



Request for City Manager Signature

(\$50,000 and higher. Council approval not needed up to \$100,000)

Project Name/Contract Number:	IH35 at SH123 Bridge Aux Lanes	#0016-03114
Department Contact / Department Name:	Rohit Vij	CIP/Engineering
Date of City Council Approval: (Past or Recent)	2021-31R; March 24, 2021 (Past Approval Date – Contract 0016-03114) August 12, 2021 (AFA Amendment #1) February 17, 2026 (Anticipated Approval Date – SUPP & AFA Amendment #2)	
Return Signed Document to:	Rohit Vij	Ext: 8133

Background/Purpose: A Standard Utility Agreement Supplemental and an Advanced Funding Agreement (AFA) Amendment #2 are required to increase the total project cost from \$2,964,982.04 to \$3,291,275.34. Additional costs for environmental testing, storm drain analysis, SUE, surveying, and design services were added to the total project costs. Based on the revised betterment ratio and additional costs incurred by the City, net reimbursement in the amount of \$346,211.95 will be issued to the City, once the supplemental and AFA amendment is executed.

Funding: No information is required, as \$346,211.95 will be reimbursed to the City

Project Number	Fund	Phase	Loc/Yr Dept	GL Account	Amount
NA	NA	NA	NA	NA	NA

Reviewed / Approved:

User Department Director:		Date:	
Purchasing / Contracting POC:		Date:	
Finance Director: (CDBG-DR)		Date:	
Purchasing Manager:		Date:	
Other Depts. as needed			



Standard Utility Agreement Supplemental Agreement No. 1 to U Number 15694 Utility ID 00000284

District: Austin
ROW Project ID: R00002549
ROW CSJ: 0016-03-115
Construction CSJ: 0016-03-114
Proposed Highway Project Letting Date: 04/01/2021

County: Hays
Highway: IH 35
From: South of SH 80
To: North of RM 12

THIS SUPPLEMENTAL AGREEMENT by and between the State of Texas ("**State**") and City of San Marcos (Water) ("**Utility**") shall be effective upon the date of acceptance and execution by and on behalf of the **State**.

WHEREAS, the **State** and **Utility** executed a Standard Utility Agreement on April 2, 2021 concerning the adjustment, relocation, or removal of certain of the **Utility's** facilities;

WHEREAS, said Standard Utility Agreement limits the required scope of work and/or the amount of eligible reimbursement;

WHEREAS, due to newly discovered information by the **Utility** deemed sufficient by the **State**, the **State** and **Utility** agree that supplementation to the Standard Utility Agreement is necessary; and

WHEREAS, the statement of work contained in the Standard Utility Agreement shall be supplemented to include the reason the supplemental is needed and the change in cost: Some of the quantities and unit rates for the joint bid materials & labor have increased or decreased. For instance, an additional 43.5LF of the 8" PVC water main was installed at a higher unit rate than originally estimated. Similarly, for the 12" PVC water main, the total linear foot installed was less than anticipated by 474LF and the unit rate was less than estimated as well. Overall, these changes required a re-evaluation of the betterment ratio which is shown in attachment "G". The internal labor costs decreased, however, the number of hours increased due to the duration of this relocation and the percentage of overhead costs increased as well. For internal engineering, costs decreased due to the Utility utilizing external engineering severices for project management, SUE analysis, CADD drawings and surveying. Specifically, RABA was used for environmental testing, Halff was used for storm drain analysis, SUE services and project management, Volkert was used for design services including alignment revisions and conflict analysis, and Byrn was used for surveying which increased the cost for external engineering, which is more specifically shown in **Utility's** plans, specifications, estimated costs, and schedule, which are attached to this supplemental agreement as Attachment "A."

NOW, THEREFORE, BE IT AGREED:

The statement of work contained in the Standard Utility Agreement is supplemented to include the additional adjustment, relocation, or removal found in Attachment "A."

The estimated cost of the adjustment, relocation, or removal is increased or decreased to a total of \$3,291,275.34, or no change to the Total Cost Estimate. The parties agree that the approval of estimated costs in no way indicates the eligibility of said costs for reimbursement.

All conditions and agreements contained in the Standard Utility Agreement, except those specifically included in this document, remain in effect.

The signatories to this agreement warrant that each has the authority to enter into this agreement on behalf of the party represented.

Initial Date
TxDOT

Initial Date
Utility

UTILITY

Utility: City of San Marcos (Water)

By: _____

Title: _____

Date: _____

EXECUTION RECOMMENDED:

Director of TP&D (or designee), Austin District

THE STATE OF TEXAS

Executed and approved for the Texas Transportation Commission for the purpose and effect of activating and/or carrying out the orders, established policies or work programs heretofore approved and authorized by the Texas Transportation Commission.

By: _____
District Engineer (or designee)

Date: _____

Initial Date
TxDOT

Initial Date
Utility

Attachment "A" Plans, Specifications, and Estimated Costs

Not Applicable

All material items within the cost estimate that must meet Buy America or Steel and Iron Preference Provision requirements must be indicated with an asterisk (*).

- Currently, **this project does not plan to use** iron and steel subject to Buy America requirements. In the event that Buy America regulated materials are used during the construction of this project, compliance documentation will be provided.
- There are non-domestic iron and steel materials in this project that fall under the De Minimis equation. Calculations showing the total cost does not exceed one-tenth of one percent (0.1 %) of the individual utility agreement amount or \$2,500.00, whichever is greater is required.
- We understand the Buy America Compliance Requirements for iron and steel and will supply the required documentation to TxDOT indicating compliance with this provision. The following documents will be supplied prior to the installation of the materials:
 - 1) Form 1818 - Material Statement
 - 2) Material Test Reports or Certifications

Initial Date
TxDOT

Initial Date
Utility

Attachment “A” (Continued) Plans, Specifications, and Estimated Costs

Not Applicable

All construction material and manufactured items within the cost estimate that must meet Build America, Buy America (BABA) compliance must be indicated with a double asterisk (**).

This is to acknowledge that the material(s) listed/marked in the cost estimate will be in conformance with the governing specification(s) and that at least the final manufacturing processes and the immediately preceding manufacturing stage for the manufactured and construction material occurred in the United States of America. Alterations to this document by any agency other than the Utility Company/Supplier will void the certification.

Per 2 CFR 184.3, manufactured products means:

(1) Articles, materials, or supplies that have been:

(i) Processed into a specific form and shape; or

(ii) Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

(2) If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under § 184.4(e) and the definitions set forth in this section, then it is not a manufactured product. However, an article, material, or supply classified as a manufactured product under § 184.4(e) and paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.

