafter termed the Contractor.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned to be made and performed by said First Party, (Owner), the said Second Party, (Contractor), hereby agrees with the First Party to commence and complete the construction of certain improvements in the amount of _____ no/100's Dollars \$000,000.00, for the San Antonio Water System Job Nos. _____, dated _____, the same being designated as San Antonio Water System Project _____.

The Contractor shall perform all work shown on the Plans and described Specifications and shall meet all requirements of this Agreement, The General and Special Conditions of the Agreement; and such Orders and Agreements for Extra Work as may subsequently be entered by the above named parties to this Agreement.

The Contractor shall not offer, confer, or agree to confer any benefit or gift to any San Antonio Water System employee.

The Contractor hereby agrees to commence work under this Contract on the date provided on the SAWS written Authorization To Proceed. Under no circumstances shall the work commence prior to the Contractor's receipt of SAWS issued, written Authorization To Proceed. . Any other provision contained within the Contract Documents notwithstanding, **this contract has firm fixed completion dates. The date for Substantial Completion shall be on or before August 25, 2013 and the date for Final Completion shall be on or before October 25, 2013 . All work other than minor clean up shall be completed on or before the date for Substantial Completion. Substantial Completion shall be as provided in the General Conditions being based on a Letter of Conditional Approval. Final Completion shall be based on the Final Acceptance being completed as required under the General Conditions of the Contract. .**

It is agreed and understood by the Owner and the Contractor that the provisions of Chapter 252, of the Texas Local Government Code, apply to this contract. The terms of the aforementioned state law are incorporated herein by reference. Contractor and Owner Agree that as a public body, Owner is authorized by such state law to negotiate change orders up to and including the amount of \$25,000.00 acting by and through its duly designated administrative officer (Contracting Officer). It is agreed and understood that any change orders which increase the work of the contract in excess of 25% of the bid contract price, must be subject of a supplemental agreement approved by the San Antonio Water System Board of Trustees of San Antonio as in case of original contracts. The work of the contract may be decreased over 25% with the consent of the Contractor.

The Owner agrees to pay the Contractor in current funds, and to make payments on account, for the performance of the

work in accordance with the Contract, at the prices set forth in the Contractor's Proposal, subject to additions and deductions, all as provided in the General Conditions of the Agreement.
The following documents, together with this Contract, comprise the Agreement, and they are as fully a part thereof as if herein repeated in full:

- The Invitation to Bidders
- The Instructions to Bidders
- The Proposal
- The Payment Bond
- The Performance Bond
- The General Conditions of the Contract
- The Special Conditions of the Contract
- The Supplemental Conditions of the Contract
- The Construction Specifications
- The Standard Drawings
- Addenda
- Change Orders
- Good Faith Effort Plan

The Plans, designated San Antonio Water System Project Job No(s) & Project Name.

In witness thereof of the Parties of these presents have executed this Agreement in the year and day of first above written.

**SAN ANTONIO WATER SYSTEM BOARD
OF TRUSTEES, OWNER**

By _____
Robert R. Puente
President/Chief Executive Officer

Date: _____

By _____
Contractor

By _____
(Signature)

Date: _____

_____ (Print/Type)

Title _____

SPECIAL CONDITIONS

SC-1.0 PROJECT REQUIREMENTS

- 1.1 The Owner (SAWS) has acquired temporary staging areas at various locations as shown on the plans and details, for storage of CONTRACTOR's materials and equipment.
- 1.2 For work required in drainage channels, no storage of materials, equipment, spoils or embedment will be allowed during non-working hours. At the end of each work day, the CONTRACTOR shall remove all materials, equipment, spoils and embedment from the channel and place them in the designated staging areas, or additional staging areas outside of drainage channels, obtained by the CONTRACTOR.
- 1.3 In the event the CONTRACTOR utilizes property for a construction storage yard, the CONTRACTOR is required to provide the Owner with a copy of the Lease Agreement prior to use.
- 1.4 The CONTRACTOR shall complete site restoration as construction progresses, no later than thirty (30) calendar days after pipe has been installed in trench and backfilled to grade. Site restoration includes but is not limited to preparation and placement of topsoil, seeding, sodding, trees, plants, ground cover, erosion and sediment controls, and all work required to restore surface to pre-existing conditions.
- 1.5 The CONTRACTOR shall, upon request and to the extent allowed by law, list a landowner or other person or entity with an insurable interest as an additional insured on the Commercial General Liability (CGL) and Commercial/Business Automobile Liability (AL) policy(s) of insurance that CONTRACTOR is required to maintain under this Contract.
- 1.6 Progress schedule requirements are defined in specification Section 01321, Construction Critical Path Method (CPM) Schedule.
- 1.7 The CONTRACTOR shall hire a licensed surveyor, at his expense, for field staking and any other surveying requirements pertinent to the project. This requirement is in addition to requirements delineated in Section 01720. The GCCC-Section 5.16, construction staking, is hereby deleted.
- 1.8 The CONTRACTOR shall coordinate with all property owners prior to commencing construction to secure entry into private property in order to access the easements areas.
- 1.9 The CONTRACTOR agrees to cooperate and coordinate its work with the work conducted by other contractor(s) within the project area so that this project can be completed in an orderly and coordinated manner, reasonably free of significant disruption to any party. Without limitation of the foregoing, CONTRACTOR understands and

agrees that access areas to the project site may be utilized by other contractor(s). All parties shall be solely required and obligated to coordinate and cooperate with each other to accomplish the scope of work required by their respective contracts, meaning SAWS shall have no duty to administer, perform or supervise the coordination for the use of the project site by all contractors. The CONTRACTOR agrees that any delay or hindrance caused by or contributed to by failure to cooperate and/or coordinate among all parties will be governed by this Section and Section 6.7.1 of the General Conditions (commonly referred to as a “no damages for delay” clause).

1.10 Total bid price includes costs for furnishing all tools, equipment, materials, supplies and manufactured articles and furnishing all labor, transportation, and services, including fuel power, water and essential communication and performing all the work, or other operations required for the Contract in strict accordance with the Contract Documents. Any item not specifically called out under each bid item shall be included under a bid item listed that is closely related to a missing item. CONTRACTOR is directed to the Measurement and Payment section of this document for a description of each bid item.

1.11 LS = Lump sum	HR = Hour	Sack = Sacks	SY=Square Yard
CY = Cubic yard	LF = Linear feet	CF = Cubic feet	EA = Each
MO = Month	GAL = Gallon	AC = Acre	

1.12 Any other provision contained within the Contract Documents notwithstanding, the Contract Time for performance of any and all Work for this Project is based on firm, fixed completion dates (Substantial Completion Date, August 25, 2013 and Final Completion Date, October 25, 2013) and as such, any and all weather days have been incorporated into the schedule. Contractor must complete all work to attain Substantial Completion by August 25, 2013. Weather extensions will NOT be considered and no additional days beyond the Substantial Completion Date and Final Completion Date referenced above shall be allowed.

1.13 The requirement for a "stock-proof fence" per Specification 1500-1.07.E.1 is waived for Easements P11-092 & P11-092T only. Contractor will be required to coordinate with landowner and provide sufficient notification so that the landowner may relocate live stock so as to not interfere with construction activities.

1.14 Easement P11-095 & P11-095T: Construction activities within the easement boundaries (with the exception of initial surveying, other non-invasive activities, re-vegetation and the "bore under tree") shall be completed within 120 days after commencement of construction activities.

1.15 Easement P11-096 & P11-096T: Construction activities within the easement boundaries (with the exception of initial surveying, other non-invasive activities, re-vegetation and the "bore across Cibolo Creek") shall be completed within 120 days after commencement of construction activities.

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This Section defines the method that shall be used to determine the quantities of work performed, or materials supplied, and establish the basis upon which payment shall be made. Descriptions included in items are provided as a general indication of work required on Bid Items and shown on the Drawings. It shall be understood that the CONTRACTOR is required to complete the installation of this Project in accordance with Contract Documents, whether or not such work is listed herein.
- B. Payments for Work shall conform to the provisions of the General Conditions, the Supplementary Conditions, the Agreement, and this Section. Apply provisions for payments in the Section to all Subcontractors and Suppliers.
- C. Submit Applications for Payment at the amounts indicated in the Agreement:
 - 1. CONTRACTOR's bid amount and subsequent invoices supplied in accordance with the contract shall be full compensation for all aspects of the work, including the following:
 - a. Mobilization, demobilization, cleanup, bonds, and insurance.
 - b. Professional services including but not limited to engineering and legal fees.
 - c. The products to be permanently incorporated into the project.
 - d. The products consumed during the construction of the project.
 - e. The labor and supervision to complete the project.
 - f. The equipment, including tools, machinery, and appliances required to complete the project.
 - g. The field and home office administration and overhead costs related directly or indirectly to the project.
 - h. Any and all kinds, amount or class of excavation, backfilling, pumping or drainage, sheeting, shoring and bracing, disposal of any and all surplus materials, permanent protection of all overhead, surface or underground structures; removal and replacement of any poles, conduits, pipelines, fences, appurtenances and connections, cleaning up, overhead expense, bond, public liability and compensation and property damage insurance, patent fees, and royalties, risk due to the elements, and profits, unless otherwise specified.

2. Provide work not specifically set forth as an individual payment item but required to provide a complete and functional system. These items are a subsidiary obligation of the CONTRACTOR and are to be included in the Cost of Work.
3. Payment will be made for materials on hand.
 - a. Store materials properly on site.
 1. Payment will be made for the invoice amount less the specified retainage.
 2. Provide invoices at the time materials are included on the materials-on-hand tabulation.
 - b. Provide documentation of payment for materials-on-hand with the next payment request. Adjust payment to the amount actually paid if this differs from the invoice amount. Remove items from the materials on hand tabulation if this documentation is not provided so payment will not be made.
 - c. Payment for materials-on-hand is provided for the convenience of the CONTRACTOR and does not constitute acceptance of the product.

1.02 PAYMENT PROCEDURES

- A. Submit Applications for Payment per the General Conditions.
- B. Applications for Payment shall be submitted on forms approved by SAWS.
 1. Do not alter the schedule of values and the form for the submission of requests without the written approval of the OWNER once these have been approved by the OWNER.
 2. Final payment requires additional procedures and documentation per the General Conditions.
- C. Progress payments shall be made as the work progresses on a monthly basis.
 1. End the payment period on the day indicated in the Agreement and submit an Application for Payment for Work completed and materials received since the end of the last payment period.
 2. At the end of the payment period, submit a draft copy of the Application for Payment for that month to the OWNER. Agreement is to be reached on:
 - a. The percentage of work completed for each lump sum item.
 - b. The quantity of work completed for each unit price item.
 - c. The amount of materials-on-hand.

3. On the basis of these agreements the CONTRACTOR is to prepare a final copy of the Application for Payment and submit it to the OWNER for approval.
 4. The CONSULTANT will review the Application for Payment and if appropriate will recommend payment of the application to the OWNER.
- D. Provide a revised and up-to-date progress schedule per Section 01321, PROGRESS SCHEDULE with each Application for Payment.
 - E. Provide project photographs per Section 01322, CONSTRUCTION PHOTOGRAPHS and Video with Application for Payment.
 - F. Payment contingent upon as-built information provided to OWNER'S Representative for all work performed within pay period.

1.03 ALLOWANCES

- A. Include amounts for specified Bid Allowances for Work in the Agreement in accordance with Section 01020 "Allowances."

1.04 MEASUREMENT PROCEDURES

- A. Measure the Work described in the Agreement for payment. Payment will be made only for the actual measured and/or computed length, area, solid contents, number and weight, unless otherwise specifically provided. No extra or customary measurements of any kind will be allowed.

1.05 BASIS OF PAYMENT

- A. STEEL WATER TRANSMISSION MAIN, POLYURETHANE OR TAPE COATED – Item Nos. 1 & 2

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to make the water main (Class 150 and Class 200 steel carrier pipe with polyurethane or tape coating) complete and operable. This shall include, but not be limited to acquisition of the pipe, transportation of the pipe to the site, unloading the pipe from the trucks, excavation of the trench, dewatering, placement of bedding material, gravel subgrade filler, lowering the carrier pipe into the trench, coupling of the pipe, backfilling, flowable fill for depths of cover over 18 feet, compaction, site restoration, and hauling and disposal of surplus excavated material.
2. Measurement – Water main shall be measured by the horizontal linear foot as shown on the plan stationing for each size and type as follows:
 - a. From the centerline intersection of runs and branches of tees to the end of the valve of a dead end run.
 - b. Between the centerline intersection of runs and branches of tees. Where the branch is plugged for future connection, the measurement

shall include the horizontal length of the branch or branches of the fitting as shown on the plan stationing.

- c. The measurement of each line of pipe shall be continuous and shall include the horizontal lengths, as shown on the plan stationing, of all fittings and valves between the ends, except that the horizontal length of reducers shall be divided equally between the connected pipe sizes.

Payment - Payment for water main installed shall be made at the unit price bid per horizontal linear foot of pipe specified, as shown in the plan stationing, for the various sizes installed by the open cut method and for carrier pipe installed inside steel casing by bore or open cut. Payment for the carrier pipe inside the casing is included in this bid item. Payments shall be made based on 85% of the linear foot bid price after installation of the water main and submittal of associated mil certificates and shop testing information for the pipe installed. Of the remainder, 15% shall be payable upon successful completion of the hydrostatic test and CONTRACTOR'S demonstration of compliance with requirements of these specifications.

B. 54" STEEL CASING BY BORE – Item No. 3

1. Description - This item includes all work associated with furnishing and installing casing pipe by the methods of tunneling or boring as specified and shown on the Drawings. The work includes, but is not limited to, providing all materials, labor, supervision, equipment, tools, costs for pits or shafts as required, grouting the annular space between the carrier pipe and casing pipe, grouting outside of the casing pipe, trench safety and open trench safety requirements, and all other incidentals necessary to complete the work in place and restore the site to its original condition. This item does not include installation of the carrier pipe into the casing.
2. Measurement - Quantities for tunneling or boring casing shall be determined by the horizontal linear foot, as shown on the plan stationing, for the size and type shown on the Drawings, as measured from the face of the boring pit to the face of the receiving pit.
3. Payment - Payment shall be made at the unit bid price per horizontal linear foot of pipe as specified, as shown on the plan stationing, for casing pipe for the various sizes and types shown. Payments shall be made based on 85% of the linear foot bid price after installation of the casing pipe and submittal of associated mil certificates and shop testing information for the pipe installed. Of the remainder, 15% shall be payable upon CONTRACTOR'S demonstration of compliance with requirements of these specifications and successful completion of the installation of the carrier pipe.

C. 54" STEEL CASING BY OPEN CUT – Item No. 4

1. Description - This item includes all work associated with furnishing and installing casing pipe by the methods of open cut as specified and shown on the Drawings. This shall include, but not be limited to acquisition of the pipe, transportation of the pipe to the site, unloading the pipe from the trucks, excavation of the trench, dewatering, placement of bedding material, lowering the casing pipe into the trench, coupling of the pipe, installing casing spacers, grouting the annular space between the carrier pipe and casing pipe, grouting outside of the casing pipe, backfilling, compaction, site restoration, and hauling and disposal of surplus excavated material. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place and restore the site to its original condition. This item does not include installation of the carrier pipe into the casing.
2. Measurement - Quantities for open cut casing shall be determined by the horizontal linear foot, as shown on the plan stationing, for the size and type shown on the Drawings.
3. Payment - Payment shall be made at the unit bid price per horizontal linear foot of pipe as specified, as shown on the plan stationing, for casing pipe for the various sizes and types shown. Payments shall be made based on 85% of the linear foot bid price after installation of the casing pipe and submittal of associated mil certificates and shop testing information for the pipe installed. Of the remainder, 15% shall be payable upon CONTRACTOR'S demonstration of compliance with requirements of these specifications and successful completion of the installation of the carrier pipe.

D. TRENCH EXCAVATION SAFETY PROTECTION – Item No. 5

1. Description - This item shall govern designing by professional engineer in the state of Texas, furnishing, and installation of all trench excavation safety protection systems to be utilized in the project. Such work shall include, but not be limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, and temporary pumping or diversion and recapture of storm water to provide adequate drainage. The work shall also include any over excavation and additional backfill necessary to accommodate the trench protection system, as well as any jacking or removal of jacks and trench supports after completion. In no case shall the estimated quantity be less than 57,022 linear feet.
2. Measurement - Trench excavation safety protection shall be measured by the horizontal linear foot along the centerline of the pipeline.

3. Payment - Payment for trench excavation safety protection shall be made at the contract unit price per horizontal linear foot regardless of the depth of trench.

E. BUTTERFLY VALVE – Item No. 6

1. Description - This item shall consist of furnishing butterfly valves and valve boxes of the size and type as shown on the Contract Drawings and in accordance with the specifications and providing all materials, tools, equipment, labor, and supervision necessary to provide a complete installation capable of supporting the operation of the water system. Such work shall include, but not be limited to excavation, installation of the valve, concrete and masonry support pads, placement of selected embedment material, harness mechanical coupling, cast iron boot, valve box extension, valve box, jumper wires, concrete collar, and lockable valve box lid.
2. Measurement - Butterfly valve and valve box installation shall be measured by the unit of each assembly of the various size butterfly valves and valve boxes shown on the Drawings.
3. Payment - Payment for this item shall be made at the contract unit price bid for each assembly of the various size butterfly valves and valve operators shown on the plans and specified.

F. AIR VALVE ASSEMBLY – Item Nos. 7 & 8

1. Description - This item shall consist of the work required to furnish and install air valve assemblies of various types and sizes in accordance with the Drawings and Specifications. Such work shall include, but not be limited to excavation, dewatering, installation of the air valve assembly, access manways, valves, concrete vault, concrete support, placement of selected embedment material or anti-corrosion embedment material, backfill and compaction, and hauling and disposal of surplus excavated materials. Payment for 4” ductile iron pipe and fittings outside of the concrete manhole is included in this bid item.
2. Measurement - Air valve assemblies shall be measured by the unit of each assembly of the various sizes and types installed.
3. Payment - Payment for this item shall be made at the unit price bid for each assembly at the size and type as shown in the Drawings.

G. DRAIN STRUCTURE – Item No. 9

1. Description - This item shall govern the furnishing and installation of pipe drain structures and all associated appurtenances as depicted on Drawings. Such work shall include, but not be limited to excavation, installation of

the pipe drain structures, concrete support material backfill and compaction, and hauling and disposal of surplus excavated materials.

2. Measurement - Drain structures shall be measured by the unit of each assembly shown on the Drawings.
3. Payment – Payment for pipe drain structures shall be made at the unit price bid for each such assembly of the various sizes installed.

H. 30” MANWAY – Item No. 10

1. Description - This item shall govern the furnishing and installation of access manways and all associated appurtenances as depicted on Drawings. Such work shall include, but not be limited to excavation, installation of the access manways, concrete support material backfill and compaction, and hauling and disposal of surplus excavated materials. Air valve assemblies, isolation valves, and pipeline closures are not paid under the pay item and shall be paid under the respective item. This item does not include installation of manways for air valve assemblies, bulkheads, or pipeline closure assembly.
2. Measurement – Access manways installation shall be measured by the unit of each assembly shown on the Drawings.
3. Payment - Payment for this item shall be made at the contract unit price bid for each assembly of access manways as shown on the plans and specified.

I. 36” TEMPORARY BLOW OFF ASSEMBLY – Item No. 11

1. Description - This item shall govern the furnishing and installation of pipe drain structures and all associated appurtenances as depicted on Drawings. Such work shall include, but not be limited to excavation, hauling, furnishing and jointing of valves, piping, fittings, blockings, installation of the temporary blow off assembly, concrete support material backfill and compaction, and disposal of surplus excavated materials.
2. Measurement – Temporary Blow Off Assembly shall be measured per each assembly shown on the Drawings.
3. Payment - Payment for Temporary Blow Off Assembly shall be made at the unit price bid for each such assembly installed.

J. 36” PIPELINE CLOSURE ASSEMBLY – Item No. 12

1. Description – This item shall consist of all work required to furnish and install the pipeline closure assembly as shown complete in the Drawings, with removal of temporary blowoff assembly, installation and testing of closure assembly with access manway, and other incidentals. Such work

shall include, but not be limited to excavation, dewatering, removal of the blowoff assembly, installation of closure assembly with 30” manway, placement of selected embedment material or anti-corrosion embedment material, backfill and compaction, and hauling and disposal of surplus excavated materials.

2. Measurement – Pipeline closure assembly shall be measured per each.
3. Payment - Payment for pipeline closure assembly shall be at the contract unit price for each closure shown on the Drawings. Payment is limited to the closure assemblies installed, accepted, and shown in the bid documents. Additional closure assemblies may be required due to work conditions, contractors alternative work sequence or other factors, and all such additional closure pieces will be installed per the specifications without additional cost to the Owner.

K. INTERNAL TEST BULKHEAD – Item No. 13

1. Description - This item shall consist of all work required to furnish and install the internal test bulkhead and all associated appurtenances as depicted in the drawings and in conformity with the locations and details shown. Such work shall include, but not limited to excavation, installation of the test plug, 30” manway, 8” temporary piping for water transfer, compaction and hauling and disposal of surplus excavated materials.
2. Measurement –Internal test bulkheads shall be measured per each.
3. Payment - Payment for internal test bulkheads shall be made at the contract unit price per each installed.

L. WATER TRANSMISSION MAIN DISINFECTION – Item No. 14

1. Description - This item shall govern the disinfection of all project water mains as specified.
2. Measurement – Disinfection shall be measured per each segment to be tested. Test segments shall correspond to the hydrostatic test segments as shown on the plans.
3. Payment – Payment for disinfection shall be made at the contract unit price per each for “Water Transmission Main Disinfection” and shall not be made until entire project water main has been successfully disinfected.

M. HYDROSTATIC TESTING – Item No. 15

1. Description - This item shall govern the hydrostatic testing of all project water mains as specified.

2. Measurement - Hydrostatic testing shall be measured per each segment to be tested at hydrostatic elevations as shown on the plans.
3. Payment - Payment for hydrostatic testing shall be made at the contract unit price for each for "Hydrostatic Testing" and shall not be made until entire project water main has been successfully tested and accepted.

N. AC RECTIFIER/ANODE STATION – Item No. 16

1. Description - This item shall consist of all work required to furnish and install the AC Rectifier/Anode Station, complete and functioning, as defined in accordance with the specifications and in conformity with the locations and details shown in the Drawings. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place.
2. Measurement – AC Rectifier/Anode Station shall be measured per each station installed.
3. Payment - Payment for test stations shall be made at the contract unit price bid per each for “AC Rectifier/Anode Station”, which price shall be full compensation for installing the AC Rectifier/Anode Station and for furnishing and installing all additional materials necessary to complete the work. Payments shall be made based on 85% of the per each bid price after installation of the test station. The remaining 15% shall be payable upon successful completion of the installation and testing of the cathodic protection system.

O. CATHODIC PROTECTION TEST STATION – Item No. 17

1. Description - This item shall consist of all work required to furnish and install the test station, complete and functioning, as defined in accordance with the specifications and in conformity with the locations and details shown in the Drawings. The work includes, but is not limited to providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place.
2. Measurement – Cathodic Protection Test Stations shall be measured per each Cathodic Protection Test Station installed.
3. Payment - Payment for Cathodic Protection Test Stations shall be made at the contract unit price bid per each for “Cathodic Protection Test Station”, which price shall be full compensation for installing the Cathodic Protection Test Station and for furnishing and installing all additional materials necessary to complete the work. Payments shall be made based on 85% of the per each bid price after installation of the Cathodic Protection Test Station. The remaining 15% shall be payable upon

successful completion of the installation and testing of the cathodic protection system.

P. 36” MONOLITHIC INSULATING JOINT – Item No. 18

1. Description - This item shall consist of all work required to furnish and install the Monolithic Insulating Joint, complete and functioning, as defined in accordance with the specifications and in conformity with the locations and details shown. The work includes, but is not limited to providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place.
2. Measurement – Monolithic Insulating Joints shall be measured per each Monolithic Insulating Joint installed.
3. Payment - Payment for Monolithic Insulating Joints shall be made at the contract unit price bid per each for “Monolithic Insulating Joint”, which price shall be full compensation for installing the Monolithic Insulating Joint and for furnishing and installing all additional materials necessary to complete the work. Payments shall be made based on 85% of the per each bid price after installation of the Monolithic Insulating Joint. The remaining 15% shall be payable upon successful completion of the installation and testing of the cathodic protection system.

Q. PAVEMENT REPLACEMENT – Item Nos. 19, 20, & 21

1. Description - This item shall govern for the replacement of pavements including but not limited to the removal of base and the replacement of base material, pavements, embedment and backfill, and flowable fill as specified and in conformity with the typical sections shown on the Drawings and to the lines established by the OWNER.
2. Measurement - Replacing pavements shall be measured by the linear foot of pavement cut and replaced, of the type and depth indicated on the Drawings and Depth, and to the limits shown on the Drawings. Materials used in replacing bases and pavements such as flexible base, cement stabilized base, concrete, reinforcing steel, prime coat, tack coat and asphaltic concrete pavement shall not be measured directly for payment. Depth shall be measured from the top of pavement to the bottom of new base material and to the width of trench as indicated on Drawings. Depth of asphalt overlay shall be measured from top of milled existing pavement to top of new pavement.
3. Payment - Payment for replacing pavements shall be made at the contract unit price per linear foot for "Replacing Pavement" of the type and depth classification shown on the Drawings. Where the depth of replaced base and pavement differs from that shown on the Drawings and Bid Proposal, the contract unit price per linear foot shall be adjusted by the ratio of the

actual depth of pavement and base replaced to the depth shown on the Drawings and in the Bid Proposal. Such variations in depth shall be subject to approval of the OWNER in writing.

The contract unit prices for "Replacing Pavement" shall be considered as full compensation for, but not limited to removing bases, replacing bases and pavements, removing and disposing of all surplus materials, furnishing and placing all new materials, and for all manipulations, work, tools, equipment, labor and incidentals necessary to complete the work.

R. REMOVE AND REPLACE CONCRETE CURB – Item No. 22

1. Description - This item shall consist of all work required to remove and replace concrete drop structures at locations designated on the Drawings and furnish and install any additional materials required.
2. Measurement – Accepted work as performed and prescribed by this item shall be measured per linear foot of concrete curb cut and replaced, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment – The work performed and the materials furnished as prescribed by this item shall be paid for at the contract unit price per linear foot “Remove and Replace Concrete Curb”, which shall be full compensation for removing all spoils, and for furnishing and installing all additional materials necessary to complete the work.

S. REMOVE AND REPLACE CONCRETE DROP STRUCTURE – Item No. 23

1. Description - This item shall consist of all work required to remove and replace concrete drop structures at locations designated on the Drawings and furnish and install any additional materials required.
2. Measurement – Accepted work as performed and prescribed by this item shall be measured per linear foot of concrete drop structure cut and replaced, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment – The work performed and the materials furnished as prescribed by this item shall be paid for at the contract unit price per linear foot “Remove and Replace Concrete Drop Structure”, which shall be full compensation for removing all spoils, and for furnishing and installing all additional materials necessary to complete the work.

T. REMOVE AND REPLACE ROCK FILTER DAM – Item No. 24

1. Description - This item shall consist of all work required to remove and replace rock filter dams at locations designated on the Drawings and furnish and install any additional materials required.

2. Measurement – Accepted work as performed and prescribed by this item shall be measured per linear foot of rock filter dam cut and replaced, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment – The work performed and the materials furnished as prescribed by this item shall be paid for at the contract unit price per linear foot “Remove and Replace Rock Filter Dam”, which shall be full compensation for removing all spoils, and for furnishing and installing all additional materials necessary to complete the work.

U. REMOVE AND REPLACE CONCRETE DRAINAGE FLUME – Item No. 25

1. Description – This item shall consist of all work required to remove and replace concrete drainage flumes at locations designated on the Drawings and furnish an install any additional materials required.
2. Measurement – Accepted work as performed and prescribed by this item shall be measured per linear foot of concrete drainage flume removed and replaced, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment – The work performed and the materials furnished as prescribed by this item shall be paid for at the contract unit price per linear foot “Remove and Replace Concrete Drainage Flume”, which shall be full compensation for removing all spoils, and for furnishing and installing all additional materials necessary to complete the work.

V. REMOVE AND REPLACE CONCRETE CHANNEL RIPRAP – Item No. 26

1. Description - This item shall consist of all work required to remove and replace concrete channel riprap at locations designated on the Drawings and furnish and install any additional materials required.
2. Measurement – Accepted work as performed and prescribed by this item shall be measured per linear foot of concrete channel riprap removed and replaced.
3. Payment – The work performed and the materials furnished as prescribed by this item shall be paid for at the contract unit price per linear foot “Remove and Replace Concrete Channel riprap”, which shall be full compensation for removing all spoils, and for furnishing and installing all additional materials necessary to complete the work.

W. ROCK RIP RAP CREEK CROSSING – Item No. 27

1. Description - This item shall consist of furnishing and placement of rock rip rap as specified and where indicated on the Drawings. This item shall

include, but not be limited to rock rip rap, flowable fill, geotextile mat as shown in the Drawings and in conformity with the locations and details shown.

2. Measurement – Rock Rip Rap Creek Crossing shall be measured in place by the linear foot of rock rip rap creek crossing placed, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment - Payment for Rock Rip Rap Creek Crossing shall be made at the contract price per linear foot bid for “Rock Rip Rap Creek Crossing”, which price shall be full compensation for labor, equipment, and materials, and for performing all operations necessary to furnish, place, and test the bedding as specified and as indicated on the drawings. There shall be no separate payment for filter cloth and its cost should be included in “Rock Rip Rap”.