Per 2 CFR 184.3 and 2 CFR 184.6, construction material includes:

- *Non-ferrous metals*
- *Glass (including optic glass)*
- *Optical fiber*
- *Lumber*
- *Engineered wood*
- *Drywall*
- *Fiber optic cable (including drop cable)*
- *Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)*

Authorized Utility Owner Representative:

Signature

Title

Initial _____ Date _____
TxDOT

Initial _____ Date _____
Utility

GENERAL CONSTRUCTION NOTES - JUNE 14, 2019

1. The Contractor must keep a copy of all Contract Documents on site at all times; this includes but is not limited to, the Plans and Project Manual. Refer to the Supplementary Conditions of the Project Manual for the Order of Precedence of Contract Documents.
2. The Contractor will not receive additional payment for any work required to comply with the Construction Notes.
3. "Match existing" signifies vertical and horizontal alignment. Changes in any horizontal or vertical position or alignment are subject to Owner review and approval.
4. The Contractor shall construct facilities to the lines and grades required per the plans and, as required, to meet field conditions. Final grades shall be established to assure positive drainage. Minor adjustments to match field conditions do not warrant additional payment to the Contractor.
5. Construction noise, declared a nuisance under City ordinance, is not allowed between 9:00 p.m. and 7:00 a.m. except under special permit.
6. Waste material must be removed from the work site and lawfully disposed of in such a manner as to not damage the Owner or other person. The Contractor must provide a Proof of Destination documents upon request by City Inspectors for trucks used to deliver or remove material or spoils from the job site.
7. The Contractor shall not place any waste material in the 100-year floodplain without first obtaining an approved floodplain development permit from the City and/or County. Material, storage, lay down and staging areas must be on the same side of roadway as adjacent work zone. Staging areas are not to be used for stockpiling.
8. Contractor must clean mud, dirt and/or debris tracked or otherwise transported from the project site onto existing streets by any vehicle that exits the site. The right-of-way shall be kept clean at all times. Daily sweeping may be required. A citation will be issued if the right-of-way is not kept clean.
9. Contractor shall confine construction operations to available street and public right-of-way unless the Contractor, at his expense, has obtained other rights-of-way or temporary construction easements. Written proof and approval of landowners and tenants is required for other properties used by Contractor for any reason.
10. Contractor shall communicate, coordinate with and when possible accommodate delivery schedules of adjacent businesses and facilities.
11. It is the responsibility of the Contractor to furnish all residents and businesses with an information flyer on all jobs during construction.
12. All City of San Marcos Details and Specifications apply to the work; even if they are not specifically included in the project manual. Any missing specifications or details required to complete the work, but not included in the project manual, can be found on the City of San Marcos webpage: <http://www.sanmarcostx.gov/367/Design-Construction-Guide>

4. The Contractor shall submit a permit for any water tie-in and/or shutoff to the Inspector at least three (3) weeks in advance of the work.
5. Contractor shall notify all residents, who will be affected by any disruption of service, with handouts provided by Inspector.
6. The Contractor will keep the area (on top of and around) the water meter box valves free of all objects, and debris at all times.
7. The Contractor may not operate any City owned valve. The Contractor will be fined if a water valve is operated without express written consent of the Water Utility, regardless of who installed the valve.
8. If electric overhead power lines exist in the project area, Texas Law Article 1436c, prohibits all activities in which persons or equipment may come within six (6) feet of energized overhead power lines and Federal Regulations, Title 29, Part 1910.180(i) and Part 1926.550(a)(15) require a minimum of ten (10) feet from these facilities. Where Contractor must work near overhead power lines, call 512.393.8313 for the lines to be de-energized and/or moved at Contractor's expense.
9. All testing shall be complete prior to tying into existing system.
10. All construction water meters shall be obtained from the City of San Marcos Water Department with the appropriate form. Only City personnel may relocate temporary meters from one hydrant to another.

EROSION CONTROL NOTES

1. All disturbed areas during construction shall be restored per the 600 series specifications with a minimum of four (4) inches of topsoil and seeding/sodding. No payment shall be made for restoration outside the limits of construction.
2. Adequate dust control measures shall be required at all times. This includes, but is not limited to, daily watering of the site, daily sweeping of the site, keeping spoils covered or any other measured deemed necessary by the inspector.



UTILITY NOTES

1. Location and depths of existing utilities, including water & sewer services, shown on the plans are approximate only. Actual locations and depths must be field verified by the Contractor at least 48 hours prior to construction and well in advance of work. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them and maintain continual service during construction. All exposed utilities during excavation must be supported and restrained, as necessary.
2. The Contractor shall mechanically restrain all fittings. Bell joints shall be mechanically restrained in accordance with the Engineer's specifications that are based on site conditions. The Contractor shall use a joint restraint table, sealed by the Engineer. If a joint restraint table is not available, all joints must be mechanically restrained. All mechanically restrained fittings are subsidiary to the 510 specification.
3. Any portion of work, including traffic control utility permitting, which lies in Texas Department of Transportation (TxDOT), UPRR, or county property or right-of-way shall comply with respective entities permitting guidelines. The Contractor must notify the respective entities' inspector before work begins.



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F-12679



**IH 35 AT SH 123
UTILITIES
GENERAL NOTES**

SHEET 1 OF 2

©	CONT	SECT	JOB	HIGHWAY
DS:	CK:	0016	03	114
DW:	CK:	DIST	COUNTY	SHEET NO.
		AUS	HAYS	1053

DATE: 18-MAY-2020 20:10
FILE: Projects\745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Utilities\IH35_SH123_GEN NOTES-01.dgn

MATERIAL TESTING

TESTING SCHEDULE

Description:	*Rate:
Soils:	
Standard Proctor - Trench Backfill	Per Material Source
Standard Proctor - Raw Subgrade	Per Material Source or Street
Densities - Trench Backfill** Densities -	Per 200 LF Pipe per lift
Cement Stabilizer Backfill Densities -	Per 200 LF Pipe
Raw Subgrade** Densities - Driveways	Per 100 LF Street per lift
Base:	
Sieve Analysis	Per 5 Driveways
Atterbergs Limits	Per 300 LF Street Per
Modified Proctor	300 LF Street Per
Densities of Compacted Base**	Material Change
Wet Ball Mill Test	Per 300 LF Street per lift
Triaxial Test	Per Material Source
Hot-Mix Asphalt Concrete (HMAC):	
Extraction, Sieve Analysis Lab	Per Material Source
Density & Stability	Per 500 Tons or Day Per
Theoretical Density (Rice Method)	500 Tons or Day Per
Temperature - During Lay-Down	500 Tons or Day
Thickness - In Place	Continuous as Needed
% Air Voids - In Place	Per 300 LF Street
% Theoretical Density - In Place	Per 300 LF Street
Concrete:	
(Unconfined Compression, 7, 14 & 28 Day)	Per 300 LF Street
Curb and Gutter	Per 300 LF Street
Sidewalk	Per 300 LF Street
Driveway	Per 1000 LF C&G
Curb Inlets	Per 4000 SF
Air, Slump & Compression - In Place	Per 2500 SF
Slump & Compression - In Place	Per 10 Inlets
	Per exposed structure
	Per underground structure

* The above testing rates are only anticipated guidelines. The City of San Marcos Department of Capital

Improvements reserves the right to conduct additional testing at the City's discretion.

** Testing must be conducted during backfill operations.

TREE PROTECTION AND PRESERVATION GENERAL NOTES

1. The Contractor will not operate or store equipment, vehicles or materials within the root protection zone of any tree within or near the project.
2. Trees shall be protected per Item 610S Preservation of Trees and Other Vegetation.

TRAFFIC NOTES AND SPECIAL CONDITIONS

1. The Contractor must maintain all streets within project limits by repairing trenches, potholes, and leveling up with asphalt at no additional cost to the City, at the end of each workday. The Contractor shall provide for access to residences and all businesses at all times within all the phases of the work. When the work requires the excavation of the street and the removal of the existing driveway approaches and sidewalks, the Contractor shall be responsible for providing temporary all-weather access to the businesses and residences. The temporary driveway approaches shall be constructed with cold mix asphalt at no separate cost to the City.
2. Any damage to permanent traffic signals, the controller box, loops or conduits during or upon completion of the project shall be repaired or replaced at the Contractor's expense. The decision to repair, as opposed to replace, the damaged equipment shall be made by the City of San Marcos Public Services Transportation Division.
3. Accessibility Requirements:
 - a. Prior to initiating the construction of new driveway approaches, the Contractor shall give advance warning in person, or in writing, of at least 48 hours to each residence that will be immediately affected.
 - b. For businesses with more than one driveway, at least one driveway shall remain open while the other new driveway approaches are constructed. For businesses with only one driveway, the new driveway approaches shall be constructed in half widths, unless a temporary asphalt driveway is first installed at no additional cost to the City.
 - c. Construction of a driveway 20 feet or greater in width must be done one half at a time to allow continuous access to the property.

PROJECT SPECIFIC NOTES

**Provided by the Owner



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**IH 35 AT SH 123
UTILITIES
GENERAL NOTES**

SHEET 2 OF 2

©	CONT	SECT	JOB	HIGHWAY
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DATE: 06-NOV-2020 19:26
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UTILITIES

POWER POLE

LIGHT POLE

TELEPHONE POLE

ANCHOR

STUB (POWER)

STUB (TELEPHONE)

ELECTRIC DUCT

 BURIED ELECTRIC CABLE

 OVERHEAD ELECTRIC CABLE

ELECTRIC MANHOLE

TOWER

TELEPHONE PEDESTAL

TELEPHONE DUCT

 BURIED TELEPHONE CABLE

 OVERHEAD TELEPHONE CABLE

TELEPHONE MANHOLE

SANITARY SEWER

SANITARY SEWER MANHOLE

WATER LINE

WATER MAIN

WASTE WATER LINE

WATER VALVE

FIRE HYDRANT

WATER METER

GAS LINE

GAS MAIN

GAS VALVE

GAS REGULATOR

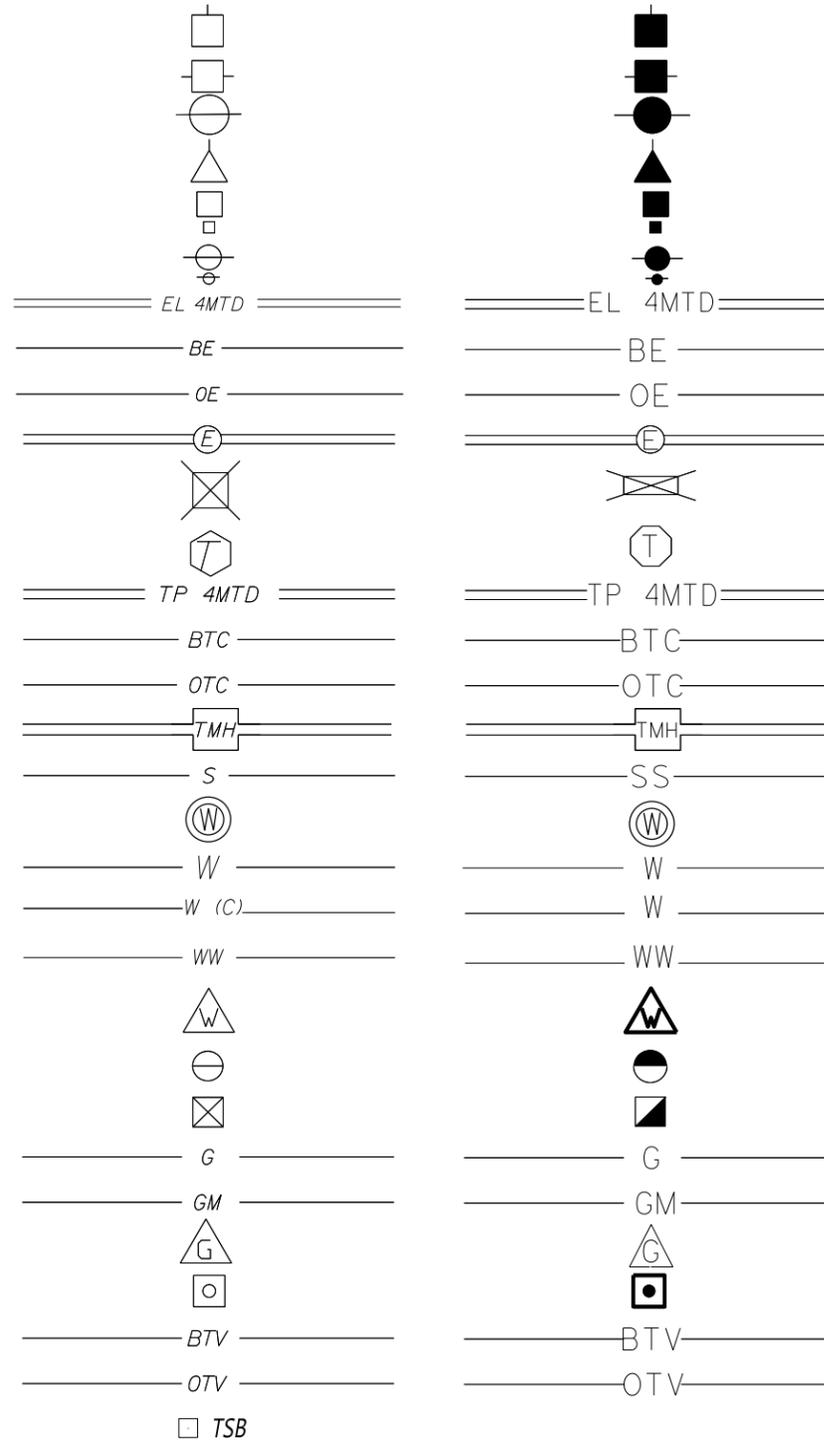
BURIED CABLE TELEVISION

OVERHEAD CABLE TELEVISION

TRAFFIC SIGNAL BOX

EXISTING

PROPOSED



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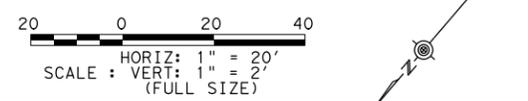
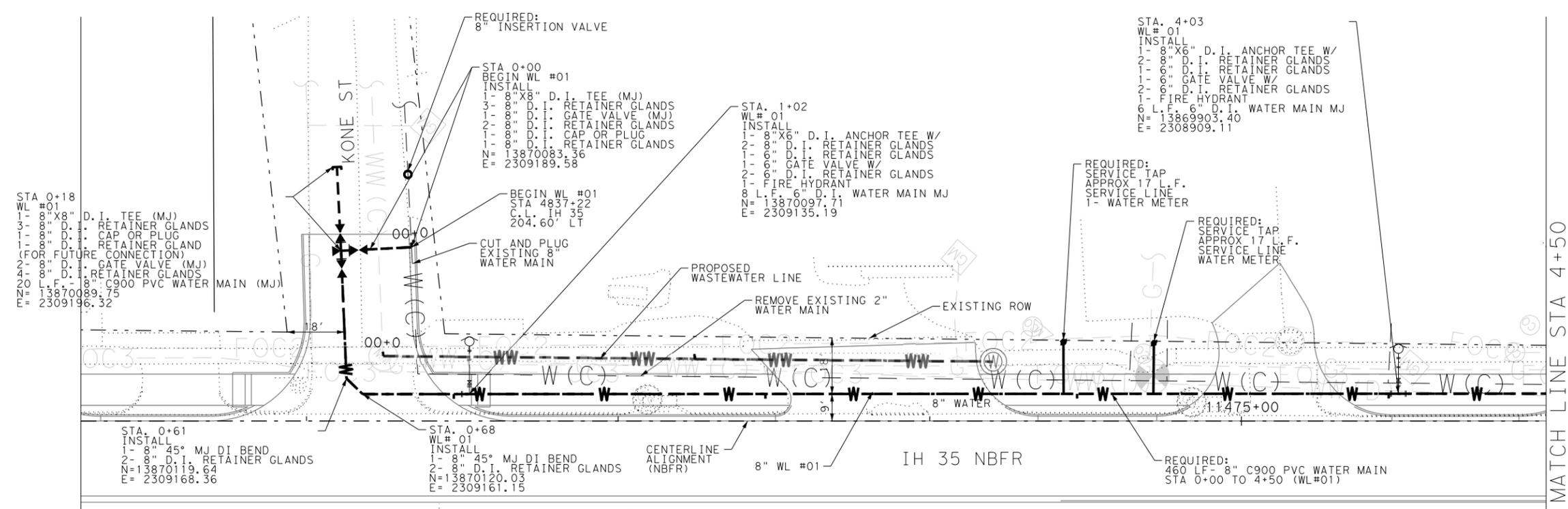