X. CONCRETE CABLE MATS – Item No. 28

1. Description - This item shall consist of all work required to furnish and install the concrete cable mats, including but not limited to articulated concrete blocks, filter fabric, and flowable fill as defined in accordance with the specifications and in conformity with the locations and details shown.
2. Measurement – Concrete cable mats shall be measured per linear foot of concrete cable mats placed, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment - Payment for Concrete Cable Mats shall be made at the contract price per linear foot bid for “Concrete Cable Mats”, which price shall be full compensation for labor, equipment, and materials, and for performing all operations necessary to furnish, place, and test the bedding as specified and as indicated on the drawings

Y. TURF REINFORCEMENT MAT – Item No. 29

1. Description - This item shall constitute full compensation for furnishing labor, material, equipment, and performing operations in connection with placing the turf reinforcement mat as shown on the plans including but not limited to turf reinforcement mats, topsoil, fertilizer, anchors, material for anchorage trenches, overlaps and waste. No measurement of, nor payment for, will be included for securing pins, and costs incidental thereto shall be included in the contract unit price bid for “Turf Reinforcement Mat”. Neither measurement nor payment for will be made for damaged fabric due to the fault or negligence of the Contractor.

2. Measurement – Turf reinforcement mat shall be measured per square yard of mat placed, as indicated on the Bid Proposal and to the limits shown on the Drawings. No allowance will be made for material in laps and seams.
3. Payment - Payment for turf reinforcement mats installation shall be made at the contract unit price per square yard for “Turf Reinforcement Mat”, which price shall be full compensation for labor, equipment, and materials, and for performing all operations necessary for furnishing and installing the mats and all additional materials necessary to complete the work.

Z. SOIL RETENTION BLANKET – Item No. 30

1. Description - This item shall constitute full compensation for furnishing labor, material, equipment, and performing operations in connection with placing the soil retention blanket as shown on the plans including but not limited to topsoil, fertilizer, overlaps and waste. No measurement of, nor payment for, will be included for securing pins, and costs incidental thereto shall be included in the contract unit price bid for “Soil Retention Blanket”. Neither measurement nor payment for will be made for damaged fabric due to the fault or negligence of the Contractor.
2. Measurement – Soil Retention Blanket shall be measured per square yard of blanket placed, as indicated Bid Proposal and to the limits shown on the Drawings. No allowance will be made for material in laps and seams.
3. Payment - Payment for soil retention blanket installation shall be made at the contract unit price per square yard for “Soil Retention Blanket”, which price shall be full compensation for labor, equipment, and materials, and for performing all operations necessary for furnishing and installing the blankets and all additional materials necessary to complete the work.

AA. FLOWABLE FILL ENCASEMENT – Item No. 31

1. Description - This item shall govern the furnishing and placement of controlled low strength material in accordance with the specifications and in conformity with the locations and details shown on the Drawings.
2. Measurement – Flowable Fill Encasement shall be measured per linear foot of flowable fill placed, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment – Payment for Flowable Fill Encasement installation shall be made at the contract unit price per linear foot for “Flowable Fill Encasement” upon completion and acceptance. No payment shall be made for flowable fill that extends further than the 18 inches in a

horizontal plane or 12 inches in the vertical plane from the pipe regardless of the quantity placed.

BB. TRENCH DAM – Item No. 32

1. Description - This item shall govern the furnishing and installation of trench dams in conformity with the locations and details shown on the Drawings.
2. Measurement – Installation of trench dams shall be measured per each trench dam installed.
3. Payment - Payment for trench dams installation shall be made at the contract unit price per each for “Trench Dams”, which price shall be full compensation for installing trench dams and for furnishing and installing all additional materials necessary to complete the work.

CC. REMOVE AND REPLACE EXISTING FENCE – Item No. 33

1. Description - This item shall consist of all work required to remove and replace fences in conformity with locations designated on the Drawings and furnish and install any additional materials required.
2. Measurement - Accepted work as performed and prescribed by this item shall be measured by the linear foot of fence removed and replaced, as indicated on the Drawings and Bid Proposal and to the limits shown on the Drawings.
3. Payment - The work performed and the materials furnished as prescribed by this item shall be paid for at the contract unit price per linear foot for "Remove and Replace Existing Fence", which price shall be full compensation for removing and reinstalling the existing fence, and for furnishing and installing all additional materials necessary to complete the work.

DD. INSTALL GATE – Item No. 34

1. Description - This item shall consist of furnishing and installing Type 1 and Type 2 gates at fence crossings where indicated on the Drawings.
2. Measurement – Installation of gates shall be measured per each gate installed.
3. Payment - Payment for gate installation shall be made at the contract unit price per each for “Install Gate”, which price shall be full compensation for installing the gate, removing the existing fence, and for furnishing and installing all additional materials necessary to complete the work.

EE. PIPELINE MARKERS – Item No. 35

1. Description - This item shall consist of all work required to furnish and install the pipeline markers, including but not limited to concrete encasement, 3” schedule 40 steel pipe, pipeline marker, reflective tape, Type 1 signs, and pipe cap, as defined in accordance with the specifications and in conformity with the locations and details shown.
2. Measurement – Pipeline markers shall be measured per each marker installed.
4. Payment - Payment for pipeline markers shall be made at the contract unit price per each for “Pipeline Markers”, which price shall be full compensation for installing the marker and for furnishing and installing all additional materials necessary to complete the work.

FF. REVEGETATION – Item No. 36

1. Description - This item shall include, but not be limited to all work required to prepare ground, provide for sowing of seeds, mulching with cellulose fiber and other management practices along and across such areas as are designated on the Drawings and in accordance with the specifications. All areas shall be covered with live grass before acceptance.
2. Measurement - Measurement for acceptable land restoration and revegetation, complete in place, shall be made per acre as of permanent and temporary easement.
3. Payment - Payment for this item shall be made at the contract unit price bid per acre.

GG. TREE PROTECTION – Item No. 37

1. Description - This item shall consist of all work required to furnish and install the tree protection system as defined in accordance with the specifications and in conformity with the locations and details shown in the Drawings.
2. Measurement – Tree protection shall be measured by the lump sum.
3. Payment - Payment for tree protection shall be made at the contract unit price per lump sum installed.

HH. EROSION AND SEDIMENTATION CONTROLS – Item No. 38

1. Description – This item shall govern preparation, maintenance and implementation of the SW3P, and complying with Texas Commission on Environmental Quality (TCEQ) regulations; Texas Pollution Discharge Elimination System (TPDES) General Permit requirements (Permit No. TXR150000), and the City of San Antonio Stormwater Compliance with Construction Activity Ordinance 94002 to include submittal and termination of permit notifications.

The CONTRACTOR shall be the operator as defined by TPDES General Permit. The CONTRACTOR shall comply with all TPDES General Permit requirements to include preparation, maintenance and implementation of the SW3P. The CONTRACTOR shall submit all notifications and pay all associated fees required by the TPDES General Permit. The CONTRACTOR shall provide the OWNER copies of any submitted notifications and associated fee checks.

The CONTRACTOR'S temporary control measures shall be installed and maintained throughout the construction contract and coordinated with proposed or existing permanent pollution control features to assure effective and continuous water pollution control throughout the construction and post construction period. The CONTRACTOR shall maintain and inspect the temporary control measures in accordance with the TPDES General Permit requirements. The control measures may include, but not limited to: sediment control fences, inlet protection, baled hay, rock filter dams, dikes, swales, construction exits and entrances, erosion control blankets, concrete cable mats, sediment traps and basins, or non-structural water pollution controls. The CONTRACTOR is responsible for any type of disastrous event resulting from negligence in providing the appropriate devices to prevent the contamination of storm water sewers and flooding on the roadway and private properties, in an event of a rainstorm. The CONTRACTOR shall provide control measures to prevent or minimize the impact to the existing municipal separate storm water system. This SW3P is to be adjusted and updated as the project progresses to meet compliance with permit and ordinance.

CONTRACTOR shall be responsible for the removal and appropriate disposal of any project control measures not incorporated as a permanent control when final stabilization has been obtained on the project.

2. Measurement – SW3P Plan and Execution shall be measured by the lump sum.
3. Payment - The work performed and the materials furnished as prescribed by this item shall be paid for at the contract lump sum price for SW3P Plan and Execution. The amount paid shall not be greater than the contract lump sum price, and shall be paid as follows:

- a. When the plan has been completed, accepted, and provided to the OWNER, 10% of the lump sum price shall be paid.
- b. Upon initial installation of control devices required by the plan, up to 20% of the lump sum price shall be eligible for payment.
- c. As approved for payment by the Inspector monthly and until removal, up to 50% of the lump sum price shall be eligible for payment. Payments shall be monthly in approximate equal amounts based on the number of months remaining in the contract after completed and accepted initial installation indicated above.
- d. When control devices have been removed after the completion of all work and in accordance with specifications, and required documentation and records are filed up to 90% of the lump sum price shall be eligible for payment.
- e. When the required notice of termination has been filed with the TCEQ, 100% of the lump sum price shall be paid.

II. TRAFFIC CONTROL – Item No. 39

1. Description - This item shall consist of, but not be limited to all work required to provide, install, move, repair, maintain, clean, and remove upon completion of work, all barricades, signs, cones, lights, and other such type devices and to handle traffic, including deployment of a uniformed police officer if necessary as indicated on the Drawings or as directed by the OWNER's Representative.
2. Measurement - Traffic control shall be measured by the lump sum as the work progresses.
3. Payment - Traffic control shall be paid for at the contract lump sum price for the work performed and materials furnished in accordance with this item. The lump sum price shall be full compensation for furnishing all labor, materials, supplies, equipment and incidentals necessary to complete the work as specified. Payment shall be made on the following basis:
 - a. The total monthly payment for this item shall not exceed 10 percent of the total contract amount due for this item prior to "Final Acceptance".
 - b. Payment for this item shall begin with the first payable monthly construction estimate after barricades, signs and traffic handling devices have been installed and construction has begun.
 - c. Monthly payment shall be made each succeeding month for this item provided the barricades, signs and traffic handling devices

have been installed and maintained until the contract amount for traffic maintenance has been paid unless adjusted by paragraph d.

- d. The quantity under this item shall not exceed the total plan quantity except when additional work is added by an approved field alteration or extra work order. Also when work is suspended for the convenience of the County or SAWS, through no fault of the CONTRACTOR, additional quantity may be paid when approved by field alteration. The quantity under this item shall be decreased when work is removed by an approved field alteration or work order.

JJ. BID ALLOWANCE FOR MISCELLANEOUS PROPERTY REPAIRS FOR WORK DIRECTED BY OWNER – Item No. 40

1. Description – Bid allowance for work directed by OWNER for miscellaneous property repairs in the amount of Fifty Thousand Dollars and no cents.
2. Measurement – Measurement to be determined at the time of authorization for miscellaneous property work is authorized by OWNER.
3. Payment - Payment for Bid Allowance shall be made at the measurement determined at the time of authorization for miscellaneous property work as authorized by OWNER.

KK. MOBILIZATION AND DEMOBILIZATION- Item No. 100

1. Description - This item shall govern the mobilization and demobilization of personnel, equipment and supplies at the project site in preparation for the beginning work on contract items and the acquisition of insurance and bonds. Mobilization and Demobilization shall include, but not be limited to the move-in and move-out of equipment, personnel, material, supplies, etc. to and from the project site and the establishment of temporary offices and other facilities necessary to the start of the work.
2. Measurement - Measurement of the item “Mobilization” shall be by the lump sum as the work progresses. “Mobilization” lump sum bid shall be limited to a maximum of 10% of the adjusted contract amount bid. The adjusted contract amount is defined as the total contract amount less the lump sum bid total for “Mobilization and Demobilization” and “Preparation of Right-of-Way”.
3. Payment - Partial payments of the lump sum bid for Mobilization shall be as follows:

- a. When 1% of the adjusted contract amount for construction items is earned, 25% of the Mobilization portion of this item or 5% of the total contract amount, whichever is less, shall be paid.
- b. When 5% of the adjusted contract amount for construction items is earned, 50% of the Mobilization component of this item or 10% of total contract amount, whichever is less, shall be paid.
- c. When 10% of the adjusted contract amount for construction items is earned, 75% of the Mobilization component of this item or 15% of total contract amount, whichever is less, shall be paid.
- d. When 25% of the adjusted contract amount for construction items is earned, 90% of the Mobilization component of this item or 20% of total contract amount, whichever is less, shall be paid.
- e. Mobilization payment shall be factored by 50% until all of these submittals have been made: Health and Safety Plan, Quality Control / Quality Assurance Plan, Pre-Construction Video/photography, and Construction Schedule. A factor of 75% shall be applied after submittal and until all of the above submittals are approved.

THE SUM TOTAL FOR MOBILIZATION (BID ITEM 100) AND PREPARING RIGHT-OF-WAY (BID ITEM 101) SHALL NOT EXCEED 15% OF THE ADJUSTED CONTRACT AMOUNT. A BID WITH SAID SUM THAT EXCEEDS SAID AMOUNT SHALL BE CONSIDERED UNBALANCED AND SHALL BE REJECTED.

LL.PREPARATION OF RIGHT-OF-WAY - Item No. 101

1. Description - This item shall govern preparing the right-of-way for construction operations by removing and disposing of all obstructions from the right-of-way and from designated easements where removal of such obstructions is not otherwise provided for in the Drawings and Specifications. It shall include, but not limited to the furnishing of all materials, equipment, tools, labor, supervision, and incidentals necessary to complete the work.
2. Measurement - Measurement of the item "Preparing Right-of-Way" shall be by the lump sum. "Preparing Right-of-Way" lump sum bid shall be limited to a maximum of 5% of the adjusted contract amount bid. The adjusted contract amount is defined as the total contract amount less the lump sum bid total for "Mobilization and Demobilization" and "Preparation of Right-of-Way".
3. Payment - This item shall be paid for at the lump sum price for preparing right-of-way. The lump sum price shall be pro-rated based on the percentage of the length of water main installed compared to the total

length of water main in the project. Eligible for payment is determined once pipe is installed and backfilled with correct densities.

If the CONTRACTOR bids more than the percentages allotted for this item, payment may be made at the completion of all work. Preparing right-of-way payment shall be factored by 50% until all of these submittals have been made: Health and Safety Plan, Quality Control / Quality Assurance Plan, Pre-Construction Video/photography, and Construction Schedule. A factor of 75% shall be applied after submittal and until all of the above submittals are approved.

- END OF SECTION -

SECTION 02270

SOIL EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 DESCRIPTION

This Section includes the provisions for the installation and the removal of soil erosion and sediment controls in compliance with the requirements of the Texas Commission on Environmental Quality (TCEQ) Texas Pollutant Discharge Elimination System (TPDES) program.

Develop, implement, and maintain a storm water pollution prevention plan in compliance with Local, State, and Federal requirements. Provide preventive measures to keep sediment and other pollutants from the construction activity from entering any storm water system, including open channels. Comply with the Texas Commission on Environmental Quality General Permit (TXR150000) for storm water discharges from construction activities under the Texas Pollutant Discharge Elimination System (TPDES) program.

This specification provides guidelines and Best Management Practices (BMPs) information for the Contractor to use in adhering to all Local, State, and Federal environmental regulations with respect to storm water pollution prevention during construction activity.

1.02 QUALITY ASSURANCE

A. CONTRACTOR is responsible for and must implement all stormwater controls prior to any site work within the project area. Controls must remain in place until after the completion of permanent restoration and erosion control measures.

B. Referenced Standards:

TPDES General Permit Number TXR150000 – General Permit to Discharge Waste, Issued by the Texas Commission on Environmental Quality, March 5, 2003.

1. Erosion control standards specified in the TCEQ General Permit relating to discharges from construction activities.

2. Refer to the permit for a complete discussion of the associated requirements.

C. Comply with applicable requirements of all governing authorities having jurisdiction. The Specifications and the Plans are not represented as being

comprehensive, but rather to convey the intent to provide complete slope protection and erosion control for both the Owner's and adjacent property.

- D. Erosion control measures shall be established at the beginning of construction and maintained during the entire length of construction. On-site areas which are subject to severe erosion and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation are to be identified and receive additional erosion control measures.
- E. All land-disturbing activities shall be planned and conducted to minimize the size of the area to be exposed at any one time and to minimize the time of exposure. Areas where work is completed shall be stabilized, restored and re-vegetated as soon as possible, as work continues in other areas.
- F. Surface water runoff originating upgrade of exposed area shall be controlled to reduce erosion and sediment loss during the period of exposure.
- G. When the increase in the peak rates and velocity of storm water runoff resulting from a land-disturbing activity is sufficient to cause accelerated erosion of the receiving ditch or stream, the Contractor shall install measures to control both the velocity and rate of release so as to minimize accelerated erosion and increased sedimentation of the stream.
- H. All land-disturbing activities shall be planned and conducted so as to minimize off-site sedimentation.
- I. The Contractor shall be responsible for periodically cleaning out and properly disposing of all sediment once the storage capacity of the drainage feature or structure receiving the sediment is reduced by one-half. For silt fences, sediment accumulations shall be removed when sediment depth reaches six (6") inches. The Contractor shall also be responsible for cleaning out and properly disposing of all sediment at the time of final completion of the Work.

1.03 SUBMITTALS

Submittals shall be in accordance with Section 01330, SUBMITTALS and shall include:

- A. Stormwater Pollution Prevention Plan (SWPPP) following the EPA SWPPP template, Version 1.1 signed and sealed by an engineer licensed in the State of Texas.
- B. Record data for the erosion and sediment control devices.
- C. Notice of Intent for NPDES permitting
- D. Notice of Change (if necessary)

- E. TPDES General permit number for the project
- F. Record Data – Inspection Reports: Provide inspection procedure and example inspection form to be used on weekly basis and after one-half (1/2”) inch or greater storm event within 24 hours. Provide inspection form to document any major grading activities or periods when construction activity ceases for fourteen (14) calendar days or more.
- G. Certification of Completed Plan
- H. Notice of Termination
- I. Record Data and samples for Turf Reinforcement Mat.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Temporary Sediment Control Fence: Provide a net-reinforced fence using woven geo-textile fabric. Logos visible to the traveling public will not be allowed.
 - 1. Fabric: Provide fabric materials in accordance with TxDOT DMS-6230, “Temporary Sediment Control Fence Fabric.”
 - 2. Posts: Provide essentially straight wood or steel posts with a minimum length of 48 in., unless otherwise shown on the plans. Soft wood posts must be at least 3 in. in diameter or nominal 2 x 4 in. Hardwood posts must have a minimum cross-section of 1 1/2 x 1 1/2 in. T- or L-shaped steel posts must have a minimum weight of 0.95 lb. per foot.
 - 3. Net Reinforcement: Provide net reinforcement of at least 14 gauge galvanized welded wire mesh, with a maximum opening size of 2 x 4 in., at least 24 in. wide, unless otherwise shown on the plans.
 - 4. Staples: Provide staples with a crown at least 3/4 in. wide and legs 1/2 in. long.
 - 5. Used Materials: Use recycled material meeting the applicable requirements if accepted by the ENGINEER.
- B. Pipe Riser and Barrel: 16 GA corrugated metal pipe (CMP) of size indicated.
- C. Grass Seed: See Section 02232 SITE PREPARATION AND RESTORATION.
- D. SAND BAG: Sand bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight four (4) ounces per square yard, mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70%. Length shall be 24 to 30 inches, width shall be 16 to 18 inches and thickness shall be six (6) to eight (8) inches and having an approximate weight of 40 pounds. Sand bags shall be filled with coarse grade sand, free from deleterious material.

All sand shall pass through a No. 10 sieve.

- E. P.V.C. PIPE: Pipe shall be SDR-35 polyvinyl chloride having a minimum nominal internal diameter of 4". Pipes shall be sized for anticipated flows.
- F. EROSION CONTROL MATTING: Erosion control matting must meet the applicable Texas Department of Transportation (TxDOT) *Minimum Performance Standards for TxDOT* as provided in its Erosion Control Report and/or be listed on the most current annual *Approved Products List for TxDOT* applicable to TxDOT Item 169 Soil Retention Blanket and is Special Provisions.
 - 1. SOIL RETENTION BLANKETS (SRB): A SRB is a geotextile or biodegradable fabric placed over disturbed areas to limit the effects of erosion due to rainfall impact and runoff across barren soil. Mat is to hold seed and soil in place until vegetation is established. SRB's shall consist of 100% wheat straw or excelsior mechanically bound and covered with degradable double netting. The straw or excelsior shall be homogeneously blended and evenly distributed throughout the blanket. The netting shall be rapid degrading polypropylene or photodegradable polypropylene with mesh openings of approximately 1/2 in. by 1/2 in. The blanket shall be sewn on approximately 2 in. centers with degradable polypropylene thread.
 - 2. TURF REINFORCEMENT MAT (TRM): A TRM manufactured from 100% continuously woven synthetic non degradable materials with a minimum 10 year design life. TRM's are designed to reinforce the root system of vegetation, and form a high-strength system for applications with high loading and/or high survivability requirements. The TRM helps prevent soil erosion in high velocity channels and on steep slopes. TRM shall be Landlok 300 by Propex or equal product as approved by the ENGINEER and OWNER
- G. FILTER AGGREGATE: Class 1 Aggregate Fill consisting of durable particles of crushed stone free of silt, clay, or other unsuitable materials and have a percentage of wear of not more than 40% when tested in accordance with ASTM C131 or C535. When material is subjected to five (5) cycles of the sodium sulfate soundness test in accordance with ASTM C88, Sodium Sulfate Solution, the weighted percentage of loss shall not exceed 12%. The source of the material shall be approved by the Engineer and meet the following gradation in accordance with ASTM D448, size number 57:

Sieve Size Square Opening	Percent Passing
1-1/2"	100
1"	95-100
1/2"	25-60
No. 4	0-10
No. 8	0-5

- H. CONCRETE MASONRY UNITS (CMU): Nominal 8" x 8" x 16" hollow concrete masonry units unless indicated otherwise. CMU shall meet the requirements of ASTM C-90, Grade N.
- I. FASTENERS: Fasteners shall conform to the requirements of the various SRB and TRM manufacturers.
- J. STONE STABILIZATION: Class 4 Aggregate Fill consisting of durable particles of crushed stone free of silt, clay, or other unsuitable materials and have a percentage of wear of not more than 40% when tested in accordance with ASTM C131 or C535. When material is subjected to five (5) cycles of the sodium sulfate soundness test in accordance with ASTM C88, Sodium Sulfate Solution, the weighted percentage of loss shall not exceed 12%. The source of the material shall be approved by the Engineer and meet the following gradation in accordance with ASTM D448, size number 467:

Sieve Size Square Opening	Percent Passing
2"	100
1-1/2"	95-100
3/4"	35-70
3/8"	10-30
No. 4	0-5

- K. GEOTEXTILE - EROSION CONTROL: Geotextile shall be in accordance with the following criteria:
1. The geotextile fabric shall be inert to commonly encountered chemicals, hydrocarbons, mildew and rot resistant, resistant to ultraviolet light exposure, insect and rodent resistant, and conform to the properties in the following table.
 2. The average roll minimum value (weakest principal direction) for strength properties of any individual roll tested from the manufacturing lot or lots of a particular shipment shall be in excess of the average roll minimum value (weakest principal direction) stipulated herein.

Physical Properties	Average Roll Minimum Value (Weakest Principal Direction)
Grab Tensile Strength ASTM D4632 (Lbs)	200
Elongation at Failure ASTM D4632 (%)	15
Mullen Burst Strength ASTM D3786 (psi)	320

Water Flow Rate (gal/min/ft ²) ASTM D4491	60
AOS(095) mm, ASTM D4751	0.25
Trapezoid Tear Strength ASTM D4533 (Lbs.)	50
Permeability – k (cm/sec) ASTM D4491	0.1
Puncture Resistance ASTM D4833 (modified) (Lbs.)	90

L. **MULCH SOCK:** Furnish materials as follows, unless otherwise shown on the plans.

1. A. Posts. Furnish metal or wooden posts to be installed for anchoring the mulch socks in place.
2. Mulch Sock. Furnish sock material that is 100% biodegradable, photodegradable, or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or any other acceptable material.
3. Mulch. Furnish wood chips produced from a 3 (three) inch minus screening process (equivalent to TXDOT Item 161 Section 1.6.2.B Wood Chip Requirements)
 - a. Mulch consists primarily of organic material, separated at the point of generation, and many include: shredded bark or stump grindings. No compost will be accepted.
 - b. Mulch material must be free of refuse, physical contaminants, and material toxic to plant growth; it is not acceptable for the mulch material to contain ground construction debris, biosolids, or manure.
 - c. Large portions of silt, clays, or fine sands are not acceptable in the mulch.

PART 3 EXECUTION

3.01 PREPARATION

- A. Prior to General Stripping of Topsoil and Excavating:
1. Install perimeter dikes and swales.
 2. Excavate and shape sediment basins and traps.
 3. Construct pipe spillways and install stone filter where required.

4. Install sediment control fences and rock filter dams.
 5. Machine compact all berms, dikes and embankments for basins and traps.
- B. Construct sediment traps where indicated on Drawings during rough grading as grading progresses.
- C. Temporarily seed basin slopes and topsoil stockpiles:
1. Rate: 1/2 LB/1000 SF
 2. Reseed as required until good stand of grass is achieved.
- D. Install construction entrances.

3.02 INSTALLATION

A. SILT FENCE

1. The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas to a limited extent. The Contractor shall excavate a 6" by 6" trench for site fence bedding along the lower perimeters of the site where necessary to prevent sediment from entering any drainage system. Silt fence is used to provide temporary sediment-control fence near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the fence into erosion-control measures used to control sediment in areas of higher flow. Install the fence as shown on the plans, as specified in this Section, or as directed in accordance with the manufacturers' recommendations and instructions.
2. This fence shall remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way or where soil conditions prevent a minimum toe-in depth of 6" or installation of support post to depth of 12". Fabric shall overlap at abutting ends a minimum of 3' and shall be jointed such that no leakage or bypass occurs. If concentrated flow occurs after installation, corrective action must be taken such as placing rock berm in the areas of concentrated flow.

B. SAND BAG BERM

1. The purpose of a sandbag berm is to intercept sediment-laden water from

disturbed areas such as construction in stream beds, create a retention pond, detain sediment and release water in sheet flow.

2. A temporary sand bag berm shall be installed across a channel or right of way in a developing or disturbed area and should be used when the contributing drainage area is greater than 5 acres. The berm shall be a minimum height of 18", measured from the top of the existing ground at the upslope toe to the top of the berm. The berm shall be sized to have a minimum width of 48" measured at the bottom of the berm and 18" measured at the top of the berm.
3. The sand bag berm shall be inspected after each rain. The sand bags shall be reshaped or replaced as needed during inspection. Additional inspections shall be made daily by the responsible party and when the silt reaches 6", the accumulated silt shall be removed and disposed of at an approved site in a manner that will not contribute to additional siltation. The sand bag berm shall be left in place until all upstream areas are stabilized and accumulated silt removed; removal must be done by hand to avoid damage to the sand bags.

C. EROSION CONTROL MATTING

1. Site Preparation

a. Soil Retention Blanket

Prepare subgrade by removing large rocks, soil clods, vegetation, and other sharp objects (larger than 2" in diameter) that could keep the SRB from intimate contact with subgrade.

b. Turf Reinforcement Mat

- i. Grade and compact areas to be treated with TRM and compact. The top 8" of subgrade must be free of rock, debris and consist of a cohesive live soil that meets the requirements of COSA Specification Item 515, "Topsoil." The Engineer has final determination of whether or not the soil is "live." If the existing subgrade does not meet these standards, the contractor is responsible for the import of acceptable material.
- ii. Remove large rocks, soil clods, vegetation, and other sharp objects (larger than 2" in diameter) that could keep the TRM from intimate contact with subgrade.
- iii. Prepare the 8" compacted seedbed by loosening the top 1/2" of soil above final subgrade. Apply seeding per Specification 02232, SITE PREPARATION AND RESTORATION.
- iv. Construct, as a minimum, 12 in x 12 in anchor trenches at upstream and downstream ends of the installation to inhibit undermining from

stray surface water. (Anchor trenches should be excavated to a depth that matches design scour depth.) Excavate 6 in x 6 in check slots at 25 to 30 feet intervals along length of channel. Cut longitudinal anchor slots 6 in x 6 in at top of each side slope. The aforementioned dimensions are minimums and the dimensions detailed on the drawings will control.

2. Installation

a. Soil Retention Blanket

Install SRB such that they are shingled downstream. The end of each SRB shall overlap the next downstream SRB by a minimum of 12 inches. Leading edges shall be placed in a trench that is 4 inches wide to a minimum depth of 8 inches. The fabric shall line the trench and then filled with available substrate. Install 2 staples per square yard of SRB using 6 in (depth) x 1 in (width) metal sod staples.

b. Turf Reinforcement Mat

- i. A mandatory pre-construction conference with an Engineer representing the TRM manufacturer, contractor, and inspector must be completed. The conference is to be scheduled by the contractor with at least one week's notice to all parties involved. Representatives may be required to be on site for installation assistance. The Contractor is to schedule the Engineer representing the TRM to inspect the site preparation prior to installation and the completed installation and provide a certified letter stating the site meets the manufacture's recommendations. All permanent TRM's shall be installed so as to produce root reinforcement of the vegetation. Stem reinforcement of the vegetation will not be accepted.
- ii. Install the TRM at elevation and alignment indicated.
- iii. Beginning at downstream end in center of channel, place initial end of first roll of TRM in anchor trench and secure with ground anchor devices at 12 in intervals.
- iv. Position adjacent rolls in anchor trench in same manner, overlapping preceding roll minimum 3 in.
- v. Secure the TRM at 12 in intervals along the trench, backfill and compact with specified soil or as directed by the Engineer.
- vi. Unroll center strip of TRM upstream over compacted trench. Stop at next check slot or terminal anchor trench. Unroll adjacent rolls of TRM upstream in similar fashion, maintaining 3 in overlap.
- vii. Fold and secure the TRM snugly into transverse check slots. Lay material in bottom of slot, and then fold it back against itself as indicated. Anchor through both layers of TRM at 12 in intervals. Backfill with soil and compact. Continue unrolling the TRM widths

upstream over compacted slot to next check slot or terminal anchor trench.