**IH 35 AT SH 123
 UTILITIES
 LEGEND**

SHEET 1 OF 1

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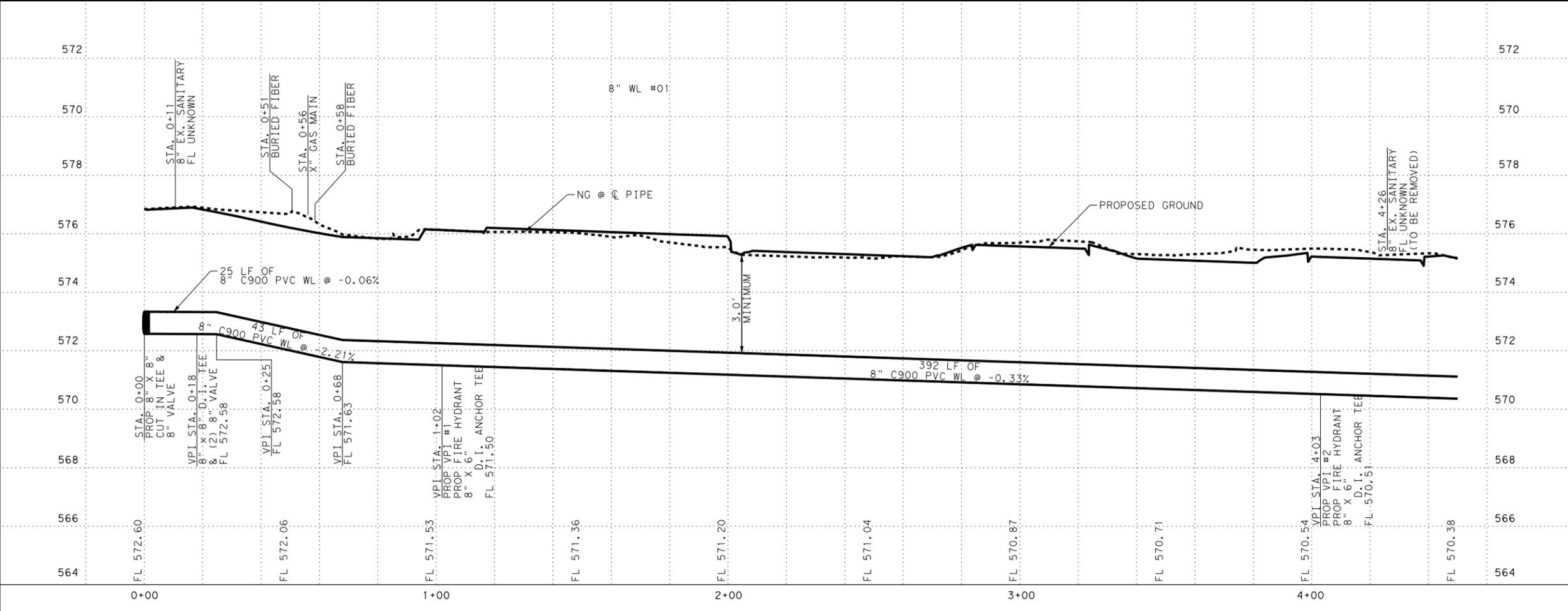


CITY OF SAN MARCOS BETTERMENT
 1 - 285 LF WATER MAIN
 2 - EX. WATER MAIN 2", PROPOSED WATER MAIN 8"

TXDOT CONFLICT
 1 - 400 LF 2" WATER MAIN

JOINT RESTRAINT TABLE			
	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
BENDS, TEES, VALVES	C900 PVC DR14	8"	0+00 TO 1+20

- NOTES:
- FOLLOW CITY OF SAN MARCOS WATER DISTRIBUTION SYSTEM DESIGN CRITERIA TECHNICAL MANUAL FOR WATER MAIN AND SERVICE ABANDONMENT (1.11 ABANDONMENT OF FACILITIES P.15)
 - CONTRACTOR SHALL FIELD VERIFY EXISTING SERVICE LINES AND RECONNECT TO NEW SERVICE LINES. SERVICE TAPS SHOWN ARE APPROXIMATE AND ARE FOR INFORMATION ONLY.



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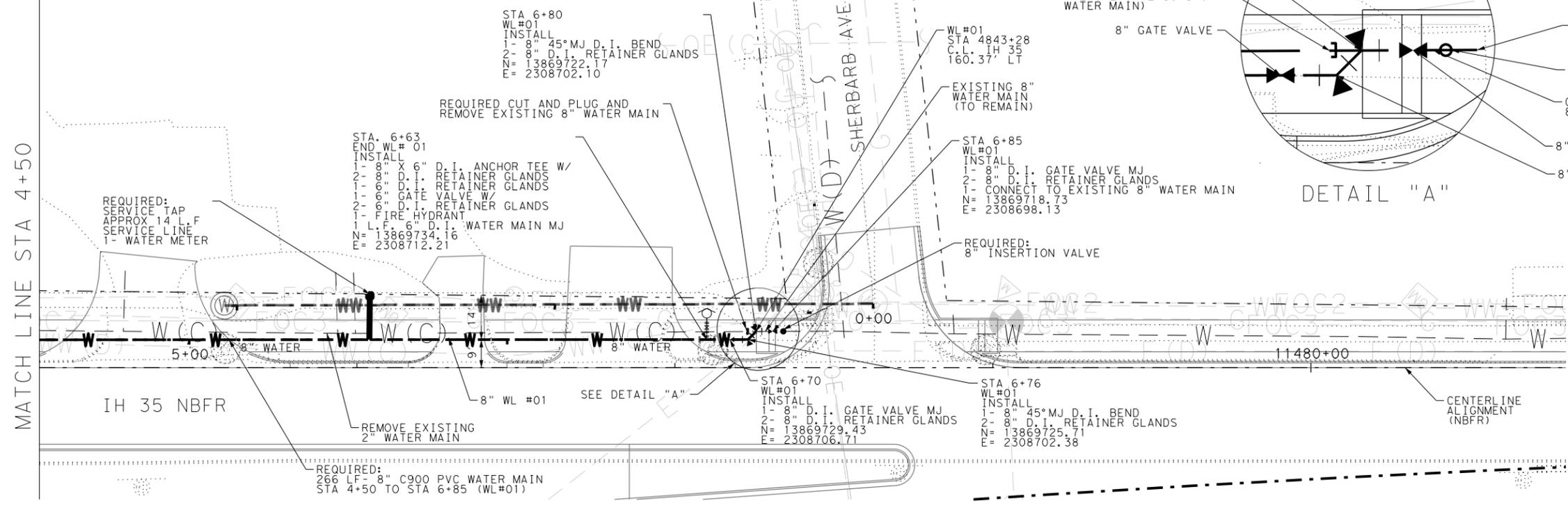
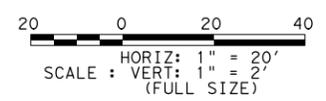
IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE

SHEET 1 OF 21

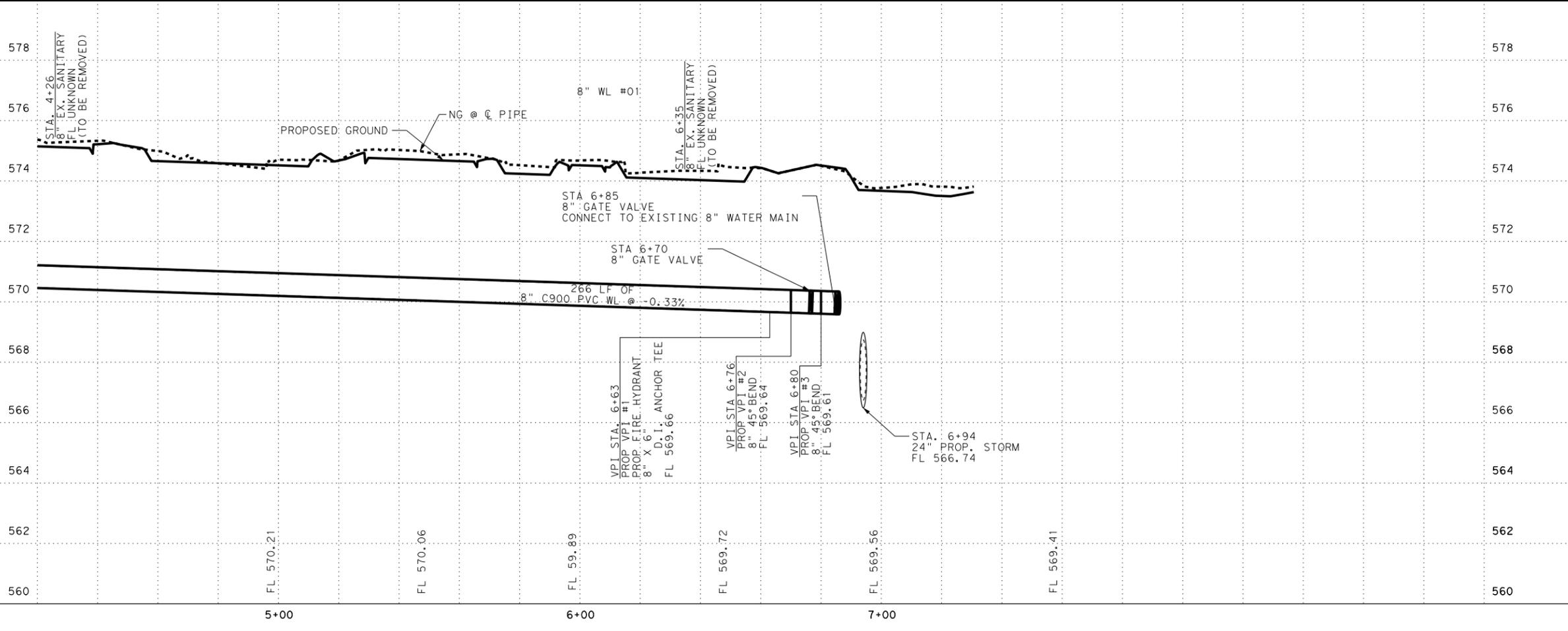
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JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
BENDS, TEES, VALVES	C900 PVC DR14	8"	6+75 TO 7+41



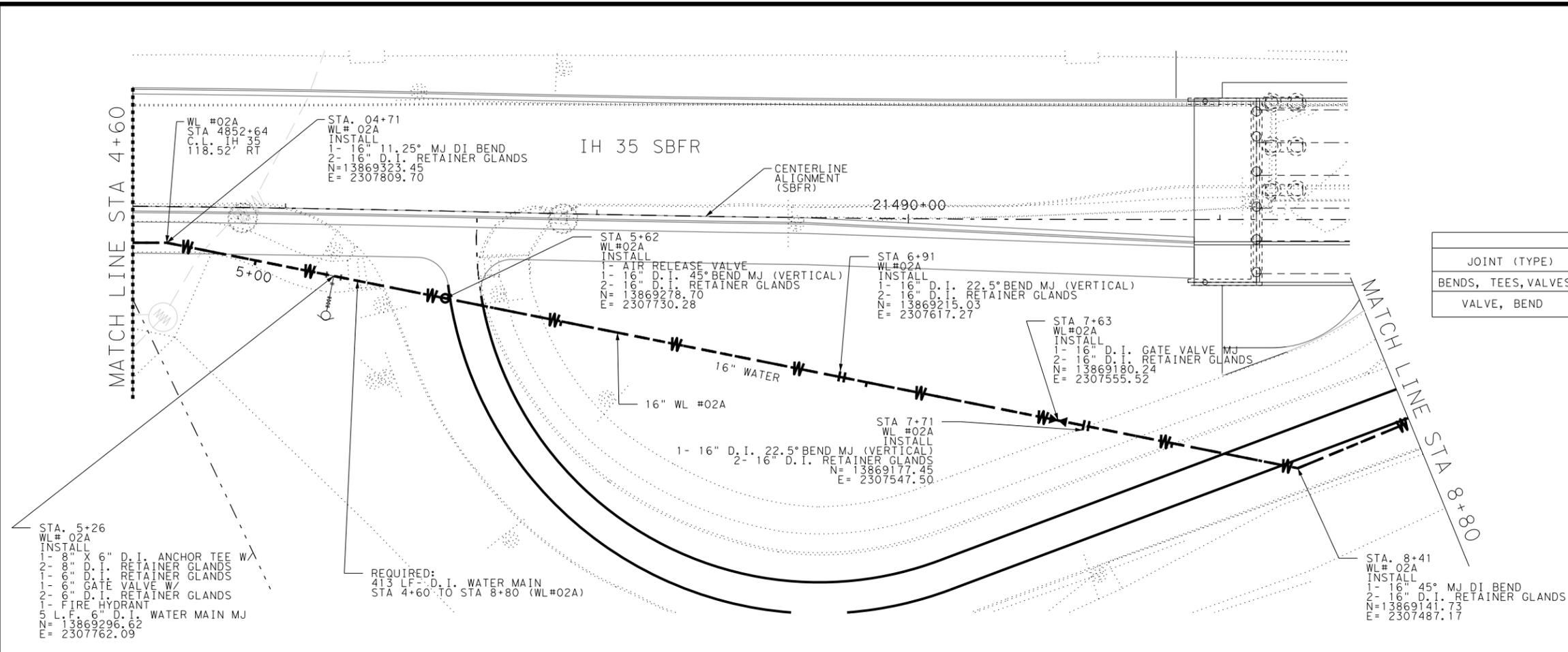
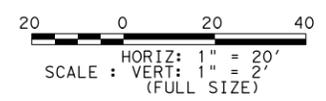
- NOTES:**
- CONTRACTOR SHALL FIELD VERIFY EXISTING SERVICE LINES AND RECONNECT TO NEW SERVICE LINES. SERVICE TAPS SHOWN ARE APPROXIMATE AND ARE FOR INFORMATION ONLY.



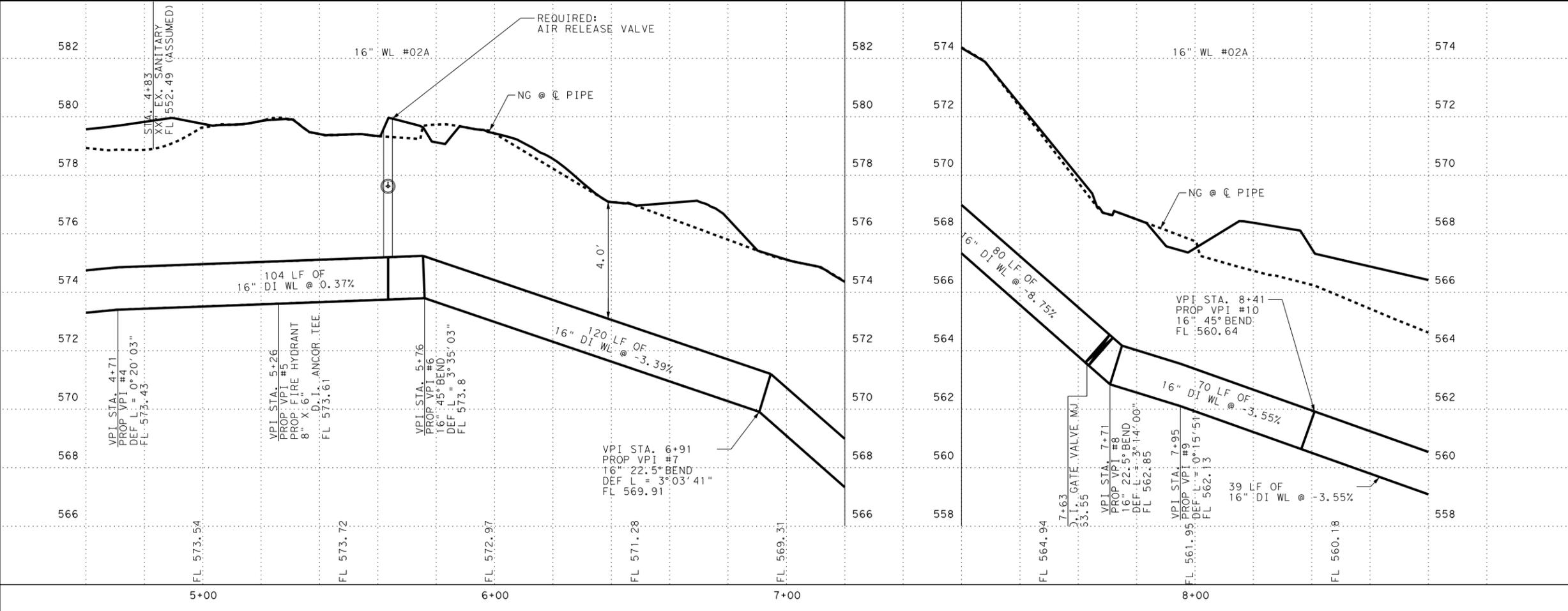
**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 2 OF 21				
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JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
BENDS, TEES, VALVES	DUCTILE IRON	16"	5+25 TO 6+00
VALVE, BEND	DUCTILE IRON	16"	6+52 TO 8+80



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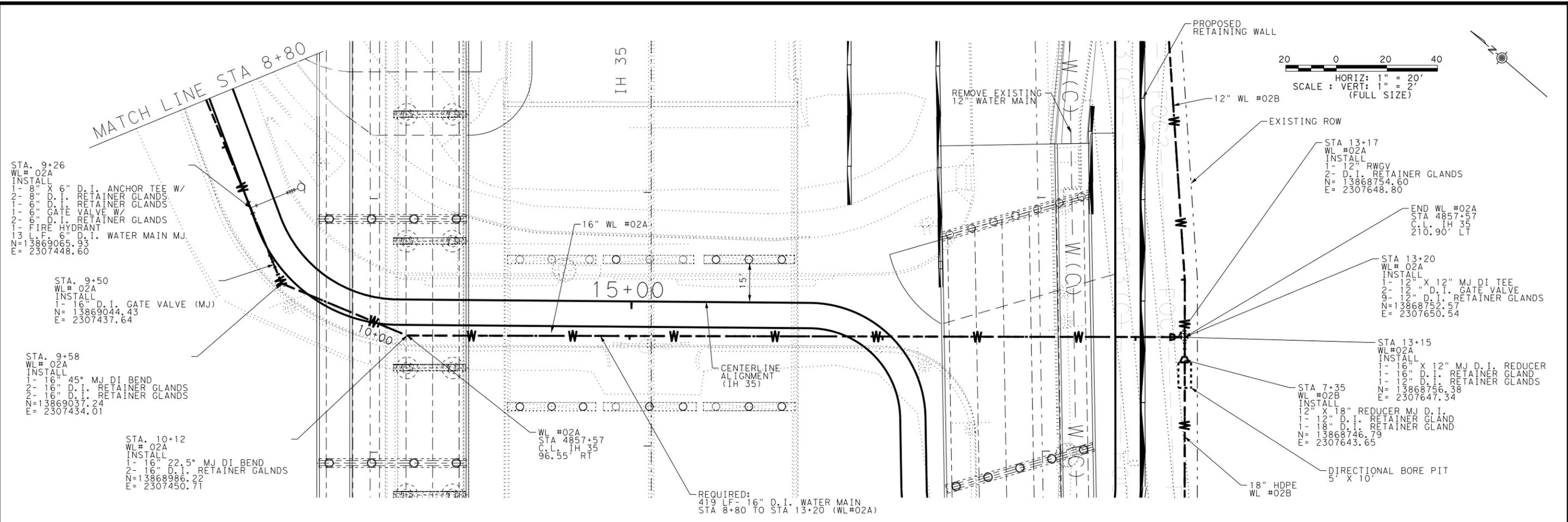


**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

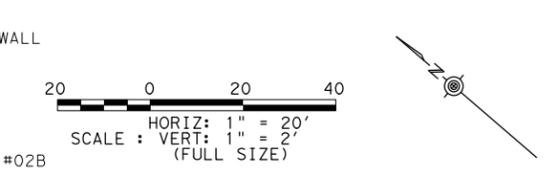
SHEET 4 OF 21

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- STA. 9+26
 WL# 02A
 INSTALL
 1- 8" X 6" D.I. ANCHOR TEE W/
 2- 8" D.I. RETAINER GLANDS
 1- 6" D.I. RETAINER GLANDS
 1- 6" GATE VALVE W/
 2- 6" D.I. RETAINER GLANDS
 1- FIRE HYDRANT
 13 L.F. 6" D.I. WATER MAIN MJ.
 N=13869065.93
 E= 2307448.60
- STA. 9+50
 WL# 02A
 INSTALL
 1- 16" D.I. GATE VALVE (MJ)
 N= 13869044.43
 E= 2307437.64
- STA. 9+58
 WL# 02A
 INSTALL
 1- 16" 45° MJ DI BEND
 2- 16" D.I. RETAINER GLANDS
 2- 16" D.I. RETAINER GLANDS
 N=13869037.24
 E= 2307434.01
- STA. 10+12
 WL# 02A
 INSTALL
 1- 16" 22.5° MJ DI BEND
 2- 16" D.I. RETAINER GALNDS
 N=13868986.22
 E= 2307450.71