- viii. Secure TRM to channel bottom with ground anchoring devices at a frequency of 2 anchors per square yard. Anchors should be a minimum of 8 gauge and 8" in length or so that they have sufficient ground penetration to resist pullout in a saturated condition. Increased anchoring frequency may be required if site conditions are such that the Engineer determines it necessary.
- ix. At the Engineers discretion a manufacturer's designated representative shall be on site for installation assistance.
- x. Any installation of angular placement, overlapping around curves, or modified placement methods must be detailed on the construction drawings.
- xi. The Engineer must approve alternate installation methods prior to execution.

3. Irrigation, Mowing and Project Acceptance

Prior to project acceptance by the Engineer, it shall be the responsibility of the contractor to establish a minimum of 70% of the area seeded and shall be covered with the specified vegetation with no bare or dead spots greater than 10 square feet. The contractor shall be responsible to set up and maintain temporary irrigation, as required, to assist in establishment of vegetation. All areas that erode prior to project acceptance shall be repaired at the expense of the contractor including necessary reseeding, watering, and repair of the SRB and TRM. Vegetated areas shall not be mowed prior to establishment of 70% vegetative density and a minimum grass growth of 3 inches. Mower height shall not be set lower than 3 inches. Throughout the duration of the project, the contractor shall be responsible for mowing to facilitate growth and shall not let the vegetation in the seeded areas exceed 18 inches. In addition, the Contractor shall water all grassed areas as often as necessary to establish satisfactory growth and to maintain its growth throughout the duration of the project.

D. PROTECTION OF BARE AREAS

- 1. Apply seeding and SRB where specified in the plans and details, to bare areas including new embankment areas, fills, stripped areas, graded areas or otherwise disturbed areas, which have a grade greater than 5% or which will be exposed for more than 30 days.
- 2. Bare working areas on which it is not practical or desirable to install seeding and SRB shall be temporarily sloped to drain at a minimum of 0.2% and a maximum of 5% grade. These areas shall then be "trackwalked" with a crawler dozer traveling up and down the slope to form the effect of small "terraces" with the tracks of the dozer. Apply a

minimum of three (3) coverages to each area with the dozer tracks.

3. Route runoff from the areas through the appropriate silt fence system and other controls as necessary.
4. Protect earth spoil areas by "trackwalking" and silt fences.

E. INTERCEPTOR SWALE

1. Interceptor swales may have a v-shape or be trapezoidal with a flat bottom and side slopes of 3:1 or flatter. These are used to shorten the length of exposed slope by intercepting runoff and can also serve as perimeter swales preventing off-site runoff from entering the disturbed area or prevent sediment-laden runoff from leaving the construction site or disturbed area. The outflow from a swale must be directed to a stabilized outlet or sediment trapping device. The swales should remain in place until the disturbed area is permanently stabilized.
2. Stone Stabilization shall be used when grades exceed 2% or velocities exceed 6 feet per second and shall consist of a layer of crushed stone 3" thick, or SRB as specified in the plans and details. Stabilization shall extend across the bottom of the swale and up both sides of the channel to minimum height of 3" above the design water surface elevation based on a two year storm.
3. Interceptor swale shall be installed across exposed slopes during construction and should intercept no more than five (5) acres of runoff. Swales shall have a minimum bottom width of 2'-0" and a maximum depth of 1'-6" with side slopes of 3:1 or flatter. Swale must have positive drainage for its entire length to an outlet. When the slope exceeds 3%, or velocities exceed 4' per second (regardless of slope), stone stabilization is required. Check dams are also recommended to reduce velocities in the swales possibly reducing the amount of stabilization necessary. Swales should be inspected on a weekly basis during wet weather and repairs should be made promptly to maintain a consistent cross section.
4. All trees, brush, stumps, obstructions and other material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade, and cross-section as required to meet criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. All earth removed and not needed in construction shall be disposed of in

an approved spoils site so that it will be conveyed to a sediment trapping device.

7. Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment trapping device.
8. The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet.
9. Minimum compaction for the swale shall be 90% of maximum density as determined by Standard Proctor compaction test (ASTM D698).

F. DIVERSION DIKE

1. A diversion dike intercepts runoff from small upland areas and diverts it away from exposed slopes to a stabilized outlet, such as a rock berm, sandbag berm, or stone outlet structure. Dikes are generally used for the duration of construction to intercept and reroute runoff from disturbed areas to prevent excessive erosion until permanent drainage features are installed and/or slopes are stabilized.
2. Stone Stabilization (required for velocities in excess of 6 fps) shall consist of Class 4 aggregate fill and shall be placed in a layer of at least 3" thickness and shall extend a minimum height of 3" above the design water surface up the existing slope and the upstream face of the dike.
3. Geotextile shall be placed under the stone stabilization.
4. Diversion dikes shall be installed prior to and maintained for the duration of construction and should intercept no more than ten (10) acres of runoff. Dikes shall have a minimum top width of 2'-0" and a minimum height of compacted fill of 18" measured from the top of the existing ground at the upslope toe to top of the dike and having side slopes of 3:1 or flatter. The soil for the dike shall be placed in lifts of 8" or less and be compacted to 95% standard proctor density. The channel which is formed by dike must have positive drainage for its entire length to an outlet. When the slope exceeds 2%, or velocities exceed 6' per second (regardless of slope), stabilization is required. Situations in which velocities do not exceed 6 fps, vegetation may be used to control erosion.
5. Diverted runoff from a protected or stabilized area shall have its outlet flow directed to an undisturbed stabilized area or into a level spreader or grade stabilization structure.
6. Diverted runoff from a disturbed or exposed area shall be conveyed to

sediment trap such as a rock berm, temporary sediment trap or sediment basin or to an area protected by any of these measures.

G. TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

1. The work shall consist of constructing temporary stabilized construction entrances at all entry points to the project site and shall remain in place for the duration of the construction period to prevent sediment from leaving the project site and becoming a nuisance in a public right-of-way. This includes all labor and materials associated with installation and maintenance of the entrance and a sediment trap.
2. The rock for the stabilized entrance shall meet the gradations shown on the Drawings. Geotextile shall be placed under the stone stabilization.
3. A temporary construction entrance shall be installed at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment into graded or incorporate a drainage swale to prevent runoff from leaving the construction site.
4. The temporary construction entrance shall be maintained in a condition which will prevent tracking or flowing of sediment into public right-of-way. This may require periodic top dressing with additional stone as conditions demand. All sediment spilled, dropped, washed or tracked into public rights-of-way must be removed immediately by the Contractor.
5. When necessary, vehicles must be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with crushed stone which drains into an approved sediment trap or sediment basin or other sedimentation/filtration device. All sediment shall be prevented from entering any storm drain, ditch or watercourse using approved methods.

H. CONCRETE TRUCK WASH-OUT FACILITY

1. Install sand filter bed of at least fifty (50SF) square feet in area and at least twelve (12") inches in depth. Bottom of filter bed shall allow filtered wash water to percolate into the subgrade.
2. Install twelve (12") inch high berm around periphery of filter bed to prevent stormwater runoff contamination of the filter sand.
3. Remove, dispose, and replace filter sand that becomes clogged to such a

degree that wash water does not immediately percolate down into the filter bed.

4. Maintain sand filter bed until all concrete has been placed on the project site.
5. Upon completion of all concrete placements on the project site remove and dispose filter sand, backfill bed with compacted select fill to 90% Standard Proctor Density and restore the disturbed surface in accordance with Section 02232, SITE PREPARATION AND SITE RESTORATION.

I. LOCATION OF EROSION AND SEDIMENT CONTROL STRUCTURES

1. Locate erosion and sediment control structures as required to prevent erosion and removal of sediment from the project site. Controls shall be generally placed in accordance with the Sediment and Erosion Control Plan prepared by the Owner. Silt fences shall be required for disturbed areas and soil stockpiles/spoil areas. Each silt fence installation shall have a minimum net length (exclusive of embedments into diversion dikes or other ineffective areas) of 25'. The runoff from a maximum of one (1) acre of disturbed area or soil stockpile/ spoil area shall be routed through any individual silt fence installation.
2. Install diversion dikes to divert runoff to the silt fence installation.
3. Install silt traps at the inlet (upstream) end of the drainage structures, including open channels, through which runoff from disturbed areas or soil stockpiles/spoil areas may drain.
4. Provide an overall erosion and sediment control system which protects disturbed areas and soil stockpiles/spoil areas. The system shall be modified by the Contractor from time to time to effectively control erosion and sediment during construction.
5. Install concrete truck wash-out facility within the staging area.

J. MULCH SOCK

1. Install mulch socks in accordance with related items as shown on the plans. Place 18 inch diameter filled socks in designated area as shown on the plans.
2. Mulch socks should be used at the base of slopes no steeper than 2:1 and

should not exceed the maximum spacing criteria provide in the following table for a given slope category:

Slope	Max. Slope Length Between 18 inch diameter Socks (feet)
100:1-50:1	100
50:1-30:1	75
30:1-25:1	65
25:1-20:1	50
20:1-10:1	25
10:1-5:1	15
5:1-2:1	10

3. Place mulch socks at a 5' or greater distance away from the toe of slopes to maximize space available for sediment deposition.
4. When placed on level contours sheet flow of water should be perpendicular to the mulch sock at impact and un-concentrated.
5. Install mulch socks using metal posts with a minimum 3/8 inch diameter and a minimum length of 48-inches or wooden posts with minimum dimensions of 1 inch by 2 inch and a minimum length of 48 inches, placed behind the mulch sock on 2-foot centers. Drive the posts in the ground to a minimum depth of 24-inches on a slight angle toward the anticipated runoff source on either side of the mulch sock, leaving less than 12-inches of post above the exposed mulch socks. It is preferable to cut the post flush with the top of the mulch sock.
6. Accumulated silt shall be removed when it reaches a depth of 6 inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation. In order to prevent the movement or floating of the mulch sock during rain events or construction operations, install posts on the front side placed on 2-foot centers.
7. In order to prevent water flowing around the ends of mulch socks, point the ends upslope to place them at a higher elevation.
8. In order to prevent water flowing between the gaps between the joints of adjacent ends of mulch socks lap the ends of adjacent mulch socks a minimum of 12 inches. Never stack mulch socks on top of one another.
9. Do not place socks where they cannot pond water.

10. For steeper slopes, an additional sock can be constructed on the top of the slope and within the slope area as determined by specific field conditions. Multiple socks are recommended on steeper slopes.
11. Do not use mulch socks in areas of concentrated flow, as they are intended to control sheet flow only. Apply mulching material a minimum of 3 (three) feet over the shoulder and beyond the base of the slope or into existing vegetation where possible to prevent rill formation and transport of the material.

3.03 DURING CONSTRUCTION PERIOD

- A. Inspect at least every 7 days, and no more than 24 hours after a rainfall event of one half inch or greater.
- B. All erosion and sediment control measures and other protective measures identified in the SWPPP must be maintained in effective operating condition.
- C. The CONTRACTOR shall ensure that sedimentation and erosion that occur due to work activities are minimized and contained within the designated project work areas. Erosion and sedimentation occurring outside the work area will be resolved by and coordinated by contractor with impacted landowners as required.
- D. Maintain Basins, Dikes, Traps, Stone Filters, Straw Bales, Etc.:
 1. Inspect regularly especially after rainstorms.
 2. Repair or replace damaged or missing items.
- E. After rough grading, sow temporary grass cover over all exposed earth areas not draining into sediment basin or trap.
- F. Construct inlets as soon as possible. Excavate and tightly secure straw bales completely around inlets as detailed on Drawings.
- G. Provide necessary swales and dikes to direct all water towards and into sediment basins and traps.
- H. Do not disturb existing vegetation (grass and trees).
- I. Take appropriate measures to minimize materials transported or tracked by construction vehicles onto any roadway.
- J. Excavate sediment out of basins and traps when capacity has been reduced by 50 percent. Remove sediment from behind bales to prevent overtopping.

- K. Topsoil and Fine Grade Slopes and Swales, Etc. - Seed and mulch as soon as areas become ready.

3.04 NEAR COMPLETION OF CONSTRUCTION

- A. Eliminate basins, dikes, traps, etc.
- B. Grade to finished or existing grades.
- C. Fine grade all remaining earth areas, then seed and mulch.

-END OF SECTION-

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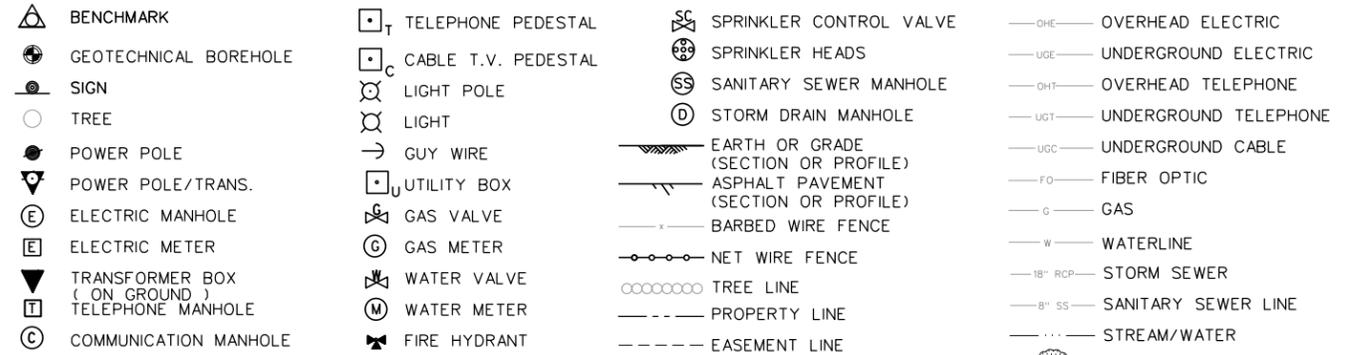
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W55	PLAN & PROFILE STA. 488+00 TO STA. 497+00
W56	PLAN & PROFILE STA. 497+00 TO STA. 506+50
W57	PLAN & PROFILE STA. 506+50 TO STA. 515+00
W58	PLAN & PROFILE STA. 515+00 TO STA. 524+00
W59	PLAN & PROFILE STA. 524+00 TO STA. 534+00
W60	PLAN & PROFILE STA. 534+00 TO STA. 544+00
W61	PLAN & PROFILE STA. 544+00 TO STA. 554+00
W62	PLAN & PROFILE STA. 554+00 TO STA. 559+50
W63	PLAN & PROFILE STA. 559+50 TO STA. 569+00
W64	PLAN & PROFILE STA. 569+00 TO STA. 578+60
W65	PLAN & PROFILE STA. 578+60 TO STA. 589+00
W66	PLAN & PROFILE STA. 589+00 TO STA. 597+00 WATERLINE 'A' STA. 1+00 TO STA 2+58
W67	PLAN & PROFILE STA. 597+00 TO STA. 605+59
DT1	TRENCH DETAILS
DT2	PIPE ENCASEMENT AND PAVING DETAILS
DT3	ISOLATION VALVE DETAILS
DT4	BORE AND CASING DETAILS
DT5	AIR VALVE ASSEMBLY TYPE 1
DT6	AIR VALVE ASSEMBLY TYPE 2
DT7	PIPE DRAIN AND STRUCTURE TYPE 3 DETAILS
DT8	BULKHEAD DETAILS
DT9	TEMPORARY BLOWOFF AND PIPE CLOSURE (STEEL PIPE)
DT10	PIPE AND MANWAY DETAILS
DT11	GUARD POST, PIPELINE MARKER AND SIGNAGE DETAILS
DT12	WIRE FENCE WITH TIMBER POSTS
DT13	WIRE FENCE WITH STEEL POSTS
DT14	CREEK CROSSING AND EROSION CONTROL BLANKET
DT15	CONCRETE CABLE MAT AND DRAINAGE STRUCTURE DETAILS
DT16	TYPICAL CONCRETE RIPRAP
DT17	TEMPORARY EROSION SEDIMENT
DT18	TEMPORARY EROSION SEDIMENT 2
DT19	TRAFFIC CONTROL DETAILS (1 OF 4)
DT20	TRAFFIC CONTROL DETAILS (2 OF 4)
DT21	TRAFFIC CONTROL DETAILS (3 OF 4)
DT22	TRAFFIC CONTROL DETAILS (4 OF 4)
CP1	CATHODIC PROTECTION TEST STATION SCHEDULE
CP2	CATHODIC PROTECTION DETAILS
CP3	CATHODIC PROTECTION DETAILS
CP4	CATHODIC PROTECTION DETAILS
T1	TREE PROTECTION TABLE
T2	TREE PROTECTION PLAN SHEET 01 OF 13
T3	TREE PROTECTION PLAN SHEET 02 OF 13
T4	TREE PROTECTION PLAN SHEET 03 OF 13
T5	TREE PROTECTION PLAN SHEET 04 OF 13
T6	TREE PROTECTION PLAN SHEET 05 OF 13
T7	TREE PROTECTION PLAN SHEET 06 OF 13
T8	TREE PROTECTION PLAN SHEET 07 OF 13
T9	TREE PROTECTION PLAN SHEET 08 OF 13
T10	TREE PROTECTION PLAN SHEET 09 OF 13
T11	TREE PROTECTION PLAN SHEET 10 OF 13
T12	TREE PROTECTION PLAN SHEET 11 OF 13
T13	TREE PROTECTION PLAN SHEET 12 OF 13
T14	TREE PROTECTION PLAN SHEET 13 OF 13
T15	TREE PROTECTION DETAILS

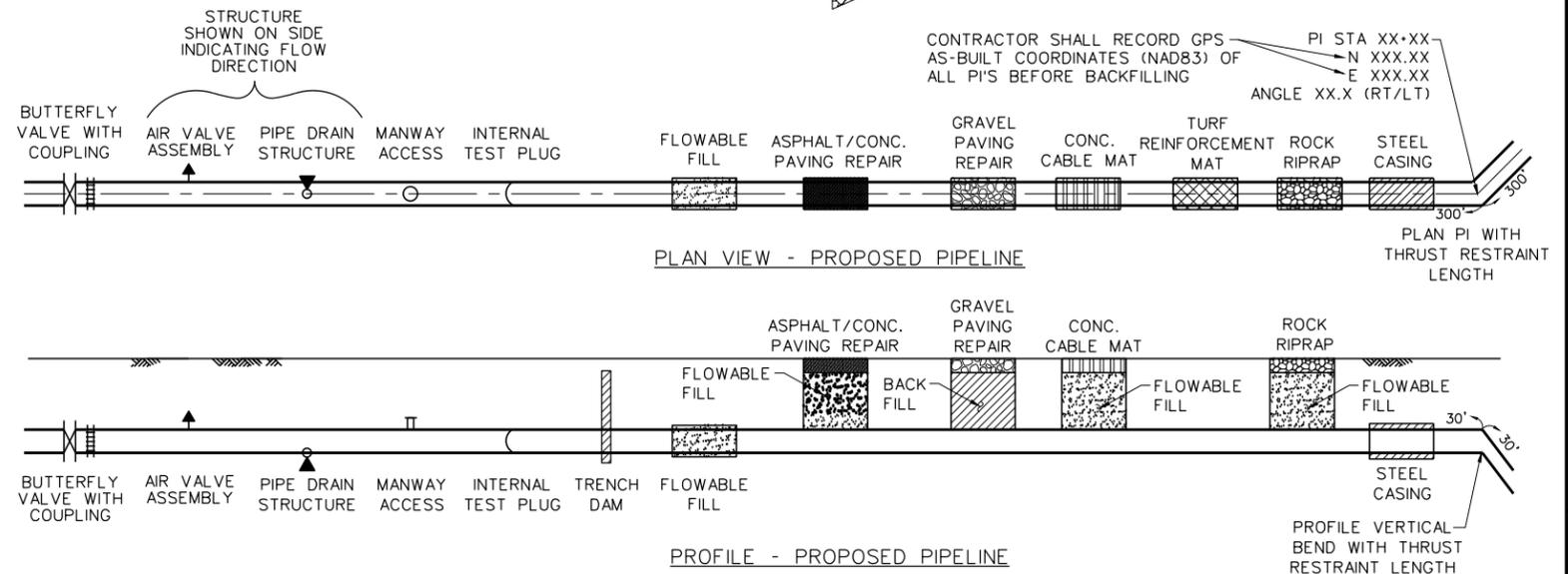
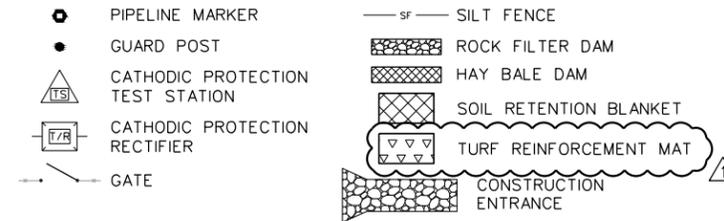
STANDARD ABBREVIATIONS

AC	ASBESTOS CONCRETE	HRS	HOURS	RR	RAILROAD
AH	AHEAD	IAW	IN ACCORDANCE WITH	RCP	REINFORCED CONCRETE PIPE
ASPH	ASPHALT	I.D.	INNER DIAMETER	RCP	REGIONAL CARRIZO PROGRAM
B-B	BACK TO BACK	IP	IRON PIPE	REQ'D	REQUIRED
BC	BACK OF CURB	LF	LINEAR FEET	RT	RIGHT
BK	BACK	LT	LEFT	ROW	RIGHT OF WAY
BSL	BUILDING SETBACK LINE	L	LENGTH	RWL	RECYCLE WATER LINE
CCMA	CIBOLO CREEK MUNICIPAL AUTHORITY	LP	LIGHT POLE	S	SLOPE
CI	CAST IRON	MH	MANHOLE	SF	SILT FENCE
CL	CENTERLINE	MAX	MAXIMUM	SS	SANITARY SEWER
CONC	CONCRETE	MJ	MECHANICAL JOINT	SE	SOUTHEAST
CP	CONTROL PANEL	MIN	MINIMUM	SPPS	SCHERTZ PARKWAY PUMP STATION
CSC	CONCRETE STEEL CYLINDER PIPE	N	NORTH	SW	SOUTHWEST
CORP	CORPORATION	NE	NORTHEAST	STA	STATION
CMP	CORRUGATED METAL PIPE	NW	NORTHWEST	STD	STANDARD
CPL	COUPLING	NA	NOT APPLICABLE	ST	STORM SEWER
DWG	DRAWING	NTS	NOT TO SCALE	T	TANGENT
E	EAST	OC	ON CENTER	T/P	TOP OF PIPE
ELEV / EL	ELEVATION	OD	OUTER DIAMETER	T/G	TOP OF GROUND
EX / EXIST	EXISTING	OHT	OVERHEAD TELEPHONE	TEL	TELEPHONE
EW	EACH WAY	PVMT	PAVEMENT	TBM	TEMPORARY BENCH MARK
EWEF	EACH WAY EACH FACE	+/-	PLUS OR MINUS	THD	THREADED
FC	FACE OF CURB	PC	POINT OF CURVATURE	TRM	TURF REINFORCEMENT MAT
FO	FIBER OPTIC	PE	PLAIN END	TYP	TYPICAL
FH	FIRE HYDRANT	PI	POINT OF INTERSECTION	UG	UNDERGROUND
FL	FLOWLINE	PT	POINT OF TANGENCY	UN	UNLESS NOTED
FND	FOUND	PVC	POLYVINYL CHLORIDE PIPE	UNK	UNKNOWN
GA	GAUGE	PSI	POUNDS PER SQUARE INCH	VERT	VERTICAL
GI	GALVANIZED IRON	PP	POWER POLE	VPI	VERTICAL POINT OF INFLECTION
GPS	GLOBAL POSITION STATION	PVI	POINT OF VERTICAL INTERSECTION	VPC	VERTICAL POINT OF CURVATURE
GRND	GROUND	PCCP	PRESTRESSED CONCRETE CYLINDER PIPE	VPT	VERTICAL POINT OF TANGENCY
HORZ	HORIZONTAL	PL	PROPERTY LINE	WDP	WATER DELIVERY PIPELINE
HMAC	HOT MIX ASPHALTIC CONCRETE	R	RADIUS	WWF	WELDED WIRE FABRIC
				TS	TEST STATION

LEGEND (EXISTING ITEMS)



LEGEND (PROPOSED ITEMS)



App. DTB
Revisions
ADDENDUM NO. 2
Date 3/23/2012
No. A

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
Job No. SWB11121

DAVID T. BENNETT
101935
REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF TEXAS

Date: 3/23/2012
Designed by: DTB
Drawn by: DDH
Checked by: GEG/JAB
Scale: N.T.S.

FRESE AND NICHOLS
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SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 10-8607
REGIONAL CARRIZO PROGRAM:
WATER DELIVERY PIPELINE PROJECT
TABLE OF CONTENTS AND
DRAWING LEGEND

ACAD Rev 18.1s (LMS Tech) User: DDH [SWB11121]SASRV2.FREESE.COM] Date: Mar 23, 2012 - 12:28pm File: N:\Standard\WR-SAWS-GN-LEGEND.dwg

**ROADWAY AND RIGHT-OF-WAY (ROW)
CONSTRUCTION NOTES:**

- ALL WORK IN THE CITY/COUNTY ROW SHALL PROCEED DURING WORKING HOURS AGREED UPON BY CITY/COUNTY INSPECTORS. NORMAL WORKING HOURS ARE 8:00 AM TO 5:00 PM. IF WORK WILL BE CONDUCTED OUTSIDE OF NORMAL WORKING HOURS, A REQUEST MUST BE SUBMITTED IN WRITING AT LEAST THREE (3) DAYS IN ADVANCE AND AUTHORIZED BY THE CITY ROW MANAGEMENT DEPARTMENT.
- CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC ON ALL CITY AND COUNTY ROADS AT ALL TIMES, AND CONSTRUCT A TEMPORARY BYPASS IF NECESSARY.
- ALL LANES OF TRAFFIC MUST BE OPEN TO THE PUBLIC BY THE END OF THE DAY. ALL SIGNS AND BARRICADES MUST BE REMOVED, COVERED OR TURNED DOWN WHEN NOT IN USE.
- CONTRACTOR SHALL PROVIDE APPROPRIATE SIGNAGE, BARRICADES, FLAGMEN, ETC. REQUIRED TO MAINTAIN SAFE TRAFFIC FLOW AT ALL TIMES. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH TXDOT'S MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO SAWS AND THE ROW OWNER FOR THE ROADWAY FOR APPROVAL NO LESS THAN 14 DAYS IN ADVANCE OF THE PROPOSED ROADWAY CLOSURE. ANY COMMENTS RECEIVED ON THE PLAN BY SAWS OR ROW OWNER SHALL BE INCORPORATED INTO THE PLAN. THE PLAN SHALL BE PREPARED SPECIFICALLY FOR THIS PROJECT AND SHALL BE SEALED AND SIGNED BY AN ENGINEER LICENSED IN THE STATE OF TEXAS. NO SEPARATE PAY ITEM.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN FOR EACH STREET CROSSING REQUIRING A LANE OR SHOULDER CLOSURE. PROPER TRAFFIC CONTROL SHALL ALSO BE REQUIRED FOR WORK WITHIN 30 FEET OF THE TRAVELWAY. PROVIDE PROPER SIGNAGE AT LOCATIONS DESIGNATED FOR CONSTRUCTION ENTRANCES AND EXITS. CONTRACTOR SHALL INSTALL STABILIZATION TO PREVENT THE TRACKING OF MATERIALS ONTO CITY STREETS. ONLY DESIGNATED AREAS MAY BE UTILIZED FOR INGRESS AND EGRESS.
- EQUIPMENT, SPOILS, AND MATERIALS SHALL NOT BE STORED IN THE ROW.
- UNFINISHED TRENCH WORK, INCLUDING BORE PITS, MUST BE TEMPORARILY BACKFILLED AND/OR SECURED WITH METAL PLATES. WHERE THIS IS NOT FEASIBLE DUE TO THE SIZE OF THE PIT, A 6-FT HIGH CHAIN-LINK FENCE SHALL BE ERECTED AROUND THE BORE PITS TO PROTECT THE TRAVELING PUBLIC FROM ENTRY. THIS FENCE SHALL BE RIGID AND BARRICADED. AT NO TIME SHALL THE BORE PITS BE ACCESSIBLE TO THE PUBLIC. NO TRENCH SHALL REMAIN OPEN OVERNIGHT. NO SEPARATE PAY ITEM.
- NO MORE THAN 400 LINEAR FEET OF OPEN EXCAVATION WITHIN THE ROW IS ALLOWED AT ONE TIME UNLESS PRIOR APPROVAL IS GRANTED BY THE CITY ROW MANAGEMENT DEPARTMENT.
- TRENCH AND PAVEMENT RESTORATION WITHIN THE CITY OF SAN ANTONIO MUST BE PERFORMED IN ACCORDANCE WITH THE RIGHT-OF-WAY ORDINANCE AND THE UTILITY EXCAVATION CRITERIA MANUAL (UECM).
- WITHIN THE CITY OF SAN ANTONIO, TRAFFIC OPERATIONS (210-207-7765) MUST BE NOTIFIED IF CONSTRUCTION IS WITHIN FIVE HUNDRED (500) FEET OF ANY SIGNALIZATION.