FOR PROFILE VIEW SEE SHEET 6 OF 21

JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
BEND, VALVE	DUCTILE IRON	16"	9+38 TO 9+78
BEND	DUCTILE IRON	16"	9+92 TO 10+32
BEND, REDUCER, VALVE, TEE	DUCTILE IRON	16"	12+60 TO 13+20



**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

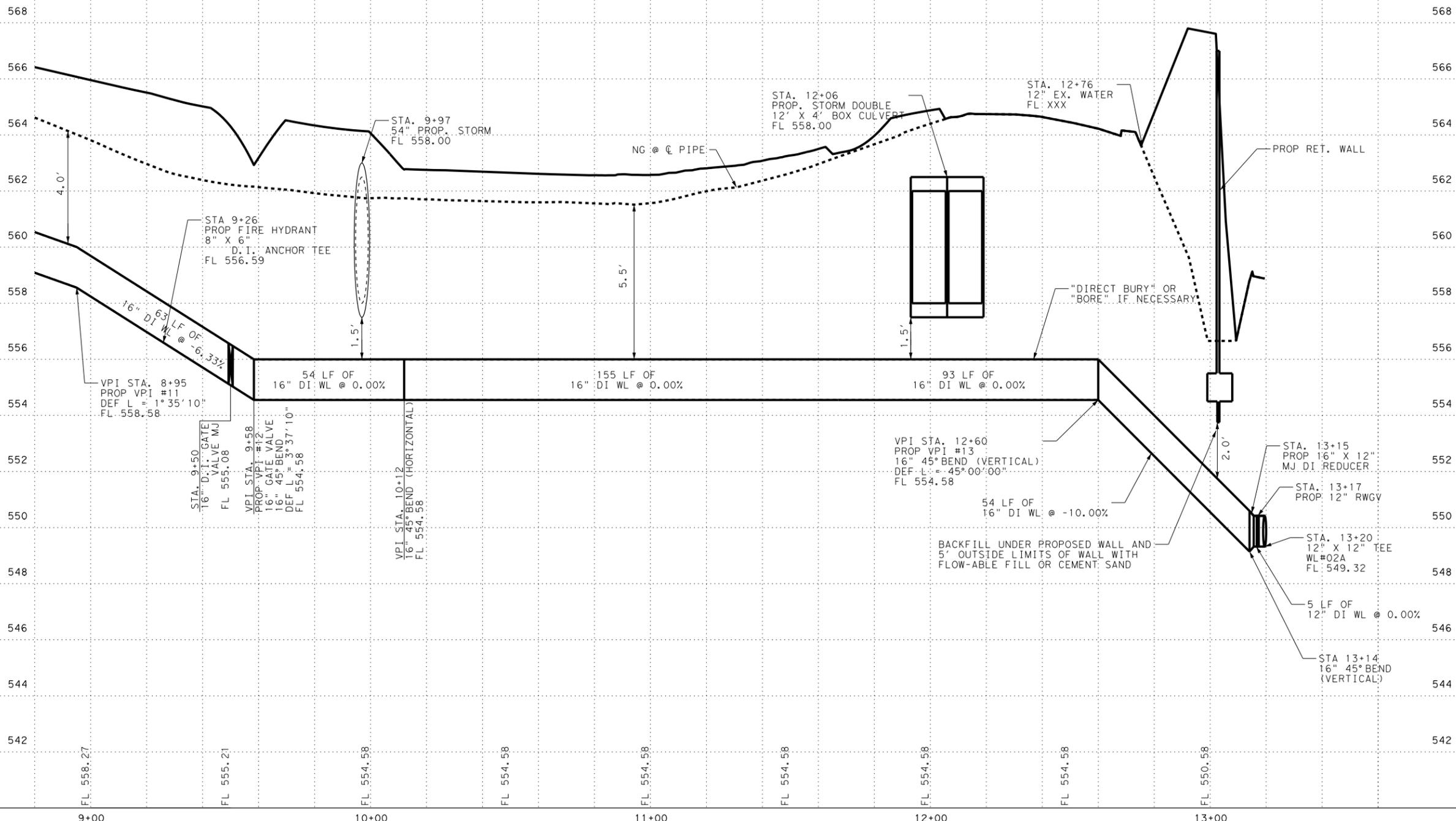
SHEET 5 OF 21

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DATE: 19-FEB-2021 20:13
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FOR PLAN VIEW SEE SHEET 5 OF 21

NOTES:
 PROPOSED 16" WATER MAIN SHALL BE DIRECT BURY IN ACCORDANCE WITH PLANS AND SPECIFICATIONS. CONTRACTOR SHALL ADHERE TO MINIMUM VERTICAL CLEARANCE OF 1.5 FEET BELOW ALL PROPOSED AND EXISTING STORM DRAINS.