1

BID QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
BASE BID ITEMS			
1	36" CLASS 150 WATER TRANSMISSION MAIN	LF	34,965
2	36" CLASS 200 WATER TRANSMISSION MAIN	LF	25,607
3	54" STEEL CASING BY BORE	LF	3,491
4	54" STEEL CASING BY OPEN CUT	LF	555
5	TRENCH EXCAVATION SAFETY PROTECTION	LF	57,081
6	36" BUTTERFLY VALVE	EA	12
7	6" AIR VALVE ASSEMBLY	EA	2
8	4" AIR VALVE ASSEMBLY	EA	14
9	DRAIN STRUCTURE	EA	17
10	30" MANWAY	EA	22
11	36" TEMPORARY BLOW OFF ASSEMBLY	EA	3
12	36" PIPELINE CLOSURE ASSEMBLY	EA	3
13	INTERNAL TEST BULKHEAD	EA	6
14	WATER TRANSMISSION MAIN DISINFECTION	EA	7
15	HYDROSTATIC TESTING	EA	7
16	AC RECTIFIER/ANODE STATION	EA	2
17	CATHODIC PROTECTION TEST STATION	EA	92
18	36" MONOLITHIC INSULATING JOINT	EA	3
19	PAVEMENT REPLACEMENT (GRAVEL)	LF	89
20	PAVEMENT REPLACEMENT (ASPHALT)	LF	353
21	PAVEMENT REPLACEMENT (CONCRETE)	LF	50
22	REMOVE & REPLACE CONCRETE CURB	LF	33
23	REMOVE & REPLACE EXISTING CONCRETE DROP STRUCTURE	LF	161
24	REMOVE & REPLACE EXISTING ROCK FILTER DAM	LF	20
25	REMOVE & REPLACE EXISTING CONCRETE DRAINAGE FLUME	LF	12
26	REMOVE & REPLACE EXISTING CONCRETE CHANNEL RIPRAP	LF	10
27	ROCK RIPRAP CREEK CROSSING	LF	179
28	CONCRETE CABLE MAT	LF	472
29	TURF REINFORCEMENT MAT	SY	4,987
30	SOIL RETENTION BLANKET	SY	213,854
31	FLOWABLE FILL ENCASEMENT	LF	1,528
32	TRENCH DAM	EA	15
33	REMOVE & REPLACE EXISTING FENCE	LF	1,250
34	INSTALL GATE	EA	15
35	PIPELINE MARKERS	EA	38
36	REVEGETATION	AC	94
37	TREE PROTECTION	LS	1
38	EROSION AND SEDIMENTATION CONTROLS (SWPPP)	LS	1
39	TRAFFIC CONTROL	LS	1
40	BID ALLOWANCE FOR OWNER DIRECTED PROPERTY REPAIRS	LS	1
MOBILIZATION AND PREPARATION OF R.O.W.			
100	MOBILIZATION	LS	1
101	PREPARATION OF RIGHT-OF-WAY	LS	1

PROJECT CONTROL AND BENCHMARKS						
POINT	NORTHING	EASTING	STATION	OFFSET	ELEVATION	DESCRIPTION
50	13756821.01	2202423.59	1+90.89	56.79	706.84	RCP-50
51	13757294.17	2200879.29	18+40.66	58.30	707.55	RCP-51
52	13756634.14	2199530.68	33+88.11	53.09	714.75	RCP-52
53	13756511.34	2198007.65	50+21.31	60.96	715.58	RCP-53
54	13756890.22	2196492.03	66+01.28	73.64	723.89	RCP-54
55	13758271.99	2195956.43	81+26.88	24.13	720.60	RCP-55
56	13759719.24	2195518.87	97+01.47	50.86	732.23	RCP-56
57	13761141.87	2195102.23	111+71.12	143.15	733.10	RCP-57
58	13762171.88	2193932.31	127+68.54	22.60	736.86	RCP-58
59	13763425.39	2193116.17	142+65.05	50.92	747.65	RCP-59
60	13765140.81	2192919.12	161+61.86	32.42	757.13	RCP-60
61	13766048.06	2191725.55	180+14.21	23.17	760.56	RCP-61
62	13767225.71	2190796.57	196+98.67	21.04	767.46	RCP-62
63	13768211.69	2190262.08	208+21.44	30.11	772.29	RCP-63
64	13767486.61	2188952.19	226+36.66	12.92	754.29	RCP-64
65	13766611.43	2187533.58	243+12.20	27.60	744.23	RCP-65
66	13765927.06	2186199.27	260+00.98	45.58	769.61	RCP-66
67	13765102.35	2184945.34	275+00.03	22.02	766.00	RCP-67
68	13764337.89	2183654.69	290+00.21	27.06	765.90	RCP-68
69	13764085.26	2182911.96	298+79.23	20.03	768.36	RCP-69
70	13763187.36	2181710.35	313+89.80	21.98	780.48	RCP-70
71	13762433.54	2180413.59	328+92.49	21.97	800.56	RCP-71
72	13761704.67	2179098.63	343+95.53	12.06	819.69	RCP-72
73	13761027.00	2177842.09	358+89.75	30.26	817.91	RCP-73
74	13760009.03	2176990.14	374+22.66	22.68	843.55	RCP-74
75	13758576.69	2177094.96	391+73.57	22.06	845.75	RCP-75
76	13757212.27	2176132.31	410+22.98	22.12	882.19	RCP-76
77	13756224.49	2175026.37	425+97.83	15.58	926.58	RCP-77
78	13757176.51	2174031.47	441+18.52	22.02	898.17	RCP-78
79	13756389.84	2172498.67	458+36.04	21.95	892.64	RCP-79
80	13756640.59	2171021.40	479+43.82	32.03	850.26	RCP-80
81	13755623.06	2169919.29	496+65.98	12.15	831.14	RCP-81
82	13754252.53	2169873.47	512+05.98	21.93	821.54	RCP-82
83	13753420.82	2168588.77	527+46.88	22.34	809.46	RCP-83
84	13752658.97	2167295.60	545+48.94	17.02	795.92	RCP-84
85	13752468.35	2166109.73	561+86.07	21.76	788.12	RCP-85
86	13753983.78	2165177.55	580+02.35	44.74	800.57	RCP-86
87	13755528.16	2164840.80	596+51.49	24.99	812.14	RCP-87
88	13755809.73	2164090.13	605+93.79	21.85	816.27	RCP-88

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Revisions: 3/23
ADDENDUM NO. 2
Date: 3/23/2012
No. A

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
101935
DAVID T. BENNETT
PROFESSIONAL ENGINEER
5-25-12

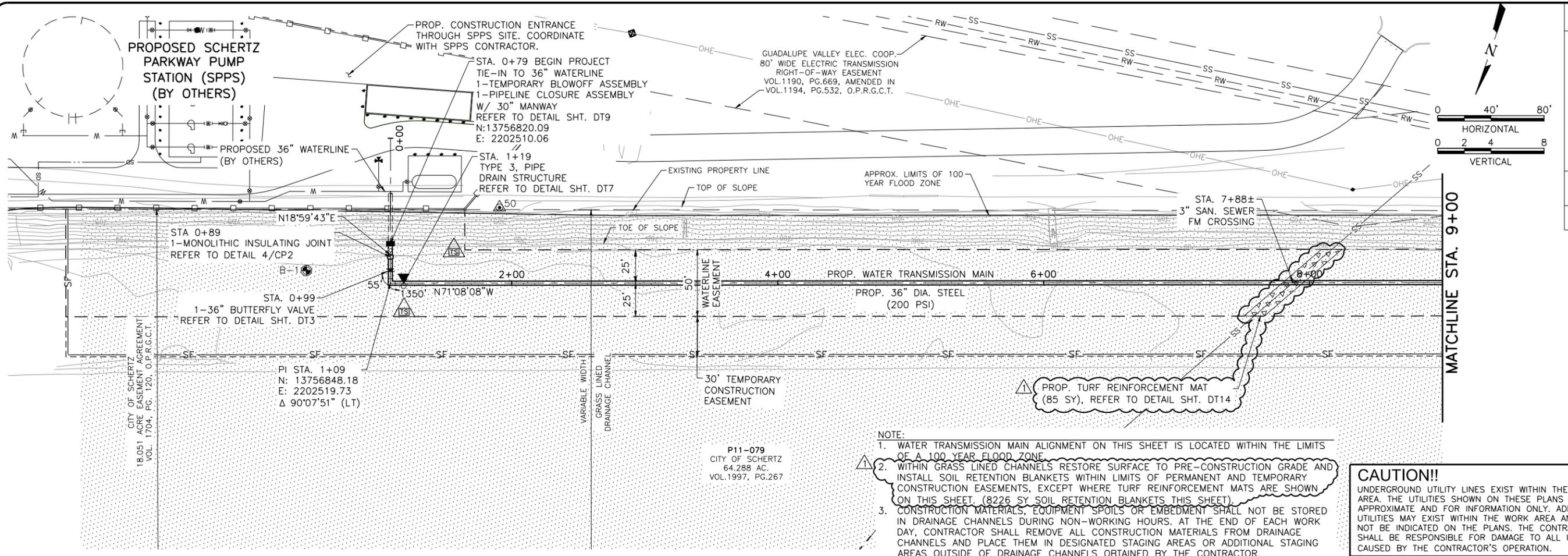
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**SAN ANTONIO
WATER SYSTEM**

SAWS JOB NO. 10-8607
REGIONAL CARRIZO PROGRAM:
WATER DELIVERY PIPELINE PROJECT
GENERAL NOTES, QUANTITIES,
PROJECT CONTROL AND BENCHMARKS

ACAD: Rel 18.1s (LMS Tech) User: DDH [SWB11121] [SASRV2.FREESE.COM]



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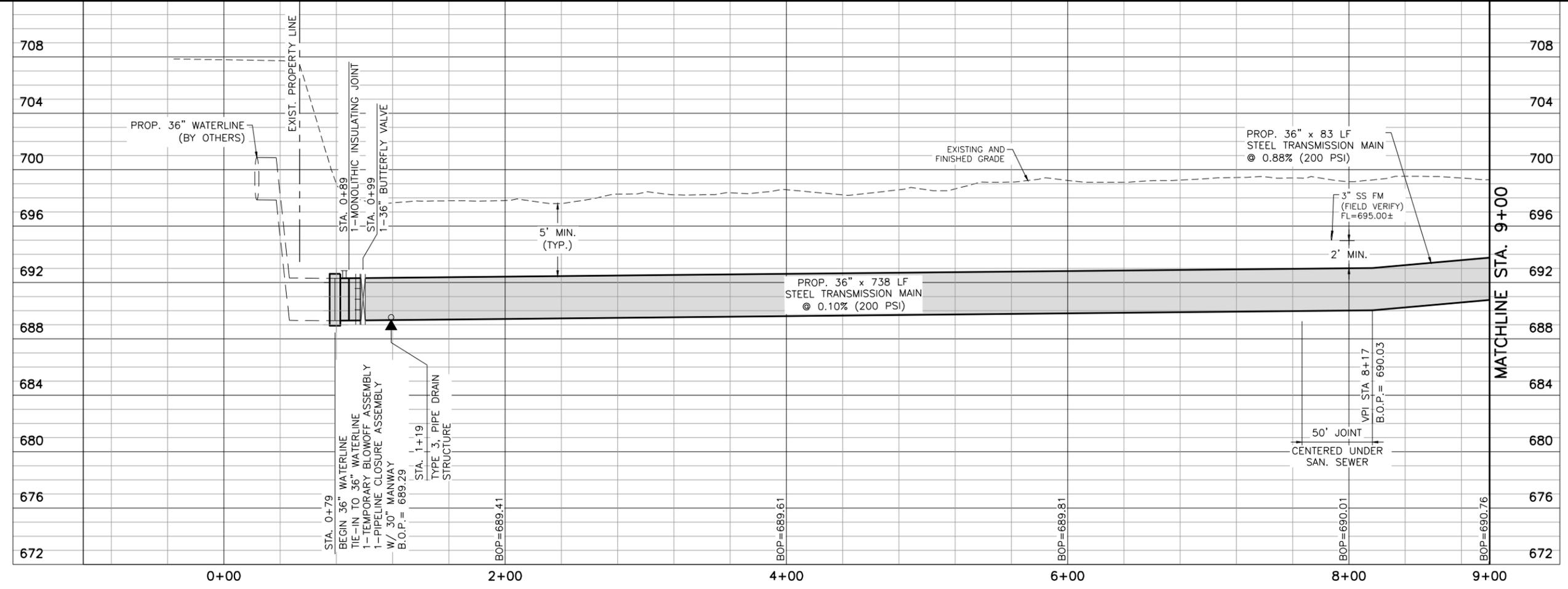
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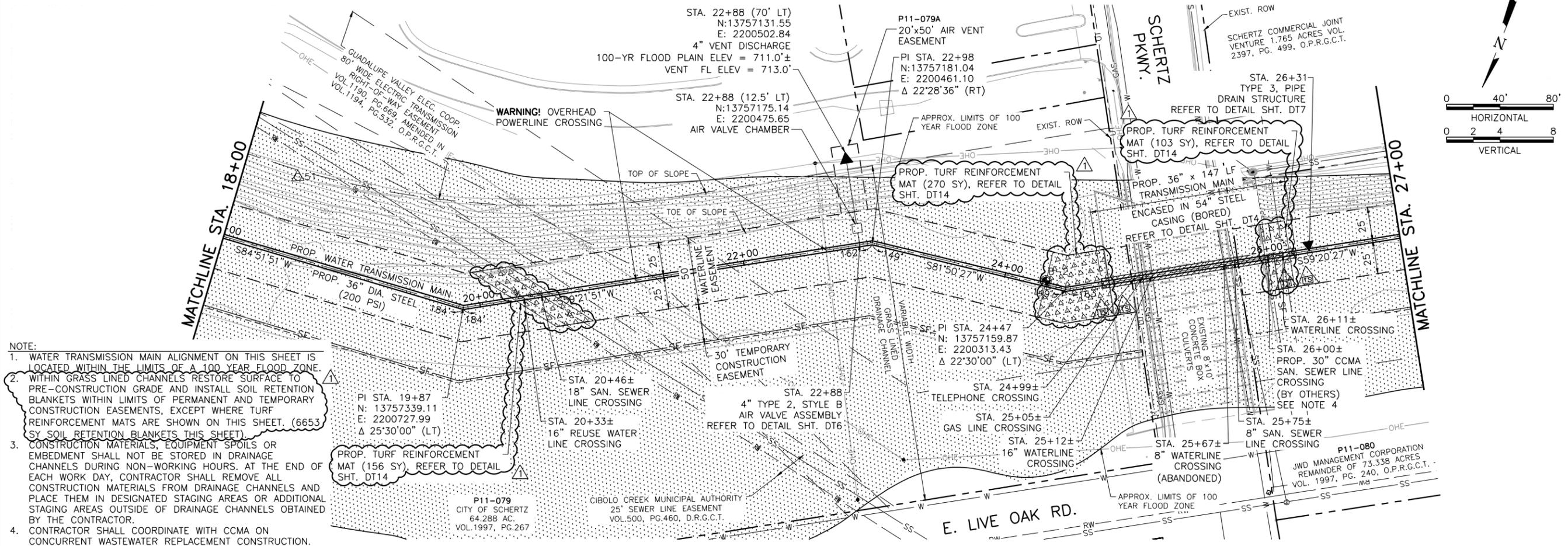
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SAN ANTONIO WATER SYSTEM



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WATER DELIVERY PIPELINE PROJECT
PLAN & PROFILE
STA. 0+00 TO STA. 9+00

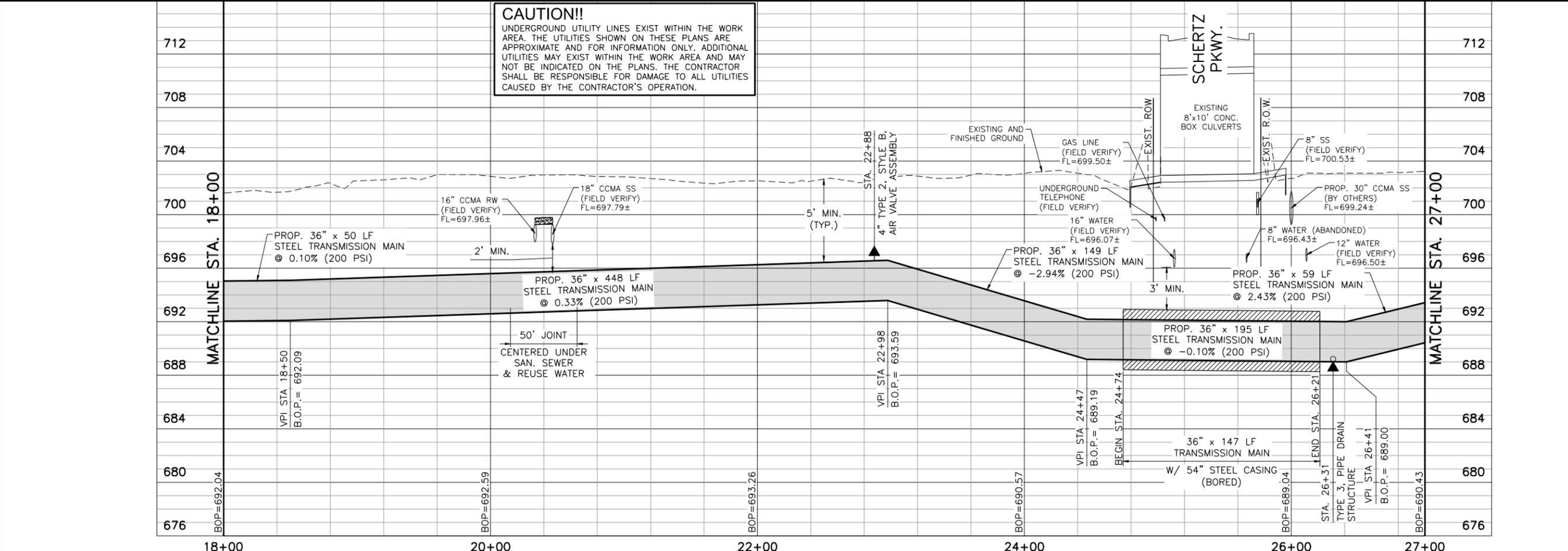
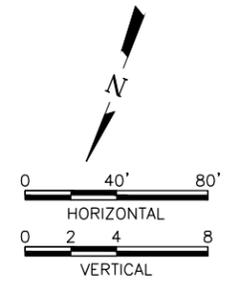


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1. WATER TRANSMISSION MAIN ALIGNMENT ON THIS SHEET IS LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD ZONE.
 2. WITHIN GRASS LINED CHANNELS RESTORE SURFACE TO PRE-CONSTRUCTION GRADE AND INSTALL SOIL RETENTION BLANKETS WITHIN LIMITS OF PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS, EXCEPT WHERE TURF REINFORCEMENT MATS ARE SHOWN ON THIS SHEET. (6653 SY SOIL RETENTION BLANKETS THIS SHEET)
 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENTS SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.
 4. CONTRACTOR SHALL COORDINATE WITH CCMA ON CONCURRENT WASTEWATER REPLACEMENT CONSTRUCTION.

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SWB11121



CAUTION!!
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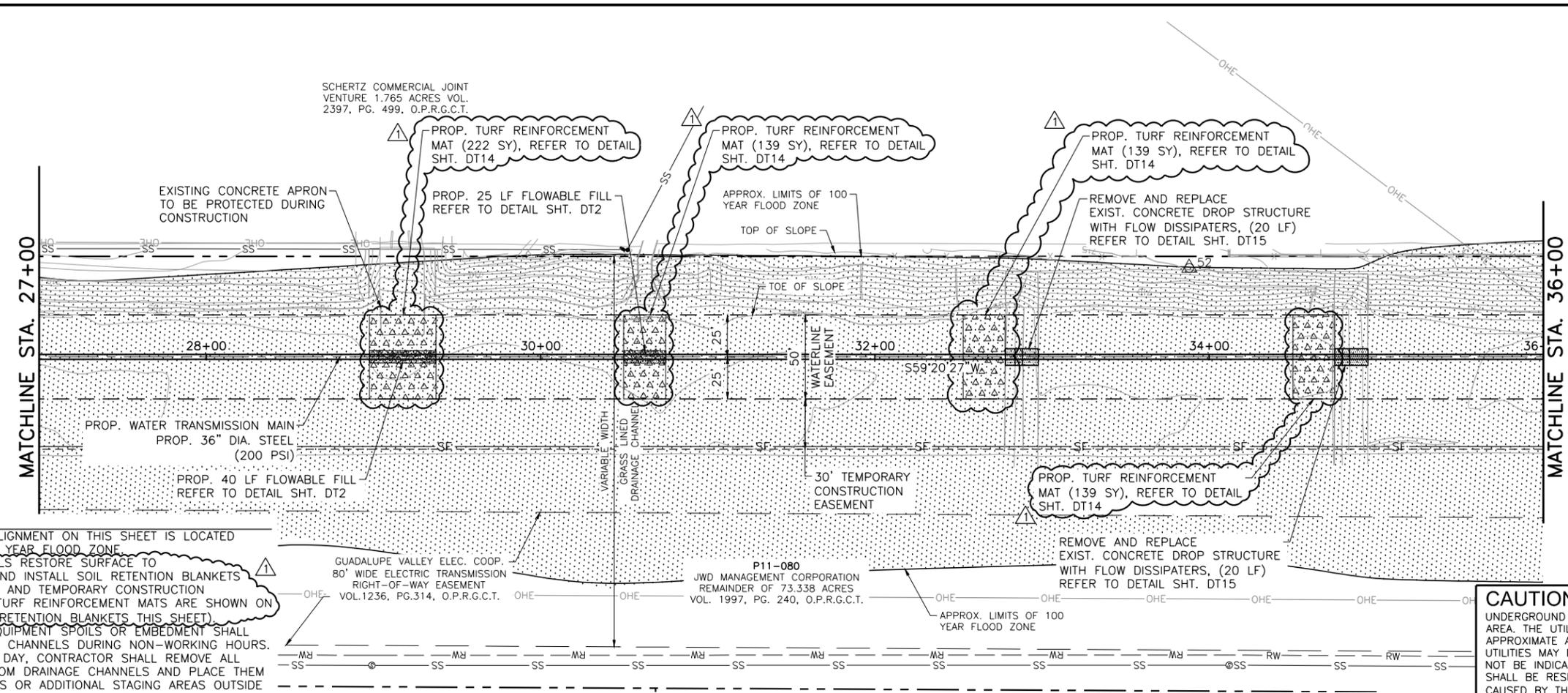
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SAN ANTONIO WATER SYSTEM

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 PLAN & PROFILE
 STA. 18+00 TO STA. 27+00

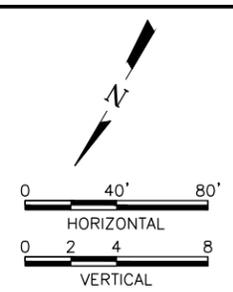
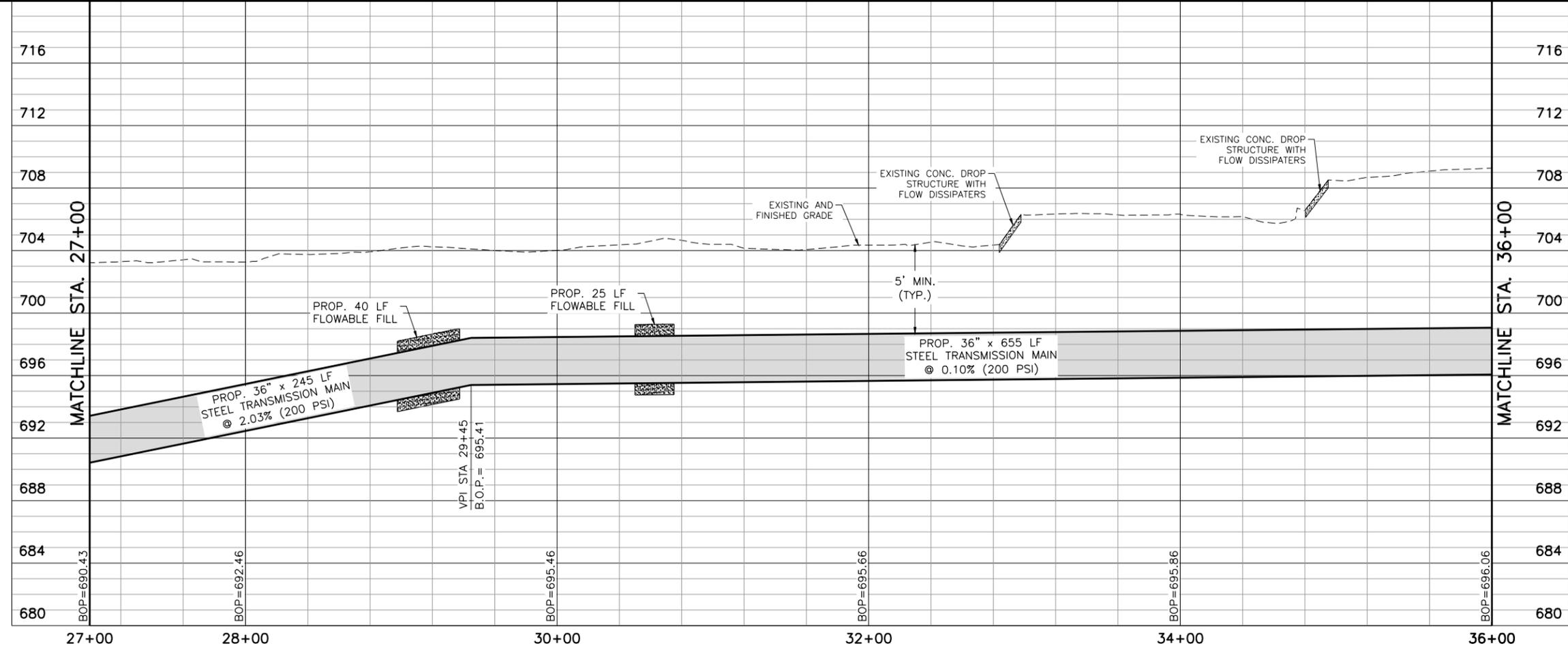
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 No. 1

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 David T. Bennett
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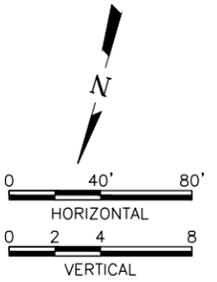
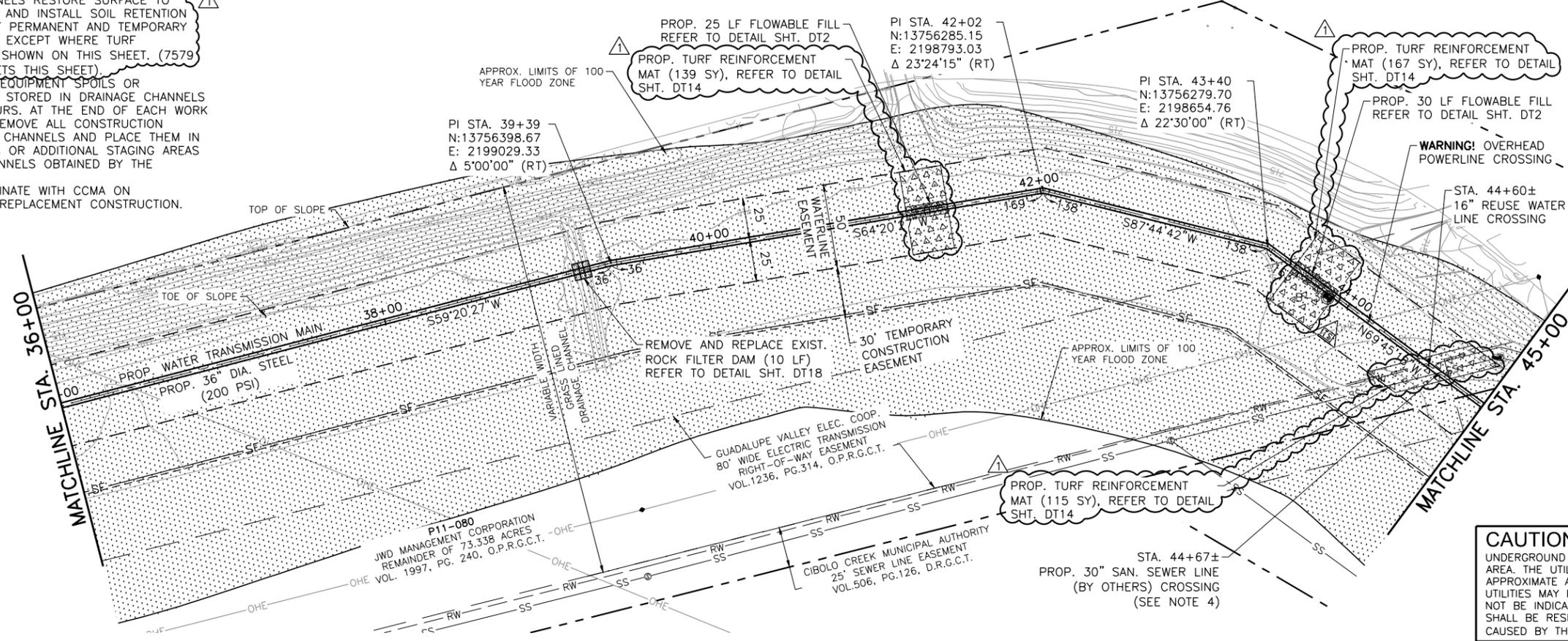
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 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

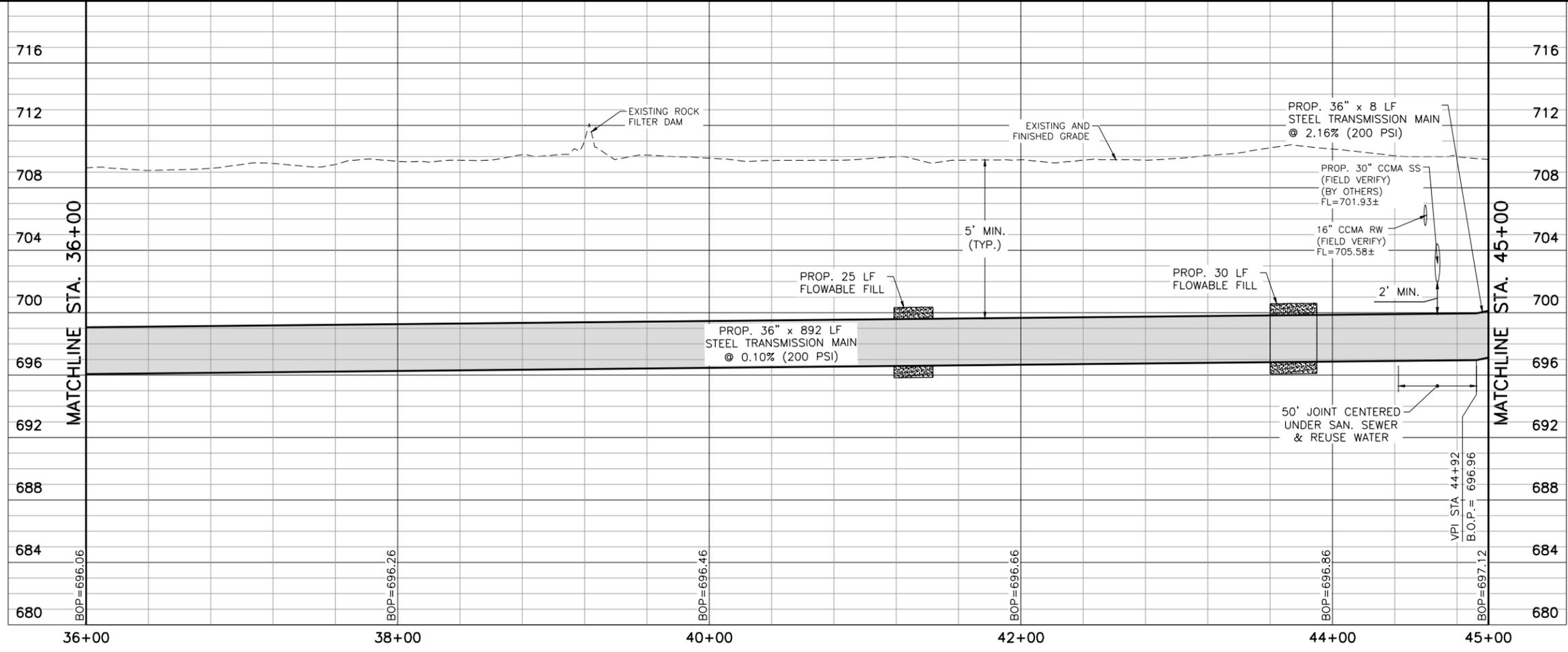
SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 27+00 TO STA. 36+00

- NOTE:
1. WATER TRANSMISSION MAIN ALIGNMENT ON THIS SHEET IS LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD ZONE.
 2. WITHIN GRASS LINED CHANNELS RESTORE SURFACE TO PRE-CONSTRUCTION GRADE AND INSTALL SOIL RETENTION BLANKETS WITHIN LIMITS OF PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS, EXCEPT WHERE TURF REINFORCEMENT MATS ARE SHOWN ON THIS SHEET. (7579 SY SOIL RETENTION BLANKETS THIS SHEET).
 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.
 4. CONTRACTOR SHALL COORDINATE WITH CCMA ON CONCURRENT WASTEWATER REPLACEMENT CONSTRUCTION.



CAUTION!!
 UNDERGROUND UTILITY LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.



App. DTB
 Revisions
 No. 3/23 ADDENDUM NO. 2
 Date
 No. 3/23/2012

Freese And Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 David T. Bennett
 101935
 PROFESSIONAL ENGINEER
 CIVIL

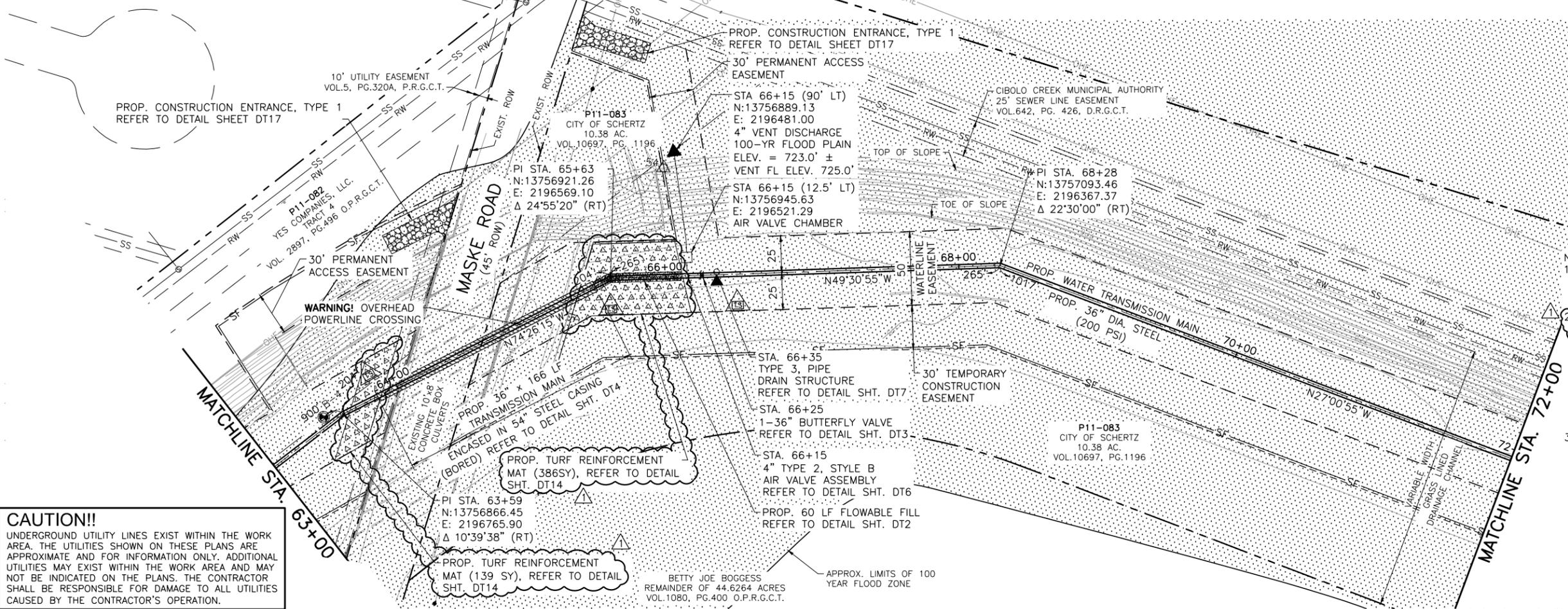
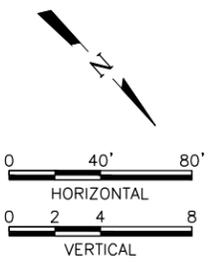
Job No. SWB11121
 5-25-12

Date: 3/23/2012
 Designed by: DTB
 Drawn by: DDH
 Checked by: GEG/AB
 Scale: HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=4'

FREES & NICHOLS
 4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

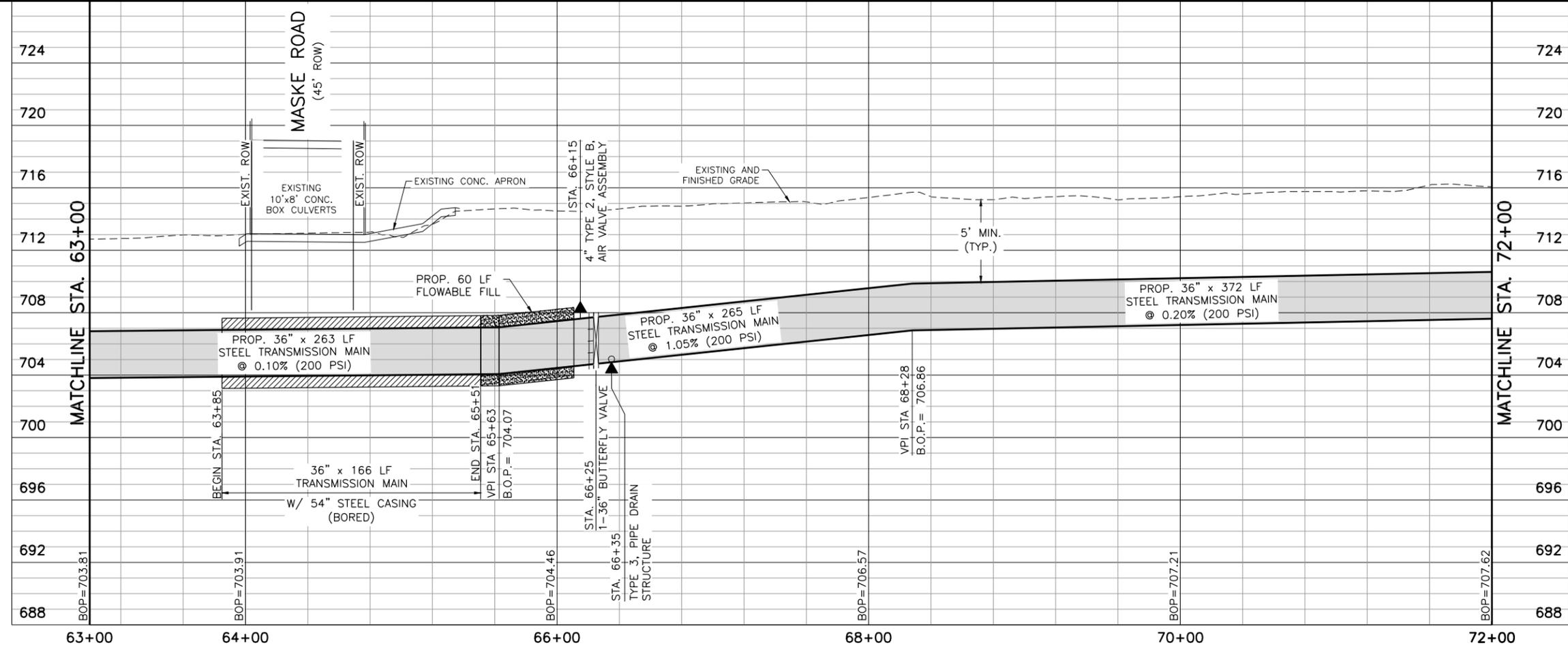
SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 36+00 TO STA. 45+00



- NOTE:
1. WATER TRANSMISSION MAIN ALIGNMENT ON THIS SHEET IS LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD ZONE.
 2. WITHIN GRASS LINED CHANNELS RESTORE SURFACE TO PRE-CONSTRUCTION GRADE AND INSTALL SOIL RETENTION BLANKETS WITHIN LIMITS OF PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS, EXCEPT WHERE TURF REINFORCEMENT MATS ARE SHOWN ON THIS SHEET. (6231 SY SOIL RETENTION BLANKETS THIS SHEET)
 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.

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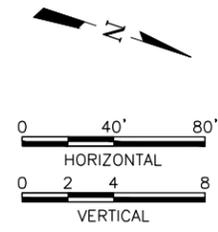
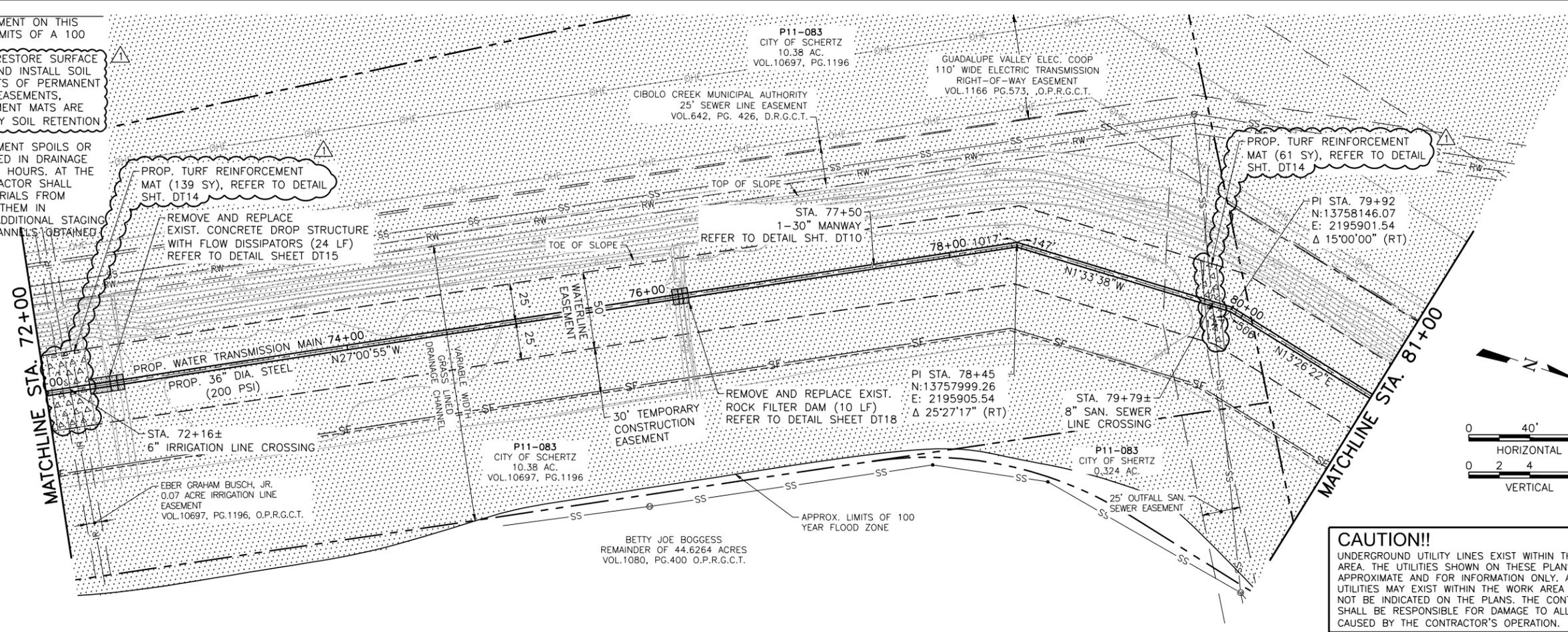
Date: 3/23/2012
 Designed by: DTB
 Drawn by: DDH
 Checked by: GEG/AB
 Scale: HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=4'



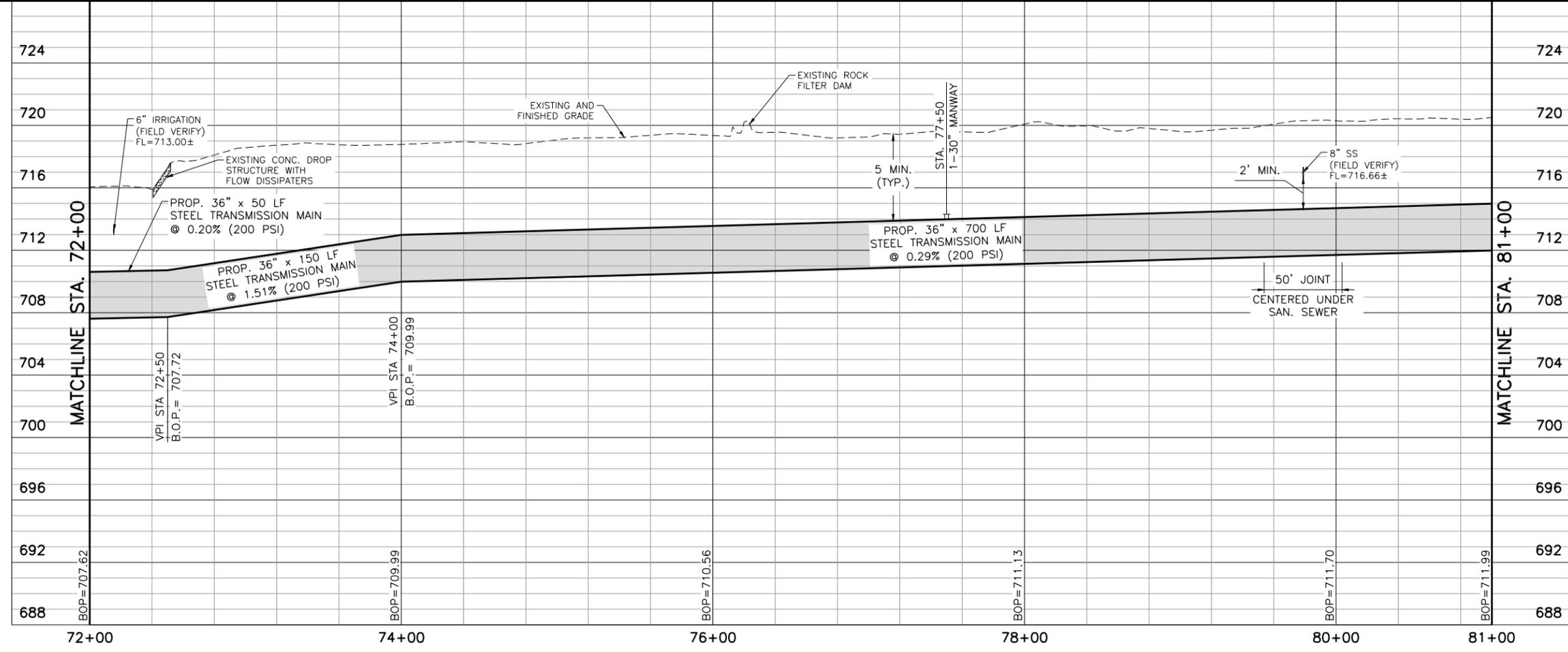
SAN ANTONIO WATER SYSTEM
 SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 63+00 TO STA. 72+00

ACAD: Rel. 18.1s (LMS Tech) User: DDH [SWB11121][SASRV2.FREESE.COM]

- NOTE:
1. WATER TRANSMISSION MAIN ALIGNMENT ON THIS SHEET IS LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD ZONE.
 2. WITHIN GRASS LINED CHANNELS RESTORE SURFACE TO PRE-CONSTRUCTION GRADE AND INSTALL SOIL RETENTION BLANKETS WITHIN LIMITS OF PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS, EXCEPT WHERE TURF REINFORCEMENT MATS ARE SHOWN ON THIS SHEET. (7800 SY SOIL RETENTION BLANKETS THIS SHEET).
 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.



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App: DTB
 Revisions: ADDENDUM NO. 2
 Date: 3/23
 No. 3/23

Freese and Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 David T. Bennett
 101935
 5-25-12

Freese And Nichols, Inc.
 Job No. SWB11121

Date: 3/23/2012
 Designed by: DDH
 Drawn by: DDH
 Checked by: GEG/AB
 Scale: HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=4'

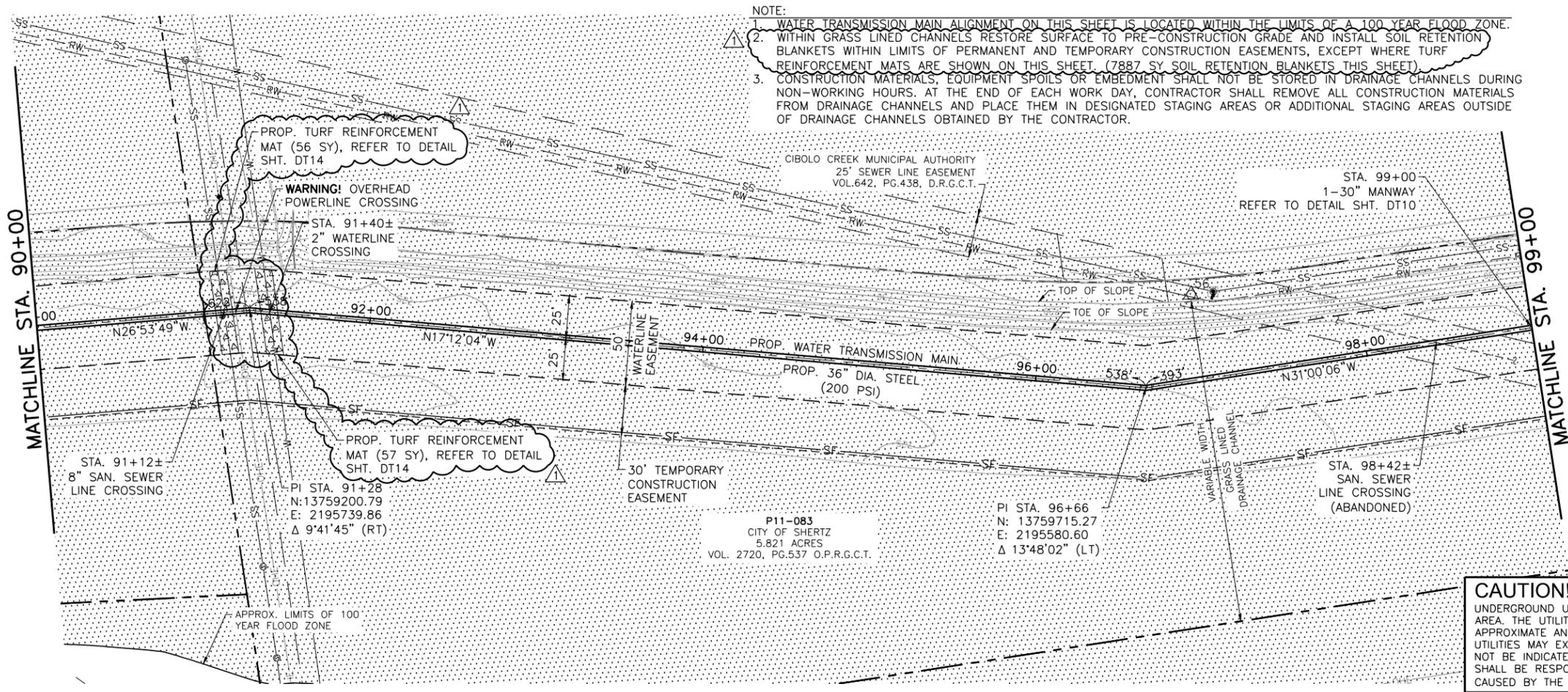
FREES & NICHOLS
 4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

SAN ANTONIO WATER SYSTEM

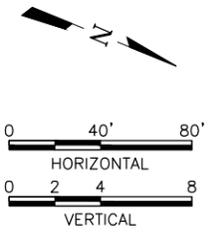
SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 72+00 TO STA. 81+00

Sheet **w9**

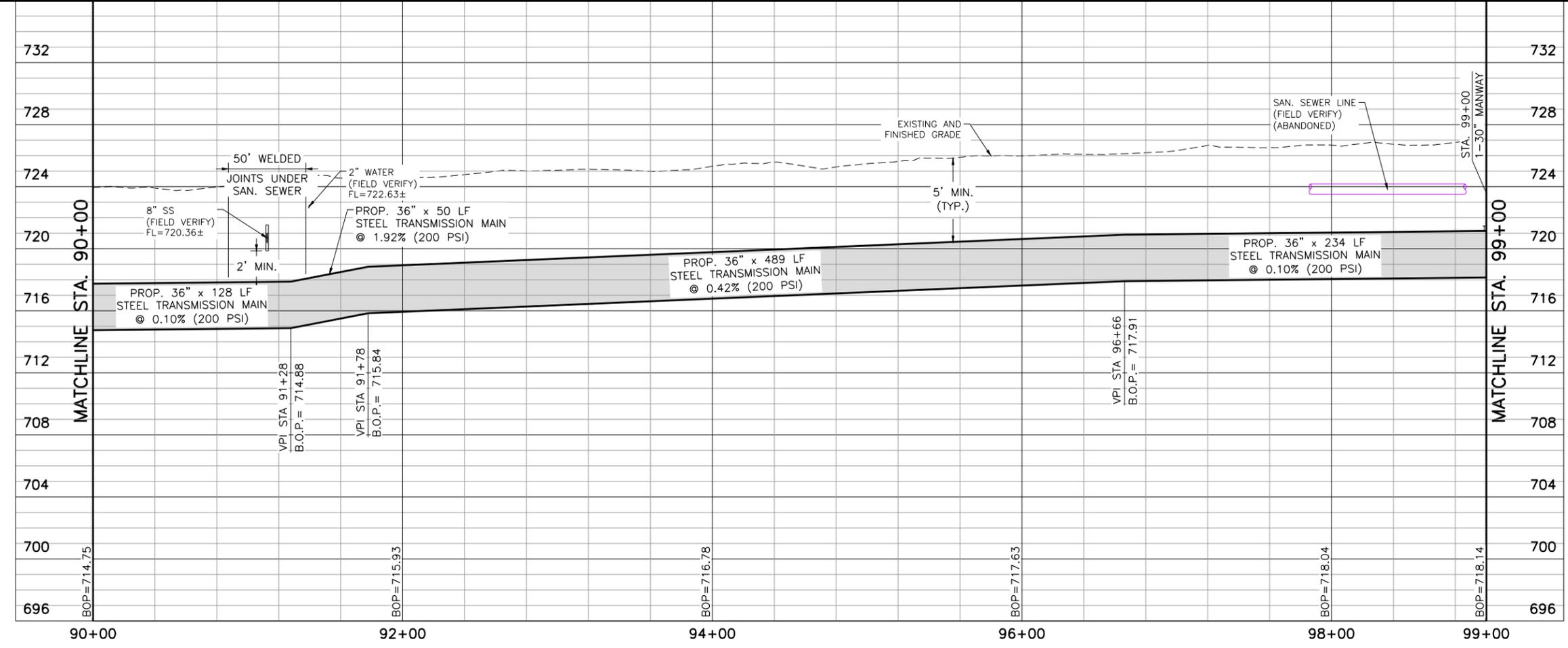
ACAD: Rel 18.1s (LMS Tech) User: DDH [SWB11121] [SASRV2.FREES.COM]



- NOTE:
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 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.



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App: DTB
 Revisions: ADDENDUM NO. 2
 Date: 3/23
 No. 1

Freese and Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 101935
 DAVID T. BENNETT
 PROFESSIONAL ENGINEER
 5-25-12

SWB11121

Date: 3/23/2012
 Designed by: DTB
 Drawn by: DDH
 Checked by: GEG/AB
 Scale: HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=4'

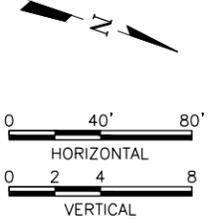
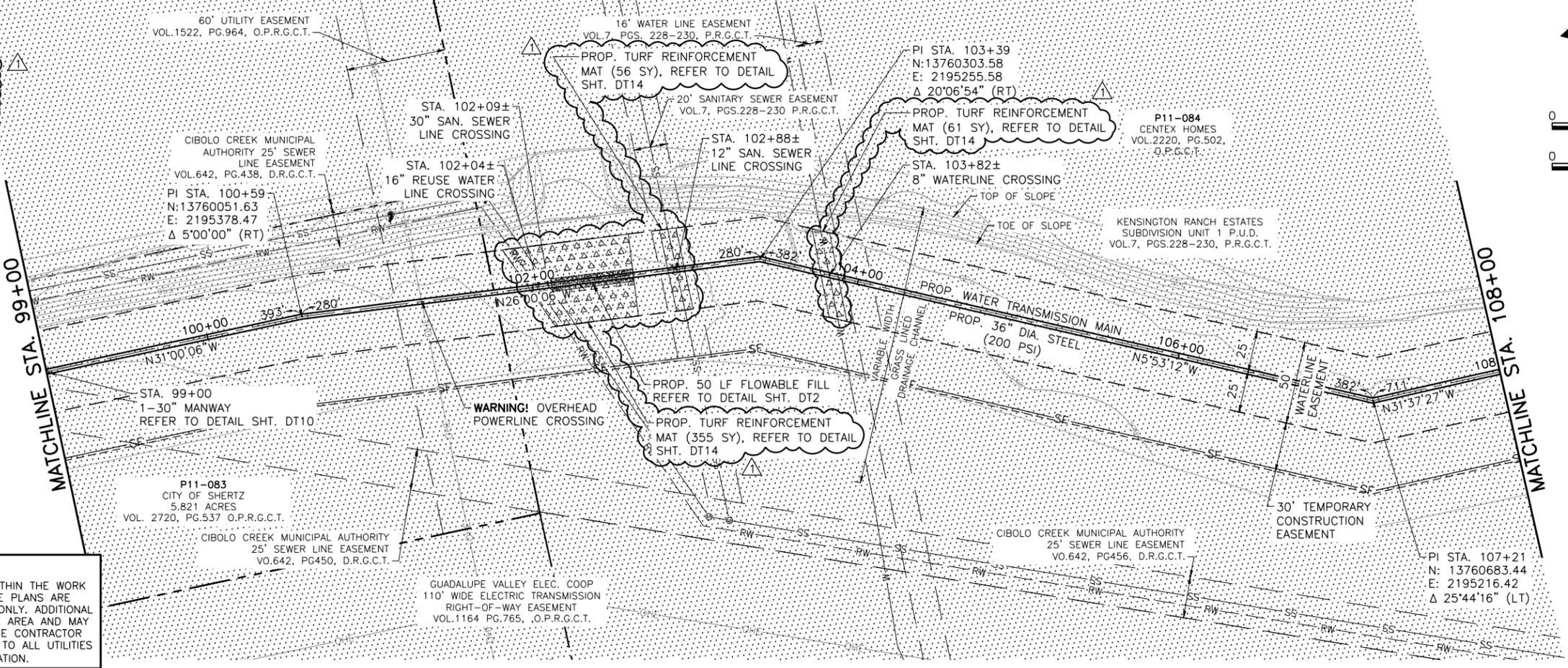
FREESE & NICHOLS
 4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 90+00 TO STA. 99+00

- NOTE:**
1. WATER TRANSMISSION MAIN ALIGNMENT ON THIS SHEET IS LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD ZONE.
 2. WITHIN GRASS LINED CHANNELS RESTORE SURFACE TO PRE-CONSTRUCTION GRADE AND INSTALL SOIL RETENTION BLANKETS WITHIN LIMITS OF PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS, EXCEPT WHERE TURF REINFORCEMENT MATS ARE SHOWN ON THIS SHEET. (7528 SY SOIL RETENTION BLANKETS THIS SHEET).
 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.

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App. DIB
 Revisions: 3/23 ADDENDUM NO. 2
 Date: 3/23
 No. 1

Freese And Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 David T. Bennett
 101935
 5-25-12

SWB11121

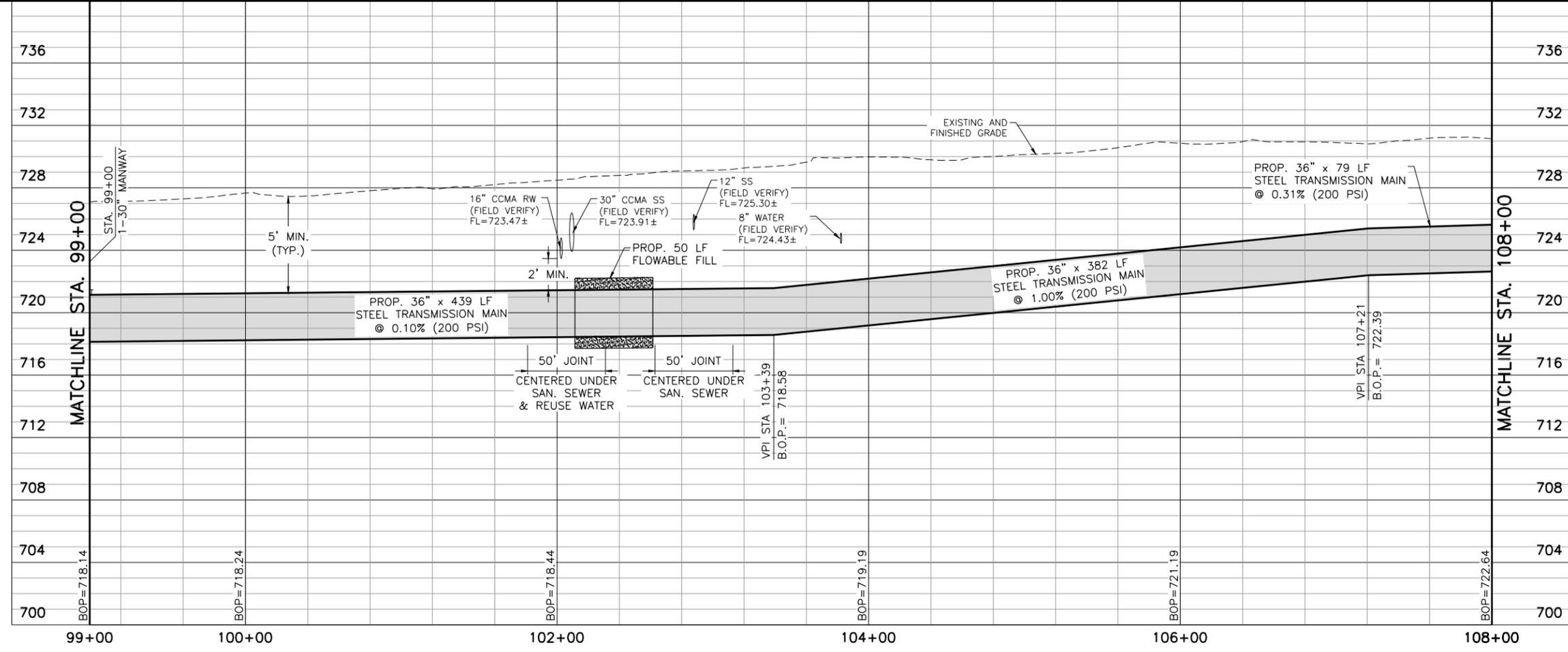
Date: 3/23/2012
 Designed by: DIB
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 VERTICAL SCALE: 1"=4'



SAN ANTONIO WATER SYSTEM

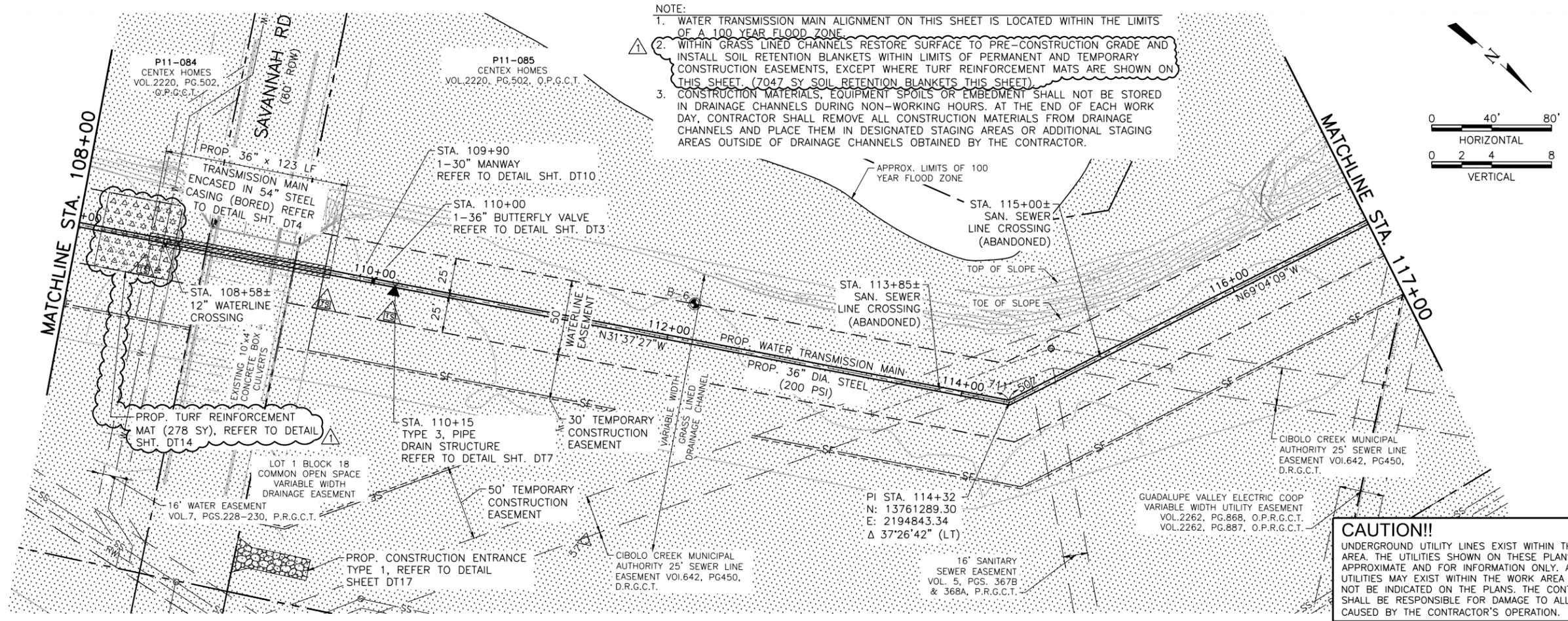
SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 99+00 TO STA. 108+00

Sheet **W12**

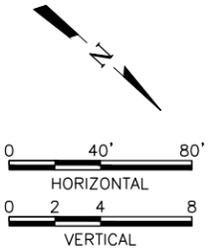


ACAD: Rel 18.1s (LMS Tech) User: DDH [SWB11121][SASRV2.FREESE.COM]

ACAD Ref. 18.1s (LMS Tech) User: DDH [SWB11121][SASRV2.FREESE.COM]



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 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.



App. DTB
 Revisions
 3/23 ADDENDUM NO. 2
 Date
 No. 3/23

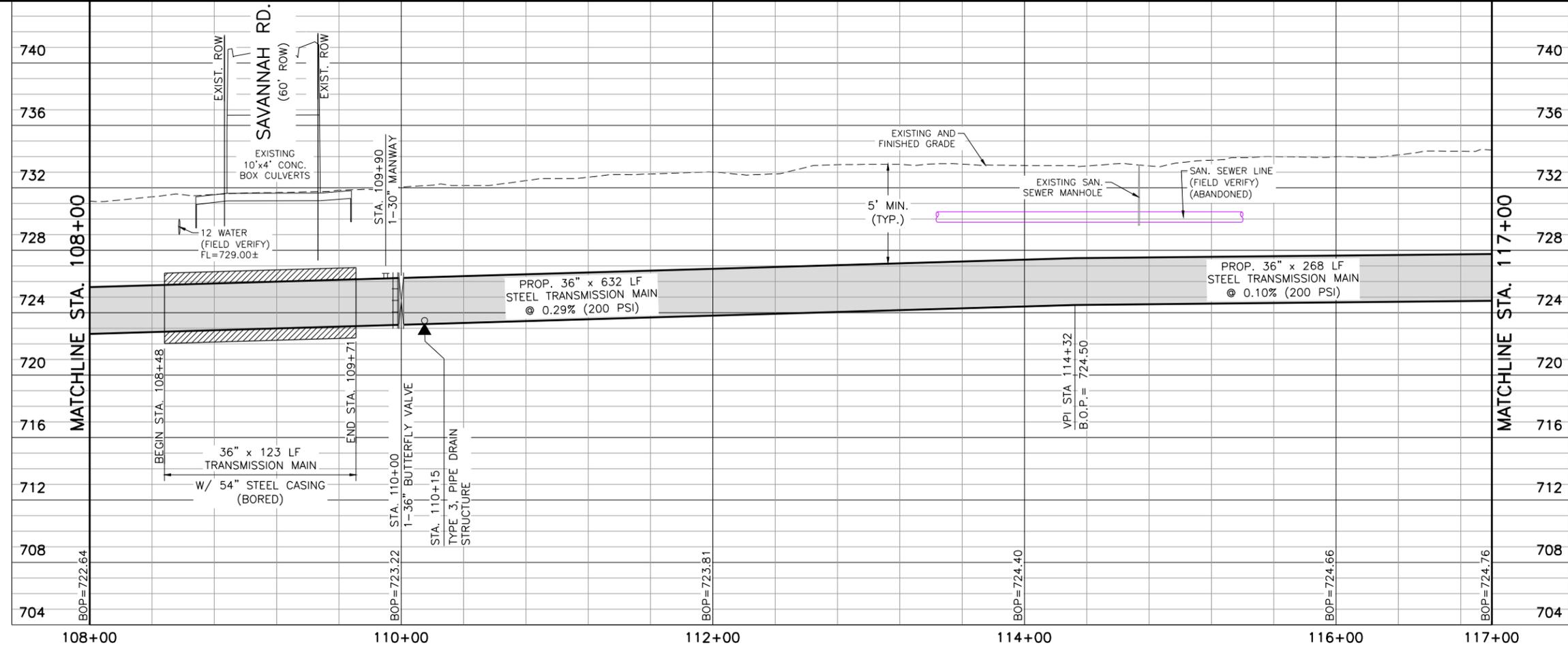
Freese and Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 101935
 DAVID T. BENNETT
 PROFESSIONAL ENGINEER
 5-25-12

SWB11121

Date: 3/23/2012
 Designed by: DDH
 Drawn by: DDH
 Checked by: GEG/JIB
 Scale: HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=8'

4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

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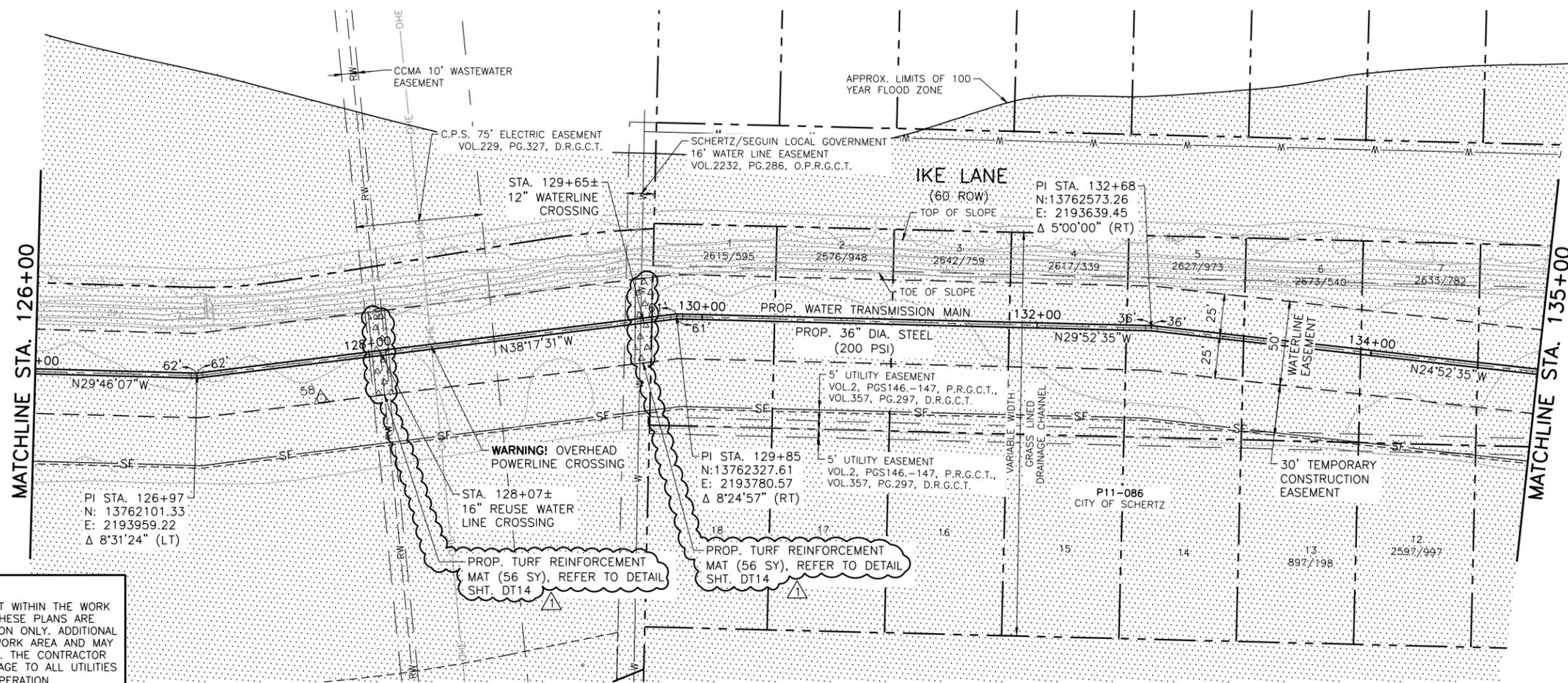


SAN ANTONIO
 WATER SYSTEM

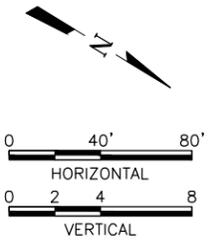
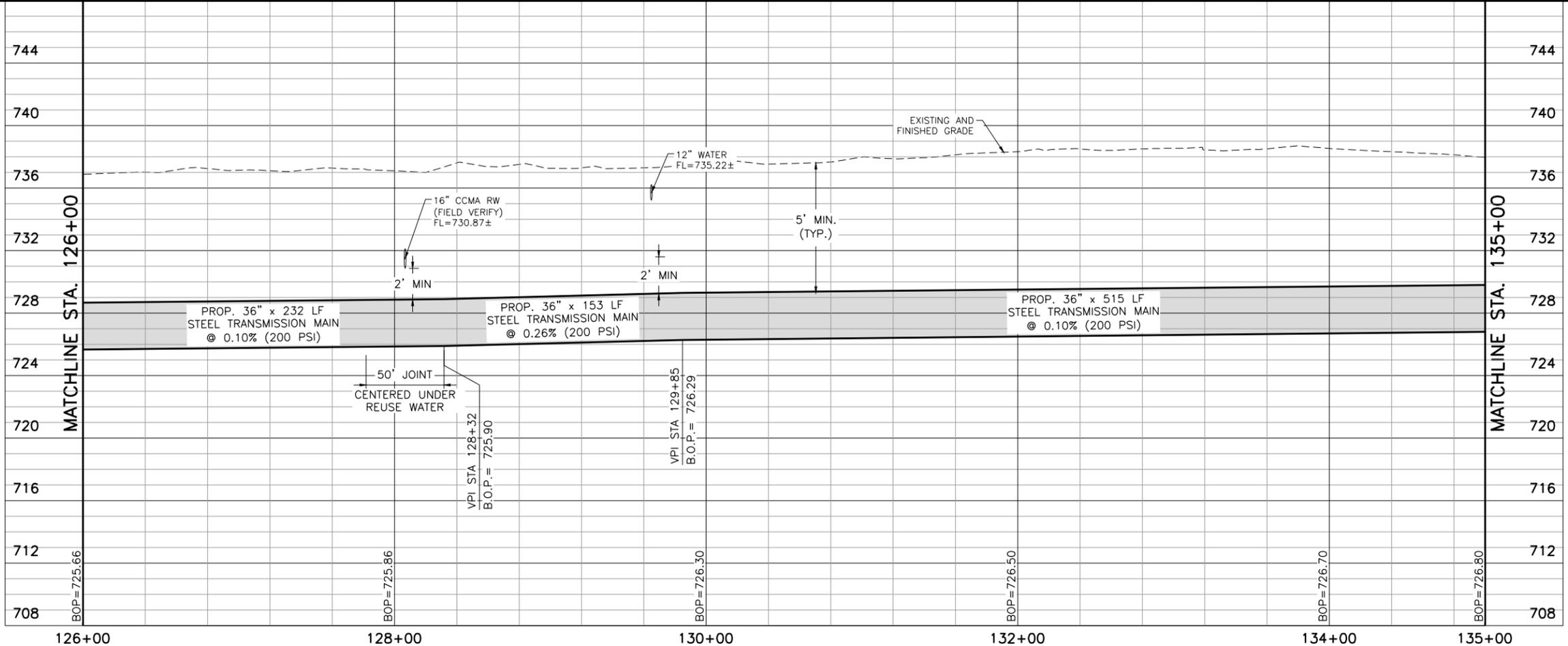
SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 108+00 TO STA. 117+00

Sheet W13

CAUTION!!
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- NOTE:
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 2. WITHIN GRASS LINED CHANNELS RESTORE SURFACE TO PRE-CONSTRUCTION GRADE AND INSTALL SOIL RETENTION BLANKETS WITHIN LIMITS OF PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS, EXCEPT WHERE TURF REINFORCEMENT MATS ARE SHOWN ON THIS SHEET. (7888 SY SOIL RETENTION BLANKETS THIS SHEET)
 3. CONSTRUCTION MATERIALS, EQUIPMENT SPOILS OR EMBEDMENT SHALL NOT BE STORED IN DRAINAGE CHANNELS DURING NON-WORKING HOURS. AT THE END OF EACH WORK DAY, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION MATERIALS FROM DRAINAGE CHANNELS AND PLACE THEM IN DESIGNATED STAGING AREAS OR ADDITIONAL STAGING AREAS OUTSIDE OF DRAINAGE CHANNELS OBTAINED BY THE CONTRACTOR.



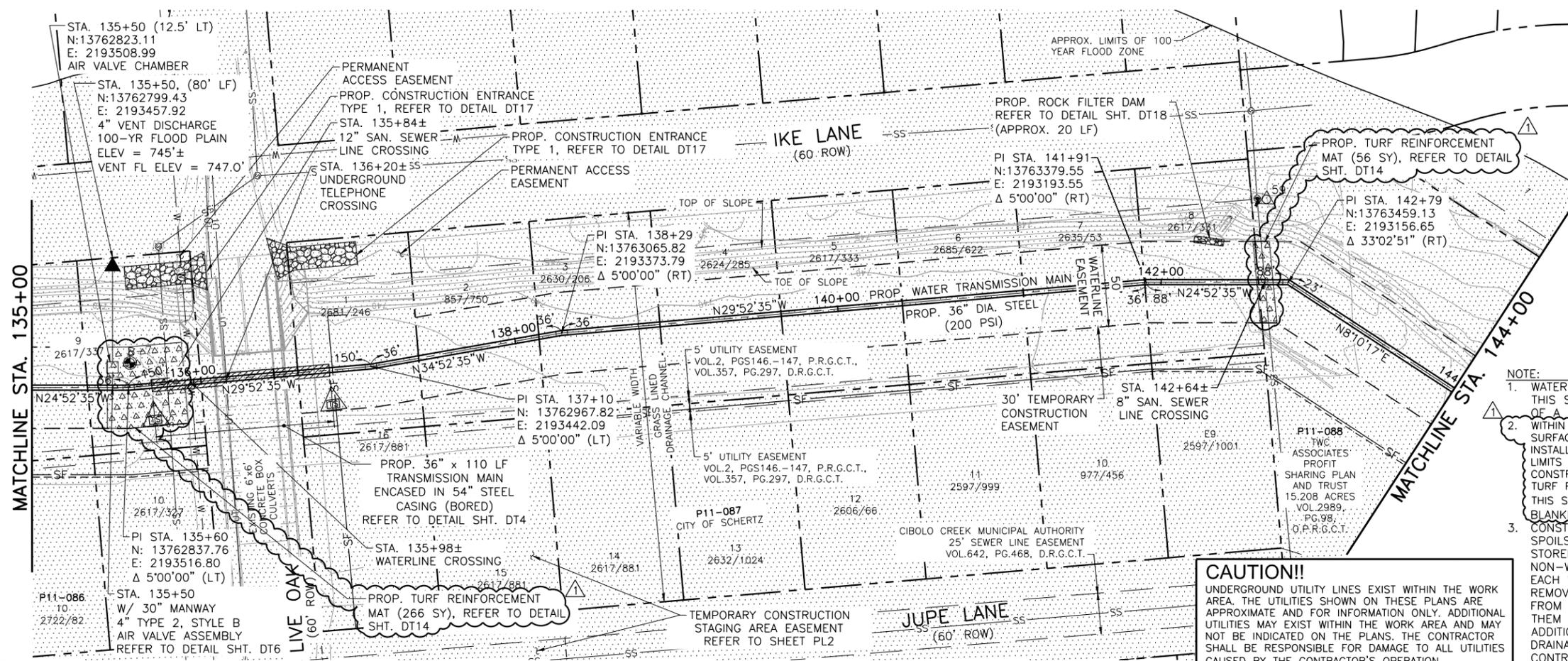
App.	DTB	Freese And Nichols, Inc. Job No.
Revisions	ADDENDUM NO. 2	SWB11121
Date	3/23	Freese and Nichols, Inc. Texas Registered Engineering Firm F-2144
No.	1	DAVID T. BENNETT 101935 PROF. ENGINEER 5-25-12

Date: 3/23/2012
 Designed by: DTB
 Drawn by: DDH
 Checked by: GEG/AB
 Scale: HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=4'

4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

SAN ANTONIO
 WATER SYSTEM

SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 126+00 TO STA. 135+00



App. DIB Freese And Nichols, Inc. Job No. SWB11121

Revisions: ADDENDUM NO. 2

Date: 3/23

No. 1

Designed by: DIB
Drawn by: DDH
Checked by: GEG/AB

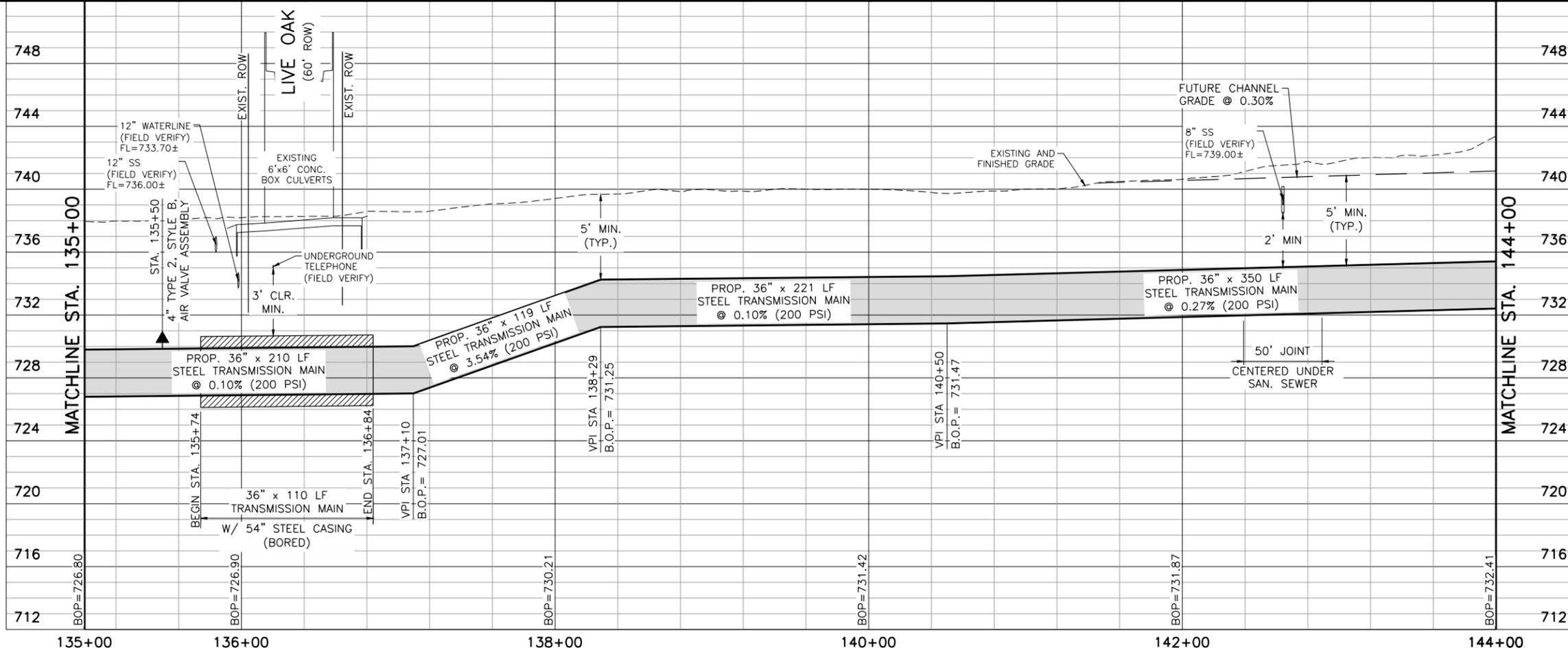
Date: 3/23/2012

Scale: HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

Professional Engineer Seal: DAVID T. BENNETT, No. 101935, State of Texas, Exp. 12/31/12

- NOTE:
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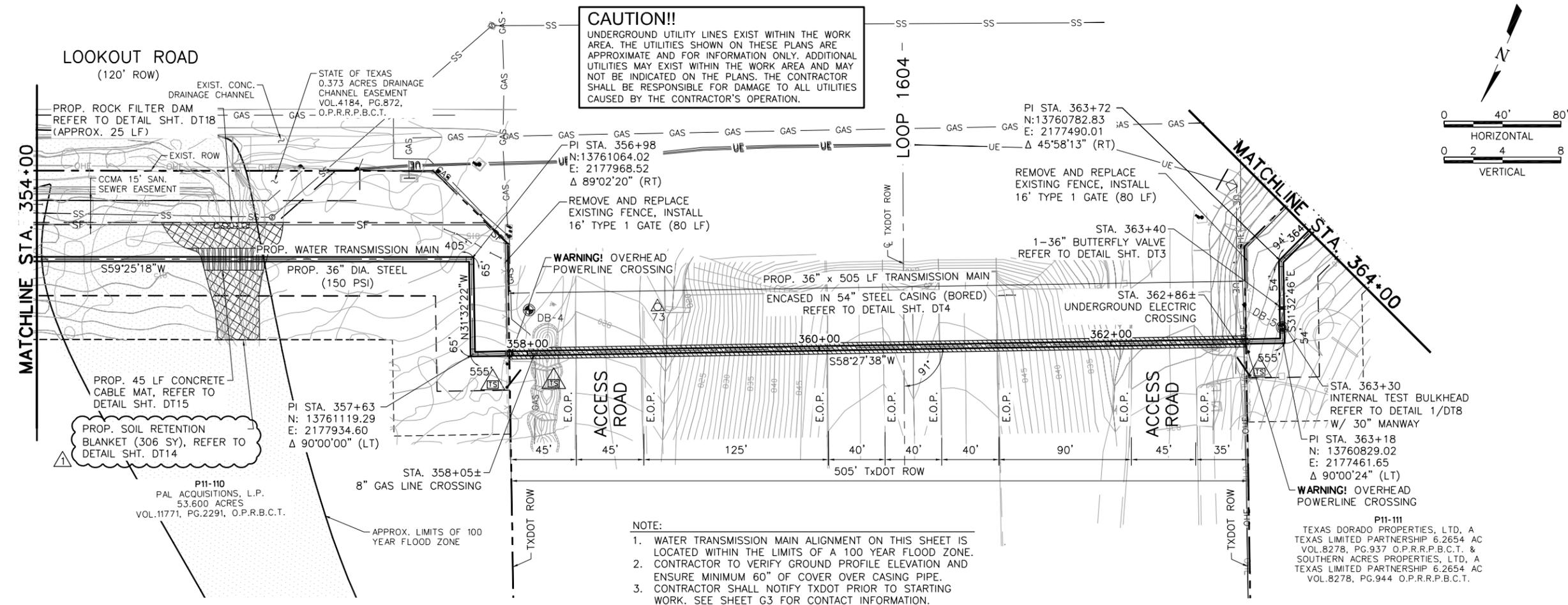
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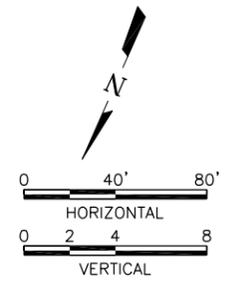
SAWS JOB NO. 10-8607
REGIONAL CARRIZO PROGRAM:
WATER DELIVERY PIPELINE PROJECT
PLAN & PROFILE
STA. 135+00 TO STA. 144+00

SAN ANTONIO WATER SYSTEM

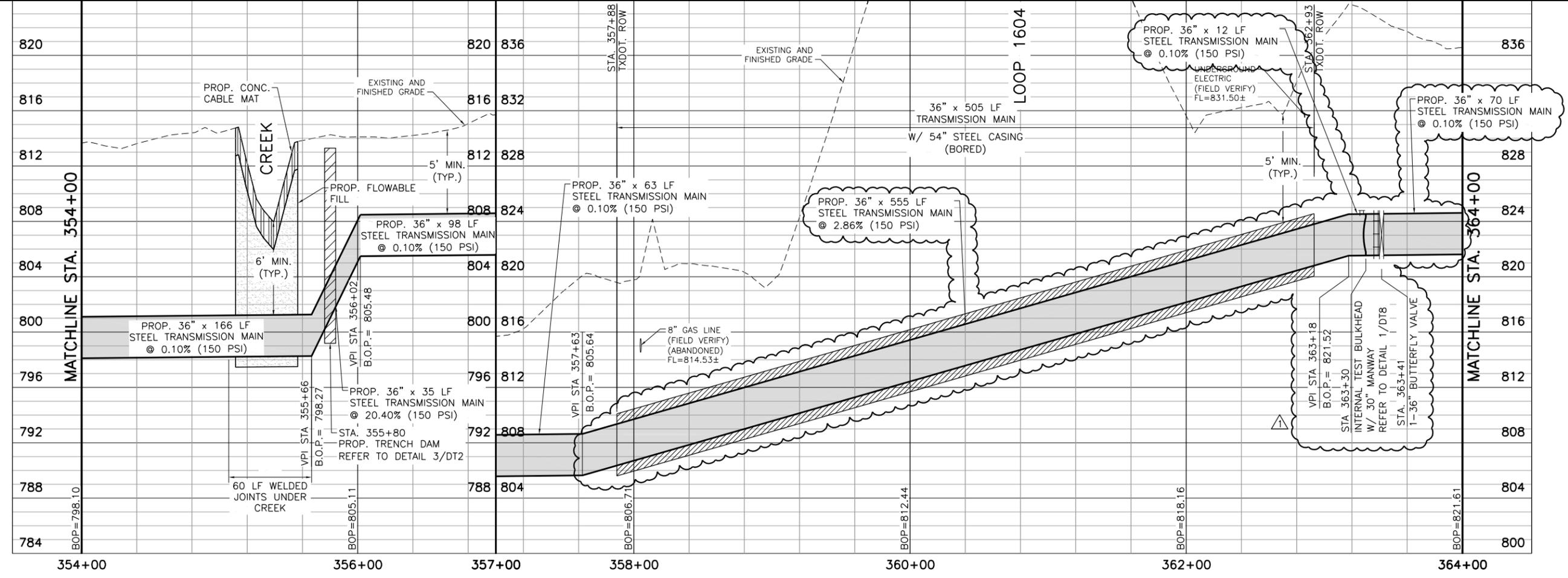
Sheet W16



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- NOTE:**
1. WATER TRANSMISSION MAIN ALIGNMENT ON THIS SHEET IS LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD ZONE.
 2. CONTRACTOR TO VERIFY GROUND PROFILE ELEVATION AND ENSURE MINIMUM 60" OF COVER OVER CASING PIPE.
 3. CONTRACTOR SHALL NOTIFY TXDOT PRIOR TO STARTING WORK. SEE SHEET G3 FOR CONTACT INFORMATION.



App: DTB
 Revisions: 3/23 ADDENDUM NO. 2
 No. Date: 3/23
 Freese and Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 David T. Bennett
 Professional Engineer
 No. 019345
 Exp. 03-31-17
 SWB11121
 Freese And Nichols, Inc.
 Job No.

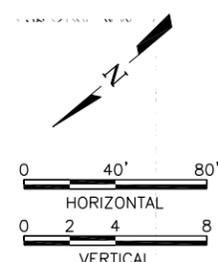
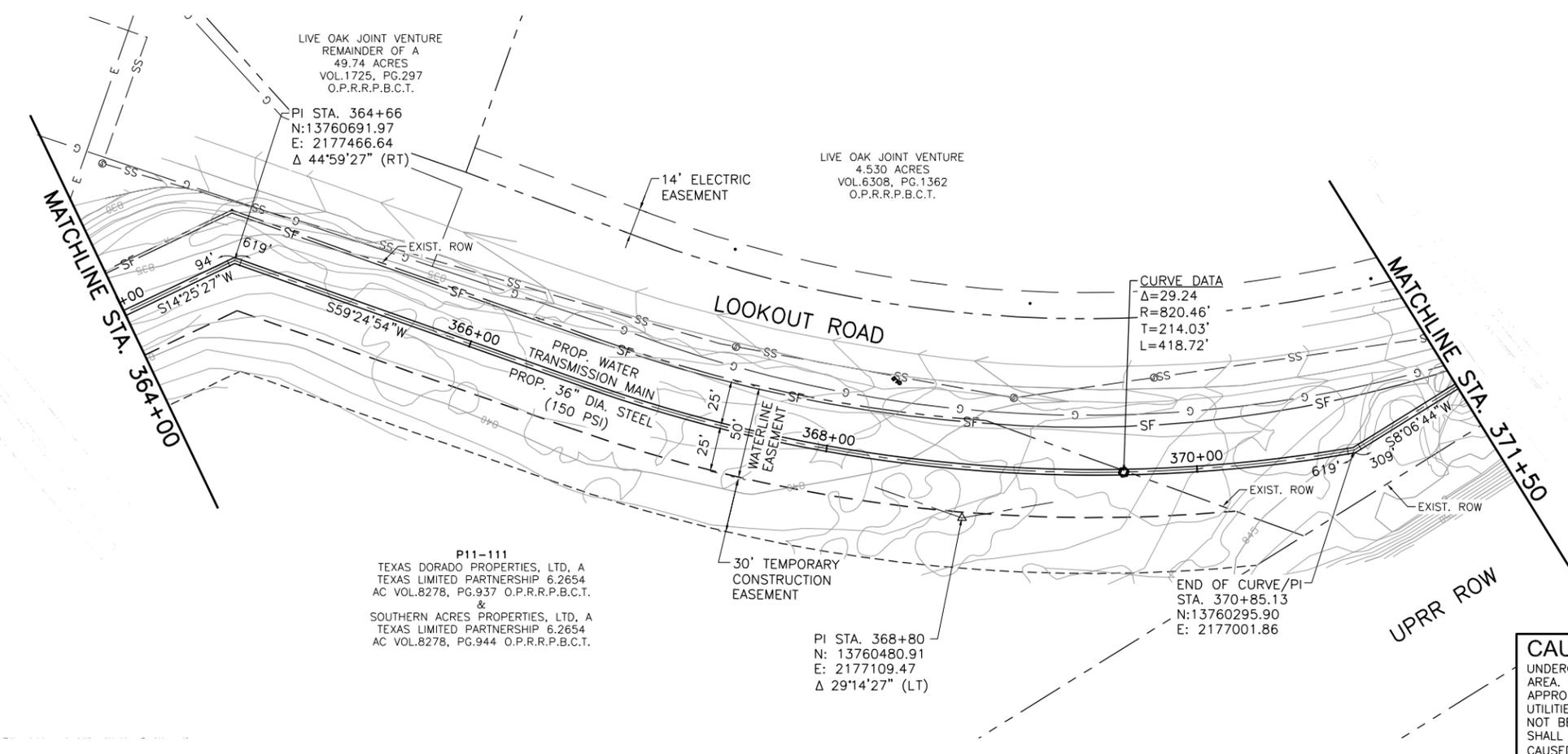
Date: 3/23/2012
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 Scale: HORIZONTAL SCALE: 1"=40'
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FREES & NICHOLS
 4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
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SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PLAN & PROFILE
 STA. 354+00 TO STA. 364+00
 Sheet W40

ACAD Ref 18.1s (LMS Tech) User: DDH [SWB11121][SASRV2.FREESE.COM]



App.	DTB	Freese And Nichols, Inc. Job No.
Revisions	3/23	APPENDUM NO. 2
Date	3/23	
No.	A	

SWB11121

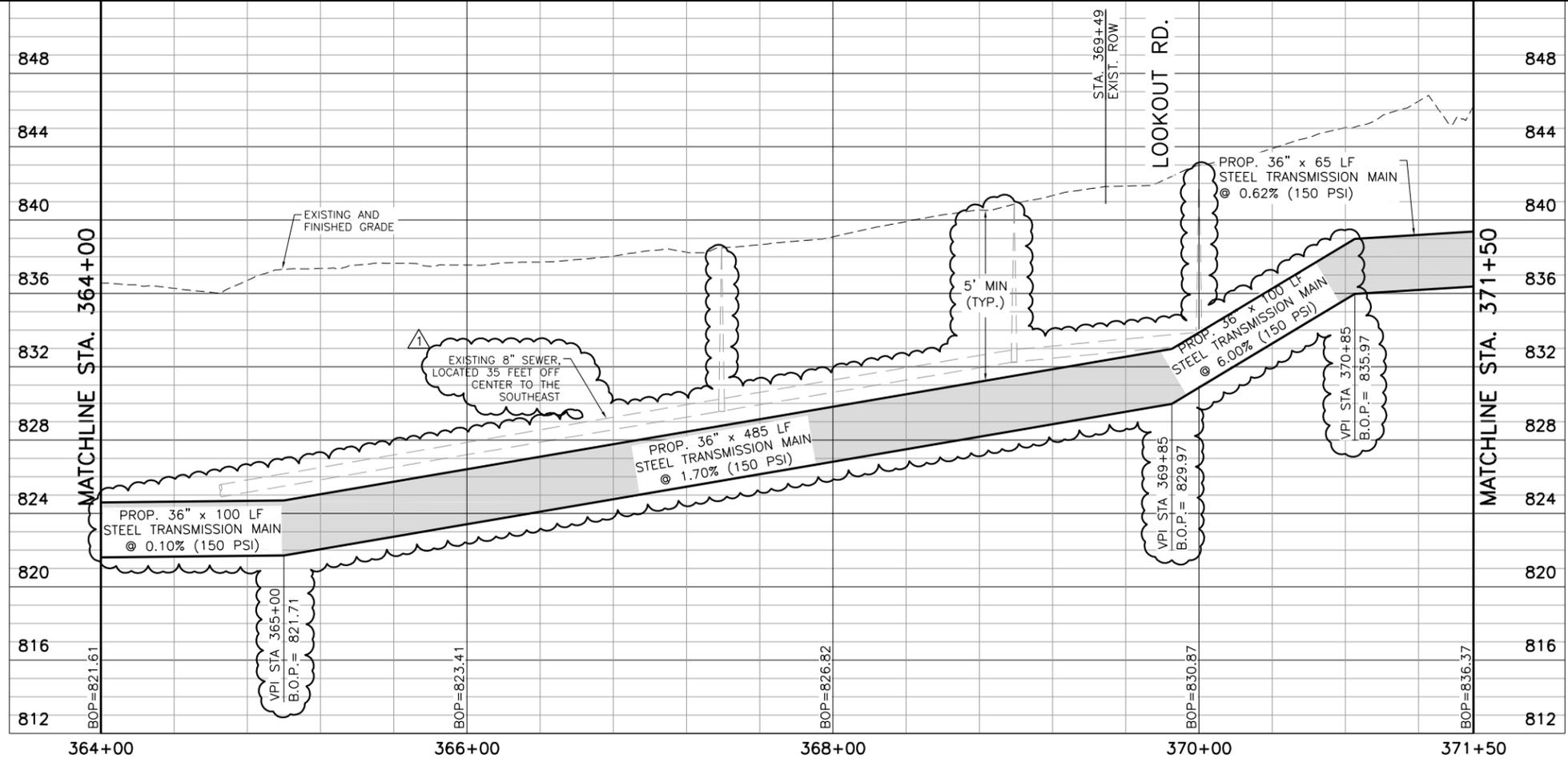
DAVID T. BENNETT
PROFESSIONAL ENGINEER
019315
TEXAS REGISTERED ENGINEERING FIRM F-2144

Date: 3/23/2012
Designed by: DTB
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Scale: HORIZONTAL SCALE: 1"=40'
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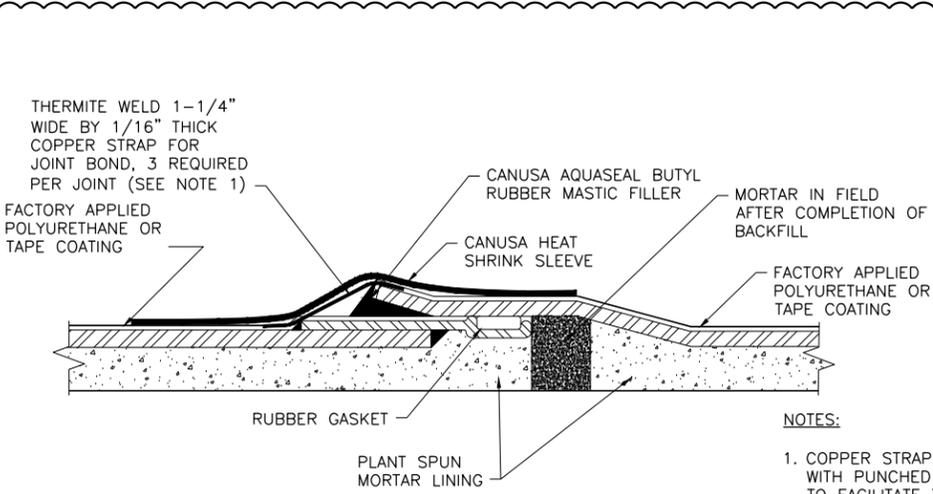
FREESE & NICHOLS
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SAWS JOB NO. 10-8607
REGIONAL CARRIZO PROGRAM:
WATER DELIVERY PIPELINE PROJECT
PLAN & PROFILE
STA. 364+00 TO STA. 371+50

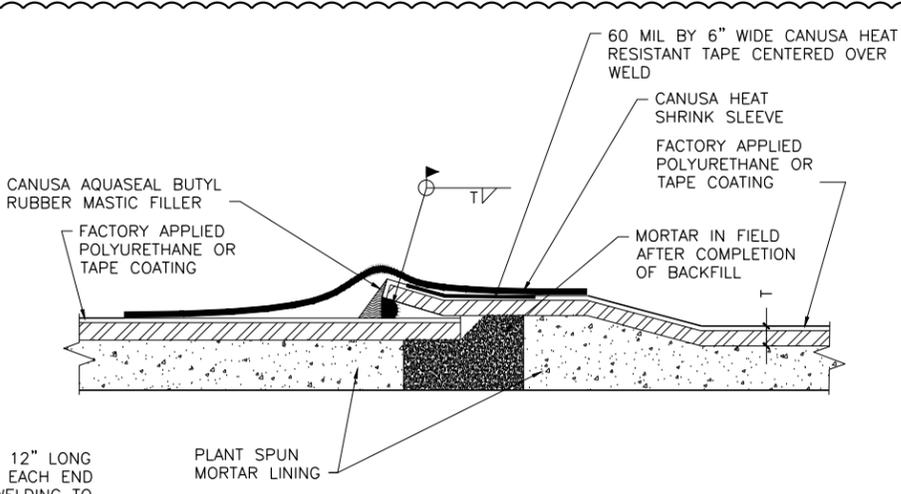


CAUTION!!
UNDERGROUND UTILITY LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

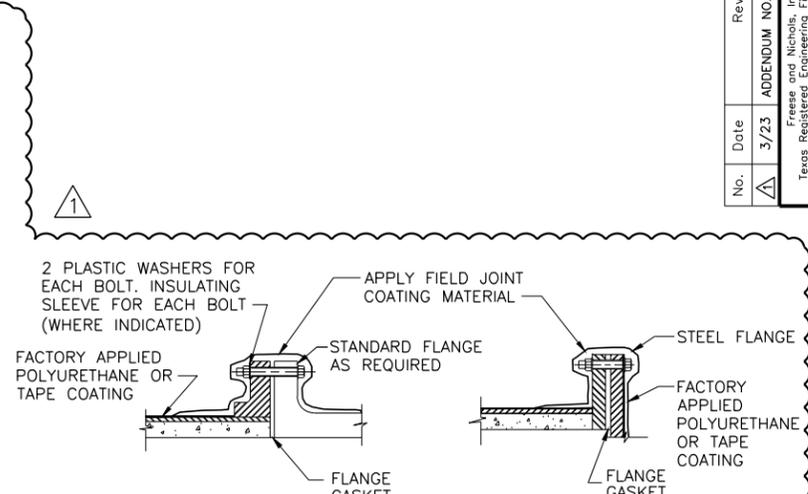


JOINT DETAIL
POLYURETHANE OR TAPE COATED STEEL PIPE
 NOT TO SCALE

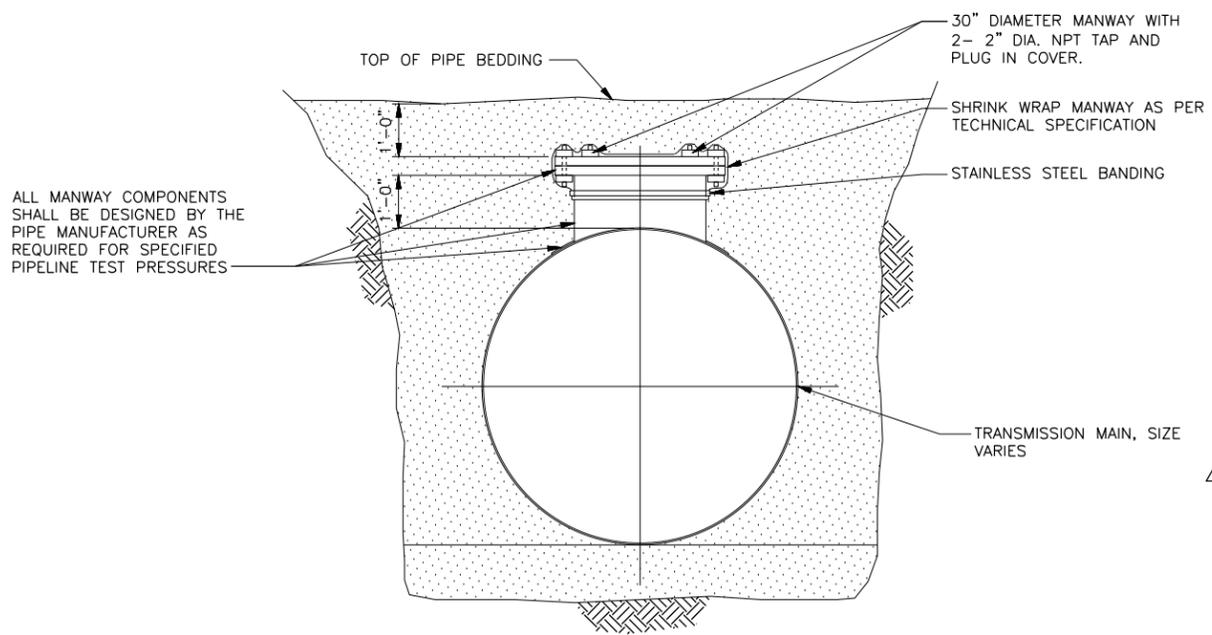
- NOTES:**
1. COPPER STRAP SHALL BE 12" LONG WITH PUNCHED HOLES AT EACH END TO FACILITATE THERMITE WELDING TO PIPE. POWER GRIND WELD AREA TO BARE METAL.
 2. ROLLED SPIGOT RUBBER GASKET JOINT MAY BE USED IN LIEU OF CARNEGIE JOINT FOR STEEL PIPE 42" AND SMALLER, AND FOR 250 PSI CLASS OR LESS.



WELDED JOINT DETAIL
POLYURETHANE OR TAPE COATED STEEL PIPE
 NOT TO SCALE

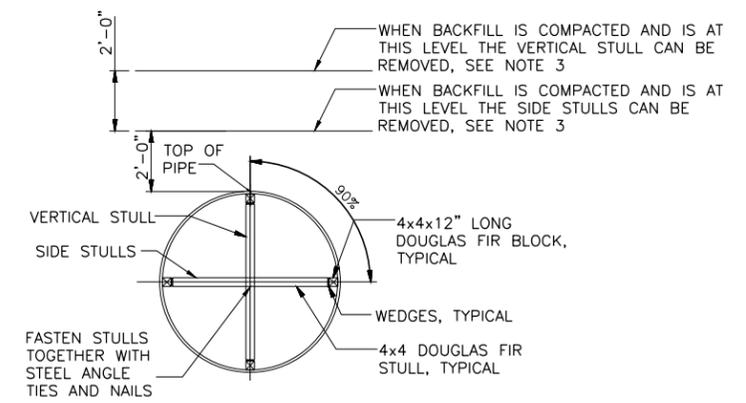


FLANGED CONNECTIONS
FOR STEEL PIPE
 NOT TO SCALE



SECTION
ACCESS MANWAY DETAIL
 SCALE: NOT TO SCALE

- NOTE:**
1. 2-2" DIA. NPT TAPS AND BOLTS NOT SHOWN ON ALL MANWAY CALLOUTS/DETAILS FOR CLARITY.



- NOTE:**
1. STULLING SHALL BE INSTALLED AS SPECIFIED IN SPECIFICATION SECTION 02400, JACK AND BORING.
 2. STULLING SHALL BE INSTALLED AT PIPE FACTORY PRIOR TO SHIPPING AND SHALL NOT BE REMOVED UNTIL COMPACTED BACKFILL IS INSTALLED AS PER THIS DETAIL.
 3. COMPACTED BACKFILL DEPTHS MAY VARY IF THE TYPE OF COMPACTION EQUIPMENT CAUSES PIPE DEFLECTION BEYOND ALLOWABLE LIMITS. CONTRACTOR SHALL MONITOR AND CONTROL DEFLECTION.
 4. NUMBER OF STULL POINTS SHOWN ARE FOR 36"-42" DIAMETER PIPING. REQUIRED NUMBER OF STULLS POINTS SHALL BE AS PER THE SPECIFICATIONS.

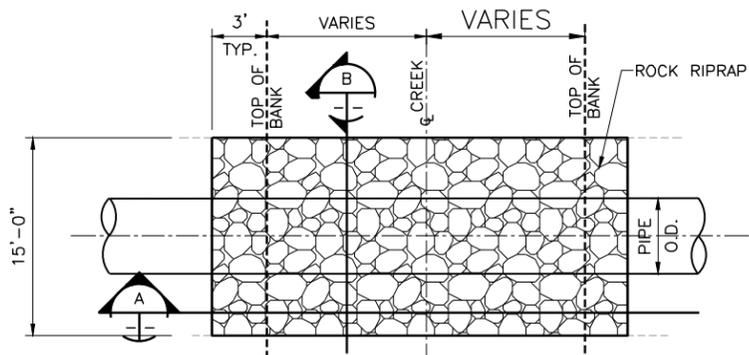
CROSS-SECTION
PIPE STULLING DETAIL
 SCALE: NOT TO SCALE

Date: 3/23/2012
 Designed by: DTB
 Drawn by: DDH
 Checked by: GEG/AB
 Scale: N.T.S.

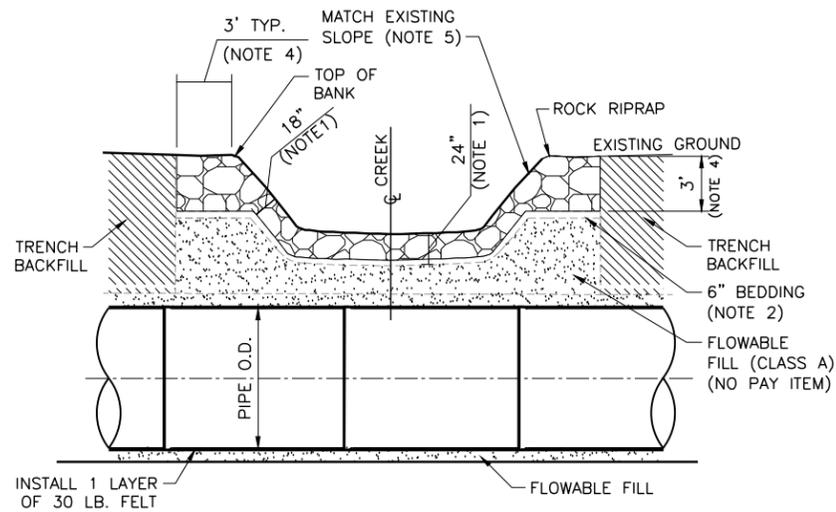
FREES & NICHOLS
 4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Phone - (210) 298-3800
 Fax - (210) 298-3801

SAN ANTONIO
WATER SYSTEM

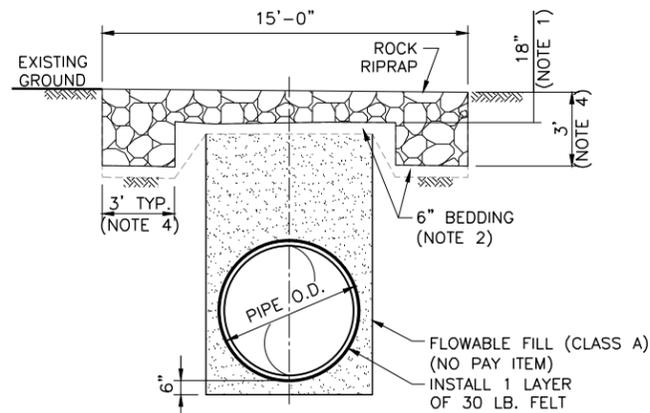
SAWS JOB NO. 10-8607
 REGIONAL CARRIZO PROGRAM:
 WATER DELIVERY PIPELINE PROJECT
 PIPE AND MANWAY DETAILS



PLAN
SCALE: NOT TO SCALE

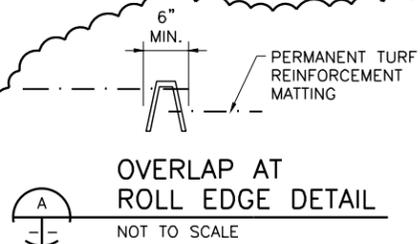


SECTION "A"
SCALE: NOT TO SCALE

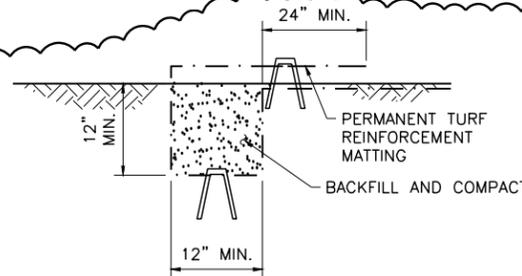


SECTION "B"
SCALE: NOT TO SCALE

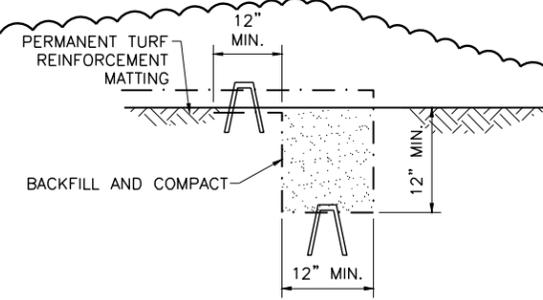
RIP RAP CREEK CROSSING DETAILS
SCALE: NOT TO SCALE



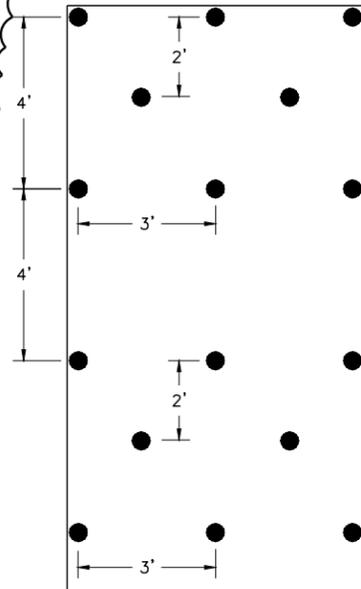
OVERLAP AT ROLL EDGE DETAIL
NOT TO SCALE



UPSTREAM ANCHOR TRENCH DETAIL
NOT TO SCALE



DOWNSTREAM ANCHOR TRENCH DETAIL
NOT TO SCALE



ANCHOR PATTERN
NOT TO SCALE



TURF REINFORCEMENT MAT
NOT TO SCALE

- NOTES:**
1. TRM's SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 02270 SOIL EROSION AND SEDIMENT CONTROL.
 2. KEEP TRAFFIC TO A MINIMUM AFTER PLACEMENT OF TRM'S.
 3. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER INSTALLATION RECOMMENDATIONS.

- NOTES:**
1. ROCK RIPRAP SHALL BE INSTALLED AT A MINIMUM THICKNESS OF 18" ON SLOPE AND 24" ON BOTTOM. THICKNESS AND STONE SIZE/GRADE VARIES PER CREEK CROSSING. STANDARD GRADATIONS ARE IN SECTION 02271, RIPRAP AND BEDDING MATERIAL.
 2. BEDDING SHALL BE INSTALLED AT A MINIMUM THICKNESS OF 6". GEOTEXTILE FABRIC MAY BE USED IN PLACE OF BEDDING WITH ENGINEER APPROVAL.
 3. THE ROCK RIPRAP SHALL BE CONSTRUCTED WITHIN THE LIMITS OF THE PERMANENT EASEMENT AND AS SHOWN ON THE PLANS.
 4. THE ROCK RIPRAP SHALL BE CONTINUOUS, EXTENDING DOWN BOTH BANKS OF THE CREEK TO THE CENTER OF THE CREEK. A TOE WILL BE CONSTRUCTED ALONG THE SIDES OF THE RIPRAP. THE RIPRAP TOE WILL HAVE A MINIMUM DEPTH AND WIDTH OF 2 TIMES THE MINIMUM THICKNESS OF THE ROCK RIPRAP SPECIFIED. THE RIPRAP SHALL EXTEND 3 FEET FROM THE TOP OF BANK. THE FINISHED SURFACE OF THE RIPRAP SHALL NOT EXTEND ABOVE PRE CONSTRUCTION GRADE.
 5. RIPRAP SHALL BE PLACED ON THE NATURAL SLOPE.
 6. INSTALL FLOWABLE FILL BACKFILL IN MAXIMUM 12" LIFTS.

App.	DTB	Freese And Nichols, Inc. Job No.
Revisions	ADDENDUM NO. 2	SWB11121
Date	3/23	David T. Bennett Professional Engineer No. 101935 Texas Registered Engineering Firm F-2144
No.	A	Scale: AS SHOWN

Date: 3/23/2012
Designed by: DTB
Drawn by: DDH
Checked by: GEG/JUB
Scale: AS SHOWN



SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 10-8607
REGIONAL CARRIZO PROGRAM:
WATER DELIVERY PIPELINE PROJECT
CREEK CROSSING AND EROSION CONTROL BLANKET DETAILS

**SAN ANTONIO WATER SYSTEM
REGIONAL CARRIZO PROGRAM: WATER DELIVERY PIPELINE PROJECT
PROJECT NO 10-8607-207
SOLICITATION NO B-12-002-CM**

**MANDATORY PREBID CONFERENCE: MARCH 16, 2012
SAWS HQ, TOWER 2 ROOM 145-10:30AM**

AGENDA (MEETING NOTES ARE SHOWN IN RED)

NOTE: THE PRE-BID AGENDA AND MEETING NOTES ARE PROVIDED FOR REFERENCE ONLY AND DO NOT CHANGE ANY CONTRACT DOCUMENTS. THE PRE-BID AGENDA AND MEETING NOTES ARE NOT CONTRACT DOCUMENTS

Introduction (The agenda was covered in its entirety by Sean Reich (SAWS PM) and David Bennett (Freese & Nichols PM/ Project Design Engineer))

Mandatory Pre-bid

- Sign in sheet (It was stated that the pre-bid meeting was mandatory, all attendees must sign-in in order for their bids to be accepted)

Bid/Award/NTP Proposed Timeline

- March 23, 2012: Addendum Posted
 - Response to written questions
 - Revisions to drawings and specifications
- Conference Memo of today's meeting, including copy of sign-in sheet (posted w/addendum) (It was stated that the pre-bid meeting, agenda and all discussions during the meeting in and of themselves do not change the contract documents. It was also stated that all questions should be submitted in writing for further clarification to SAWS Contracting Dept., per the invitation to bidders).
- March 29, 2012: Bid Opening
- May 1, 2012: SAWS Board award contract
- Early June 2012: Notice to Proceed

Water Delivery Pipeline Project Overview

- Approximately 60,600 L.F. of 36-inch steel water transmission main
 - Polyurethane Coated or Tape Coated steel pipe (it was stated that the bidders must check the appropriate box on the bid proposal, same type of pipe shall be provided for the entire project)
 - Class 150 and Class 200 pipe
- Approximately 3,500 L.F. of 54-inch steel casing by bore
- Impressed Current Cathodic Protection System

- All appurtenant structures, including but not limited to air valves, drain structures, butterfly valves.
- Hydrostatic testing; disinfection and all other testing as required
- Easement clearing and restoration

Easement Status

- Easement acquisition is ongoing

Bid Allowance (it was stated that SAWS included the bid allowance in the bid proposal to allow for any landowner special conditions resulting from ongoing easement negotiations that may not be finalized prior to the bid opening)

Construction Management Team

- Black & Veatch (Program Manager) will provide Construction Management services
- Freese & Nichols (Design Engineer) will provide construction phase services
- SAWS inspectors will provide oversight

Project Requirements

- Project Completion Dates (It was stated that the project completion dates are firm dates, the pipeline project must be completed on time in order for the pump station project to complete the final testing and commissioning)
 - Substantial Completion: August 25, 2013
 - Final Completion: October 25, 2013
- Liquidated Damages
 - Substantial Completion: \$600/day over the contract performance period through September 30, 2013, \$1,500/day thereafter
 - Final Completion: \$1,500/day over the contract performance period through November 30, 2013, \$3,500/day thereafter, additive to other liquidated damages
- Equal Materials
 - Manufacturers and suppliers of materials specifically listed in the Contract Documents shall be provided without exception. After the Contract has been executed, Contractor may submit an "or equal" material to SAWS for review
- Permits
 - Unless otherwise provided, Contractor is responsible for acquiring all permits required for the project.
 - Permits acquired by SAWS are listed under the Supplemental Conditions, Contractor is responsible for renewing permits as required.
 - SAWS will assist Contractor, as necessary to in obtaining the required permits and renewals.

- Construction Schedule and Sequence (it was stated that due to ongoing easement negotiations, SAWS may issue an addendum requiring that work not begin on certain parcels until approximately 60-90 days after notice to proceed)
 - Work shall begin at Station 0+79 and proceed to Station 605+15.
 - Boring and tunneling may proceed ahead of pipe laying operation
- Project Staking is the responsibility of the Contractor.
 - Licensed Surveyor required
- Work within drainage areas
 - SAWS has acquired storage areas in various locations as shown on the plans. (an overhead map was used to show general locations, it was stated that all storage areas acquired by SAWS are shown on the project plans)
 - No storage of materials, equipment, spoils or embedment will be allowed in the drainage areas during outside of working hours.
 - Contractor may acquire additional storage areas if necessary at the Contractors expense. A copy of the agreement must be provided to SAWS prior to use.
- Submittals
 - Steel Pipe & Coatings (it was stated that due to the required completion dates, time is of the essence, and the Contractor is encouraged to have all critical path shop drawing submittals such as steel pipe, coatings, casing pipe, etc. ready to submit upon SAWS issuing Notice to Proceed on the contract.)
 - Steel Casing Pipe & Boring
 - Pipe Embedment
 - Appurtenances & Misc. (pipe embedment, valves, drains, concrete, paving, restoration, etc.)
- Site restoration (it was stated that landowners are sensitive timely surface restoration after completion of pipe laying operations, and the Contractor will be required to complete site restoration within time limits provided in the Contract Documents)
- Turf Reinforcement Mats
- Tie-in/Closure Coordination (locations of the tie-in/closure points were identified on the overhead map, and it was stated that the Pipeline Contractor will be required to coordinate with the Pump Station Contractor ahead of time for all tie-ins.)
- Restrained joints as shown on plans (locations of restrained joints and plan symbology indicating these locations were discussed.)
- Geotechnical and buried utility information (it was stated that geotechnical report information and locations of utilities are shown for informational purposes only. The contractor is required to locate and verify all utilities prior to the manufacture of pipe.)
- Water for testing/disinfection
 - Spec 02643, SAWS will determine availability upon written request from Contractor

- Web-based project management system (Prolog) (it was stated that SAWS is in the process of upgrading Prolog software and that the upgrade should be completed prior to notice to proceed)
 - Spec 01110, SAWS will provide training for up to 4 Contractor designated personnel
 - All submittals will be electronically transmitted using Prolog

Closing Comments

Nothing discussed during the pre-bid conference changes anything in the Bidding/Contract documents. Bidder is to strictly bid the written documents. Any changes to these Contract documents will be issued by written addendum. The meeting notes will be for information purposes only.

- Technical questions regarding this project will be accepted by Cynthia Medina, in writing via email to cgmedina@saws.org or by fax to: (210) 233-5332 until 4:00 PM (CST) on March 20, 2012. Answers to the questions will be included as supplementary information and/or included via addendum.
- Bids are due prior to 2:00 PM (CST) March 29, 2012 at the Contract Administration Division, 2800 US Hwy 281 North, Customer Center Building, Suite 171, San Antonio, TX 78212 (The bidding requirements were summarized by Rosalee Arcos/SAWS Contracting)

It was stated that the discussions resulting from questions asked during the pre-bid meeting do not change the contract documents. It was also stated that if further clarification was required, that all questions should be submitted to SAWS contracting per the invitation to bidders

Questions

Question: If the Contractor chooses to use SAWS Naco PS as their source of water for hydrostatic testing and disinfection, will SAWS charge them for the water?

Response: No, but SAWS will require the water to be metered.

Question: Does that apply to water required for soil compaction as well, where the Contractor would likely need to utilize a water truck?

Response: SAWS will provide the water at no cost within SAWS' service area, but will require the water usage to be metered. The Contractor will be required to coordinate usage of water with each City as required within the respective city limits along the pipeline route.

Question: Will utility location be required prior to the manufacture of pipe?

Response: Yes, per the Contract Documents, the contractor is required to locate and verify all utilities prior to the manufacture of pipe.

Question: Is all lab work acceptance testing paid for by the Contractor?

Response: Unless otherwise noted in the Contract General Conditions or Specifications, the Contractor is responsible all costs associated with lab work acceptance testing.

Question: If the Contractor is required to work overtime, is there an additional charge for the Owners inspection services?

Response: Reference Contract General Conditions 8.3

Question: Clarification was requested on how SAWS will apply the 5% retainage to the Measurement and Payment Specification.

Response: It was stated that SAWS is currently evaluating the measurement and payment specification and anticipates an Addendum will be issued to clarify.

Question: Clarification was requested on the quantities of flowable fill shown in the plans as incidental to certain bid items and as a separate pay item in other locations.

Response: It was stated that Clarification will be provided via Addendum.

QUESTIONS AND ANSWERS

1. **Question:** Can 2-flange liner plate be used in lieu of the 54" casing for jack and bore?
Answer: No. 54-inch steel casing pipe shall be provided for jacking and boring per Specification Section 02400.
2. **Question:** Does this project call for Ductile iron if so will it use poly wrap?
Answer: Yes, ductile iron pipe with polyethylene wrap will be used for appurtenance piping as shown in the plans. See change to plan details with added reference to SAWS Standard Specification No. 814, Ductile Iron Pipe, in Addendum No. 2.
3. **Question:** Detail 2 on Sheet DT10 calls out for an *interior* weld. Spec Section 02571-3.05.C reads: "*Exterior* joint welding shall be completed before application of field applied joint coating for 42" and smaller." Please advise if the welded joints are interior or exterior. If the welds are interior, can the Contractor perform weld after backfill if the special techniques are accepted per Spec Section 02571-3.05.D?
Answer: Exterior welding shall be performed for pipe sizes of 42-inch diameter and smaller per Specification Section 02571. See change to Sheet DT10, Detail 2, in Addendum No. 2
4. **Question:** Specification Section 01501 defines the requirements if hazardous waste or contaminated water is encountered. There is no mention of legal ownership of these materials. Will SAWS except full ownership and responsibility of hazardous waste or contaminated water if encountered?
Answer: SAWS is not the owner of any hazardous waste or contaminated water that is encountered during the performance of the project work. The Contractor shall be responsible for disposing of all hazardous materials or substances encountered during performance of project work in accordance with the Contract general conditions, plans and specifications, as well as all applicable Federal, State and local laws.
5. **Question:** On plan sheet DT14, Creek Crossing and Erosion Control Blanket Details, the anchor pattern (DOT system) and material dimensions listed are for North American Green Turf Reinforcement Mats. Per section 02270 of the spec book for this project the Turf Reinforcement mat is listed as Pyramat or approved equal. I would like to submit North American Green P-550 for approval as an equivalent TRM on this project. I have included the product specification sheet along with a competitive product profile sheet. If you have any questions please feel free to contact me.
Answer: Plan Sheets, Detail Sheets, and Specifications have been changed to clarify limits and requirements of Turf Reinforcement Mats, in Addendum No. 2.
6. **Question:** Please see the attached cut sheet for a 6" Crispin AL61/SC/PL10. We would like to be added to the Surge Relief/Air Valve Spec as an equal to the Vent-O-Mat RBX for the SAWS Regional Carrizo Water Delivery Pipeline bidding 3/29 at 2pm. Please contact us if you require more information or have any questions.

Answer: Combination Air Valves with Surge Check shall be as specified in Section 15117.

7. **Question:** Silt materials differ from plans and specs. Plans has a listed typical txdot material and installation the specs list Silt fence shall be "Enviro Fence" preassembled silt fence, AMXCO Silt Stop prefabricated silt fence, AMOCO Style 2155 preassembled silt fence or approved equal. Which is correct?

Answer: The silt fence material listed on Sheet DT17 is correct. See change Specification Section 02270 in Addendum No. 2.

8. **Question:** On the TRM typical installation would be 1/2" of topsoil to fill pockets then seed and straw blanket or hydromulch with FGM type material. Could I get clarification which route you would like to cover the 1/2" soil with blanket application or hydromulch.

Answer: See answer response to Question No. 5.

9. **Question:** For Bid Item 3. 54" Steel Casing by Bore, I was able to find twenty-two (22) separate bore method applications. In those 22, I was only able to come up with a total of 3490 LF, which is 60 LF short of what the pay item represents. Can you confirm the quantity for us?

Answer: See change to Bid Proposal in Addendum No. 2.

10. **Question:** On Bid Item 30. Flowable Fill, this is also an item that appears to be confusing for quantifying. Based on normal indication in the plans, I came up with 1442 LF, which is 86 LF short of what the pay item represents. However; with Bid Item 30, there may be some possibly oversights by contractors should it not be pointed out by Addendum. For example, on plan sheets like W24, W39, W44, and W64 to just name a few, there is a call out for flowable fill, but the confusion becomes this.....is that flowable fill considered incidental to creek crossings and open-cut casings, or is it to be paid under Bid Item 30? It is vague, and is not specifically called out, with exception to the details calling out the flowfill to be a non-pay item, but if you read the measurement of payment on spec section 01270-14 Z. it appears that some of those quantities may be paid for under that pay item based on definition, but it just would not cover the secondary backfill (12" above pipe to subgrade). We would like greater clarification on what flowable fill is incidental, and what can be expected to be paid under the Bid Item 30. Follow-up question: I just did a double check on the Flowable Fill and see that I missed the pay quantities on plan sheet W27, that gets me within 1 foot of Bid Item 30, so I think I'm good, but I still think it needs to be pointed out that all of the other areas that call out Flowable Fill are not to be paid at all under Bid Item 30, and that they are incidental to some other pay item, which should be stated.

Answer: Flowable fill shall be incidental to the associated pay items for pavement repair, creek crossings, concrete cable mats, and for depth of cover over 18 feet, as included in the plans, details and specifications. Flowable Fill included in Bid Item No. 30 is to be provided in specific locations and quantities per linear foot as shown on the plans.

11. **Question:** There are two types of air valve outlets on the project (Type 1 & Type 2). Type one has the AV outlet come off the blind flange on a 30" outlet. Type two has the AV outlet come directly off the run pipe as a tangential outlet off the top of the run pipe.

Some of the plan & profile drawings identify these in a manner that is confusing.

Sheet W29 AV outlet is marked as Type 1 in Plan and as Type 2 in Profile.

Sheet W34 AV outlet is marked as Type 1 in Plan and as Type 2 in Profile.

I believe these should both be the Type 1 due to the notes on the detail drawings, but could you please verify.

Answer: Air Valves on Sheets W29 and W34 shall be Type 1. See clarification in Addendum No. 2

12. **Question:** Specification 02571, page 17, paragraph 2.02.F talks about the gasketed joints. The final paragraph in this states that for gas and oil resistant gaskets we are to use Nitrile rubber. I do not see where they indicate any location on the drawings where this might be. Are there locations where we must supply the Nitrile rubber gaskets, and where?

Answer: No.

13. **Question:** Two for stulling (one from the specification, one from the drawings), this raises a questions as to whether we can get a change made. They note that at a minimum along the length the stulling would have to be placed at ¼ points for lengths of 36' or greater. On a 50' pipe this would be in the middle and at some 12.5' from each end. NWP will normally place a set of stulls at 3' from each end. I think this is going to get our stull count to 5 positions on a 50' pipe length. We would like to get this changed.

Answer: See changes to Sheet DT10 and Specification Section 02571 in Addendum No. 2

14. **Question:** The other sheet is from the drawing package and is related to couplings at the butterfly valve installations. Detail A and the table associated with tie bolts, has a note #1 referred to in the pressure column. Note #1 states the pressure is to be 1.5 * the pressure class of the pipe. Our pipe classes are 150 and 200 (225 & 300 respectively). At the bottom of the column there is a value or pressures greater than 250 that points to note #6. Note #6 states that for "Pipe Pressure Class" greater than 250 we should use buttstraps rather than couplings and harnesses. Does Note #6 refer to the actual "Pipe Pressure Class" or the pressure that is equal to 1.5 * the pressure class of the pipe?

Answer: For design of harnessed mechanical couplings, the pressure shall be 1.5 X pressure class of the pipe as stated on Sheet DT3, Note 1. The intent of Note 6 is for welded butt straps to be used instead of harnessed mechanical couplings, where the pipe pressure class is greater than or equal to 250 psi. See clarification to plan notes in Addendum No. 2

15. **Question:** I am writing you regarding the Section 02270, 2.01 H. – Turf Reinforcement Mat of the subject project. A product (Turf Reinforcement Mat) manufactured by my company, Propex is called in the specifications and there a few values listed within the

table on 2.01 H., 2., C. where clarification and/or modifications are required to match the Pyramat material properties. Could you please advise as to who I would need to contact to communicate this information.

Answer: See answer response to Question No. 5.

16. **Question:** The end plate and flanges of the Vent-O-Mat Anti-Shock Air Release and Vacuum Break Valves are available with three different end piece flange materials. The standard material is ductile iron with a fusion bonded coating. The 6" specified model would be Model No: 150RBX2531E4-F. The second type of material would be 304 Stainless Steel. The 6" specified model would be Model No: 150RBX2531S4-F. The third type of material would be 316 Stainless Steel. The 6" specified model would be Model No: 150RBX2531S6-F. Which is required? I have also attached the recommended specification for the Vent-O-Mat as well as the cut sheet for the proper configuration for the drawings.

Answer: End flanges for air release valves shall be ductile iron. See clarification to Specification Section 15117 in Addendum No. 2

17. **Question:** As a result of the current drought conditions across Texas and in an effort to satisfy the demand of owners and agencies involved in water conveyance and transfer projects, Hanson Pressure Pipe (Texas Division) is formally requesting the following: Acceptance of the following alternative products to the currently specified Steel Pipe, Mortar Lined product outlined in the Standard Specifications in Item No. 02571 (AWWA C200):

- Concrete Pressure Pipe, Bar-Wrap Concrete Cylinder (AWWA C303), and
- Prestressed Concrete Cylinder Pipe, Lined Cylinder Prestressed Pipe (AWWA C301) as alternative pipe products for this project.

Both products have a long history with SAWS. Hanson has furnished over 440,000 linear feet of C-303 and over 1,155,000 linear feet of C-301 to the San Antonio Water System and to our knowledge both products have been performing very well, and meet or exceed the site specific engineering criteria.

We have also received several requests from contractors wanting to bid our concrete pipe products with Hanson's SnapRing restrained joint system in order to eliminate field welding; which would naturally, streamline the installation process, reduce the installation time frame and potentially lower the project's overall costs.

We feel the inclusion of these alternative concrete pressure pipe materials will position SAWS to obtain high quality water transmission piping at the most competitive prices. Recommended specifications and a suggested bedding details are attached for both types of pipes. Hanson recommends anS2 bedding for 36" B-303 pipe and R4 bedding for 36" L-301 pipe. Also attached is information regarding Snap Ring joints.

Answer: Pipe materials shall be either polyurethane coated or tape coated steel pipe, AWWA C200, as specified in the Contract Documents.

18. **Question:** We also recommend the use of some other type of insulating joint besides the monolithic joint specified. In the past, the manufacturing schedule and delivery have been very unreliable and can affect pipe line completions significantly and these joints are very expensive. We could use insulating couplings with single or double boots or flange

insulation kits as an alternate to the monolithic design. If the comfort level with these options is an issue, we could place 2 sets of the optional joints at each location to provide redundant opportunities for complete isolation.

Answer: Monolithic insulating joints shall be provided as specified in the Contract Documents.

19. **Question:** If the Contractor deems it necessary prior to the bid to work 24 hrs. a day in order to complete the Project within the specified time, will this be allowed?
Answer: The Contractor's bid should include the manpower to complete the project within the specified time. The allowable work hours are as specified in section 01500-1.07.D.2, noting that any work on Saturdays requires SAWS prior approval per General Conditions 8.3.
20. **Question:** Will the interior work inside of the 36" waterline (i.e. grouting of the joints, removal of stulls, welding and general cleaning) require Program Managers Inspection while the work is being performed?
Answer: Yes.
21. **Question:** Will internal welding of 36" pipe joints for restraint be allowed?
Answer: See answer response to Question No. 3.
22. **Question:** It was described in detail during the Pre-Bid Conference that the required limits for thrust restraint are shown on the drawings. Very little thrust restraint is detailed on the drawings. Please verify limits for thrust restraint.
Answer: Restraint lengths are shown on the plan and profile sheets per the symbology provided on Sheet G2, Legend (Proposed Items), for both plan and profile views with arrows restraint lengths shown for restraint on each side of bends and fittings.
23. **Question:** Does the Owner/Engineer consider the existing soil material as shown in the "Geotechnical Engineering Study – prepared by Arias & Assoc. (January 2012) included in Appendix A" to be satisfactory for secondary backfill material over the 36" waterline?
Answer: Geotechnical information provided in Appendix A is provided only for informational purposes. Secondary Backfill shall be in accordance with Specification Section 02317.
24. **Question:** Existing fill/debris has been placed within the easement. The plan & profile shows a different finished grade profile elevation. Can separate bid items be established for the removal of unquantified fill disposal and for the disposal of debris to licensed landfill?
Answer: Finished grades shall be restored to elevations as shown on the plans. Excess excavated material shall be removed from the site in accordance with Specification Section 02317.
25. **Question:** Will the Owner allow for 24 hrs. operations for trenchless construction?
Answer: Reference Specification 01500-1.07.D.2 with regard to construction equipment that must be operated on a 24 hr basis.

26. **Question:** Plural Component Polyurethane Products: Request to add Durashield 210 as a suitable corrosion protection system for this project (attachments).
Answer: Polyurethane coating products shall be provided in accordance with Specification Section 09811, 2.02, B, 3, c.
27. **Question:** I am writing to get more detail on the requirement on drawing sheet DT-4, note 7, which states that the outside of the “casing shall be coated with liquid-epoxy or bituminous coating in accordance with AWWA C210.” I have never seen a requirement to coat the casing before. Restoring the outside coating after welding will greatly slow down the casing jacking process. How long do you want us to wait after welding and coating the outside of the joint before subjecting the coating to the potentially damaging process of being jacked through the ground? Is it not likely the coating will be seriously scratched and abraded as the casing is jacked through the ground?
Answer: Casing pipe shall be coated as specified in the plans and specifications. See clarification added to Specification 02400 in Addendum No. 2.
28. **Question:** Spec section 02400.1.02.F lists several ASTM specs for the casing pipe “or approved equal”. On many other casing jacking projects we have used casing meeting ASTM A252. May this spec be approved for this job? Does this spec section overrule the requirement of note 1 on sheet DT-4 that the casing be made to AWWA C200? Note 2 on the same sheet requires the casing welding to be to the same spec as the carrier pipe. Is it the intent to have all the same inspections and testing to be performed as if the casing was a pressure pipe?
Answer: Steel casing pipe shall be provided as Specified in Section 02400.
29. **Question:** Can manufacturing of the WSP be initiated prior to NTP of early June? Current schedule is going to push pipe availability out past August of 2012. Leaving a very tight time frame to have completed by August of 2013.
Answer: No.
30. **Question:** Our understanding of having the monolithic insulating joints that is currently specified, that the lead time is well over 6 months and is made overseas. Will it be necessary to have these specified insulated joints?
Answer: See clarification response to Question No. 18.
31. **Question:** What are the typical months for monsoon season in this San Antonio area? We suspect that this may be for the entire month of November, but are requesting that you provide some additional information in regards to this. The monsoon season may play a very significant role in the ability to build this project based on location and timelines.
Answer: Historical weather related data for the San Antonio area is available at the NOAA website.
32. **Question:** Although briefly discussed at the mandatory pre-bid meeting last week, can you provide some clarity to both the retainage requirements and the measurement of payment on several items. It appears that the contractor may end up financing 20 to 30% of the

project until hydrostatic testing is complete for the entire line. Should that be the intent, we need to be assured that this is the actual intent and process recognized.

Answer: See changes to Specification 01270 in Addendum No. 2.

33. **Question:** On the plan sheets there are items for flowable fill. It appears that some is to be recognized as an actual pay item, but then several thousand cubic yards are to be recognized as incidental to other pay items. Can this be confirmed and/or clarified?

Answer: See clarification response to Question No. 10.

34. **Question:** For the Bid Proposal, would it be possible to have an additional line item as a lump sum add or deduct pay item, so that contractors may make last minute cuts or adds, and then provide the revised unit price against the pipe pay items at contract time?

Answer: No.

35. **Question:** Will the engineers provide a more clear set of plans with less “layers” (lines) to accurately show where erosion control measures are to be placed?

Answer: Locations of erosion control measures are shown on plans as suggested locations only. The Contractor is responsible for developing, implementing, and maintaining a Storm Water Pollution Prevention Plan (SWPPP) and obtaining all required local, state and federal permits in accordance with Specification Section 02270.

36. **Question:** The plans show multiple overhead utility crossings and very few, if any, utility poles; will the engineers entertain an allowance for temporary bracing/guying of utility poles?

Answer: The Contractor is responsible for protecting all overhead utilities within or adjacent to work areas as stated on Sheet G3, General Construction Notes Nos. 35 and 47. Protection of existing utilities shall be included as incidental to the bid items provided in the bid proposal.

37. **Question:** Will the engineers entertain a pay item for locating/pot-holing for existing utilities?

Answer: No. Locating and pot-holing of existing utilities shall be included as incidental to the bid items provided in the bid proposal.

38. **Question:** The plans show existing fences that are to be removed and replaced with new fencing and gate/s. The plans call out which gate type is to be installed but not the fence type. Will the engineers provide clarification as to which fence type, as shown in the details on sheet DT13, is to be placed at fence crossings?

Answer: The type of replacement fence material shall match the existing fence material type as stated on Sheet G3, General Construction Note No. 14.

39. **Question:** The specification is calling out Pyramat TRM to be anchored with 3/16” steel bars x 19” tall pins with steel washers. We typically use 12” tall (or 18” tall) pins with steel washers. Would either of these anchors be acceptable?

Answer: See answer response to Question No. 5.

40. **Question:** Typically, Pyramat is used for high hydraulic stress and high UV exposure applications, especially if the vegetation isn't consistent throughout the material. How important is the UV protection call out in the specification, or are you going to allow alternates products for Pyramat?

Answer: See answer response to Question No. 5.

41. **Question:** The ACB detail shows a 6" tall block; however, the specification is a performance based specification. It is our understanding that these 2 issues may contradict each other. If so, which one do we follow (the detail on the plans or the specifications)? For example, the performance criteria of the ACBs in the specification may mandate a 9" tall block vs. the 6" tall block called out on the detail. Also, the detail shows the use of anchors with the ACBs, where the anchors may not be required in a performance based specification, if a specific type ACB is used.

Answer: The detail requires the bedding to be 6-inches. The size of the concrete block are to be determined by the manufacturer.

42. **Question:** The ACB specification is calling out Armorflex as the product. This product has been tested per the specification and performs well consistently without the use of anchors. In fact, the manufacturer does not recommend anchors for installation, except in installations where slopes exceed 1.5:1. Will the anchors be required with the use of the Armorflex? Alternate products require the anchors in their testing in order to achieve the performance per the specification.

Answer: Anchors are required per Specification Section 02273.

43. **Question:** The ACB specification is calling out the use of stainless steel cables. The Armorflex product has been tested without cables and the cables add no value in the performance based specification. Alternate manufacturers require the cables to meet the performance based specification. Armortec recommends standard UV resistant poly cables versus the stainless steel cables, if required at all. Will this be acceptable?

Answer: See changes to Specification 02273 in Addendum No. 2.

44. **Question:** The ACB specification is requiring the fabric to be physically attached to the block. The Amortec product is not manufactured in this manner and we do not require it to be attached in order to perform. Can the fabric simply be installed as a separation layer underneath the block?

Answer: See changes to Specification 02273 in Addendum No. 2.

45. **Question:** Tunnel Liner Plate is often used as an option to Casing Pipe on SAWS Projects. Would the Tunnel Liner Plate an acceptable alternate to the Casing Pipe specified, provided the manufacturer provides TX P.E. stamped design calculations and standard installation details?

Answer: See answer response to Question No. 1.

INVITATION TO BID:

Bids will not be accepted from any company not represented at the Mandatory Pre-bid meeting held at SAWS on March 16, 2012, at 10:30 a.m. The following list is a record of the represented companies per the sign-in sheet.

Western Summit Constructors

NOV Ameron

GAMCOR Trenching

Layne Heavy Civil (Reynolds)

Mountain Cascade, Inc

CONTECH

Hanes Geo

Brannan Construction Company

Bortunco, LLC

E.P. Brady, LTD

HCP Constructors

Scruggs Company

Ellis & Ellis, Inc

Mersino Dewatering

BRH Garver Construction, LP

James Construction Group, LLC

Oscar Renda Contracting

S.J. Louis Construction

Garney Co.

Lewis Contractors, Inc

National Works

Ferguson Waterworks

Northwest Pipe Company

Don Kelly Construction

Holloman Utilities