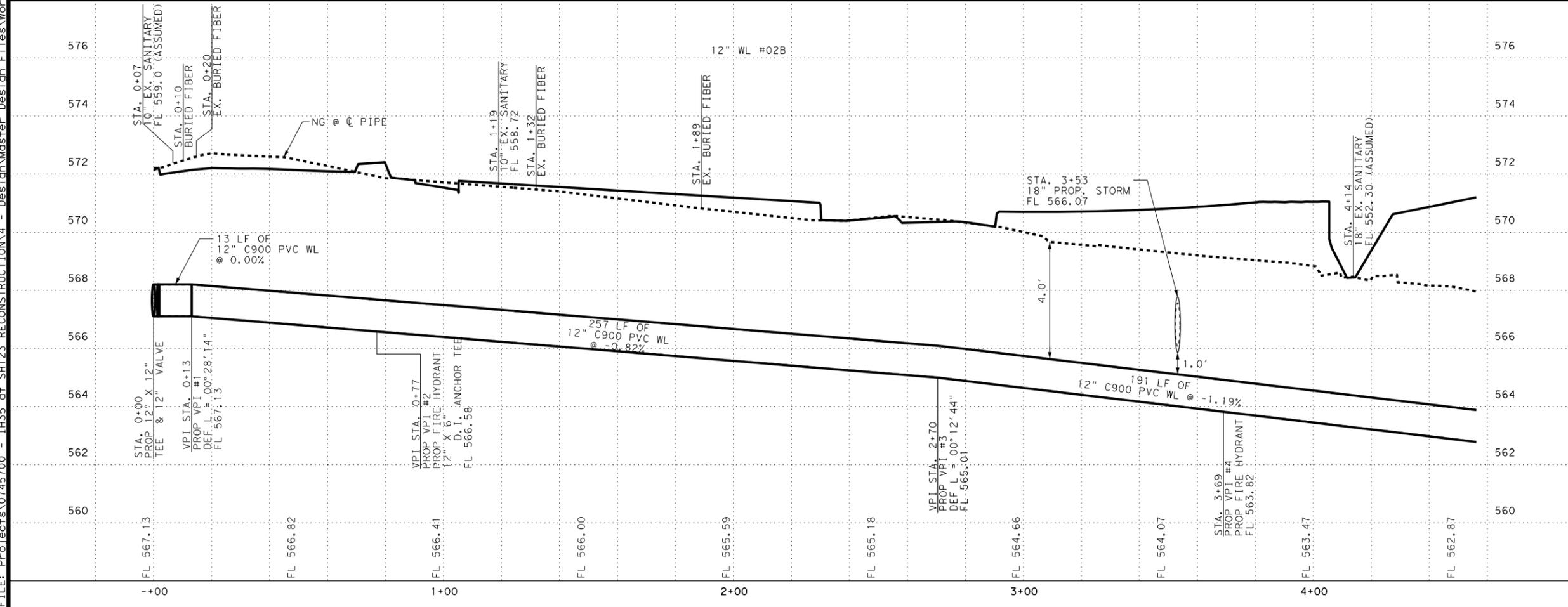
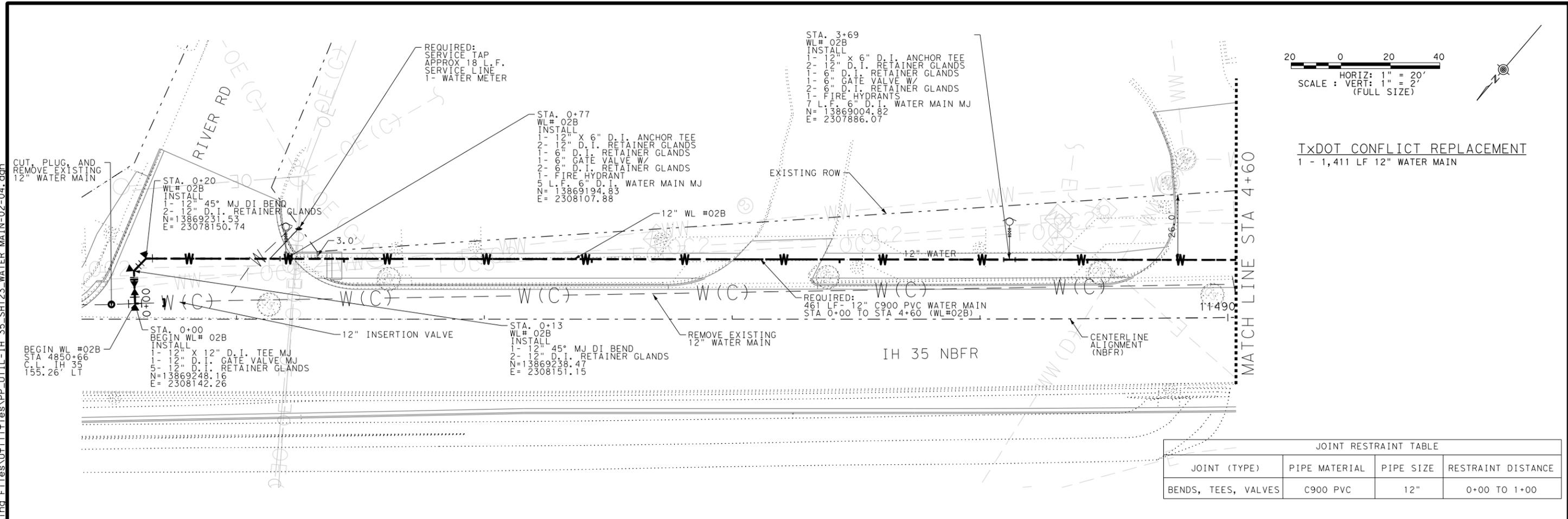
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**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 6 OF 21				
DESIGNER	CONT	SECT	JOB	HIGHWAY
CK:	0016	03	114	IH 35
DIST	COUNTY		SHEET NO.	
AUS	HAYS		1061	

DATE: 06-NOV-2020 19:28
 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP UTIL-IH 35_SH123_WATER MAIN-02-04.dgn



STATE OF TEXAS
 JOSEPH R. HEMPHILL
 132392
 LICENSED
 PROFESSIONAL ENGINEER
 11/6/2020

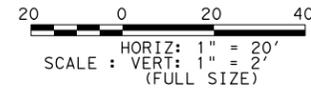
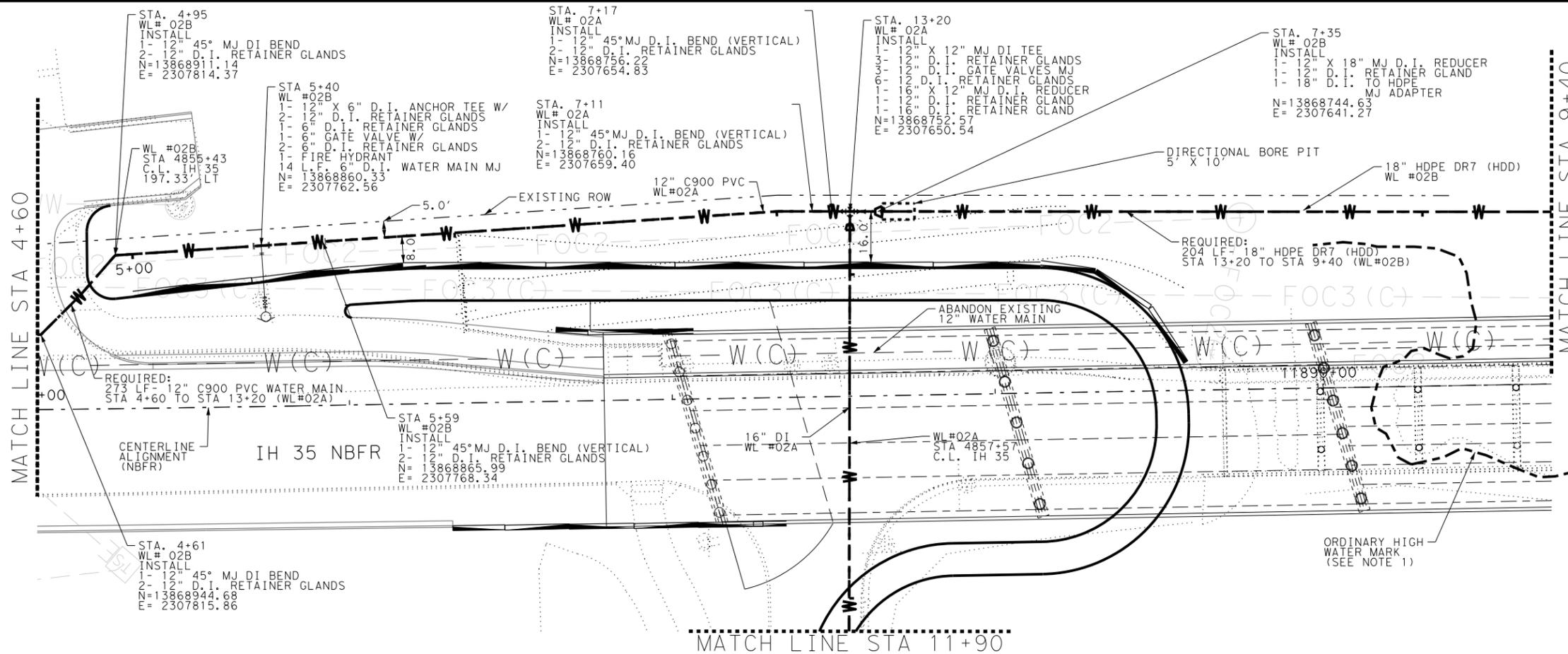
mobility CAPITAL AREA 35
 VOLKERT
 F-12679

Texas Department of Transportation

**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 7 OF 21				
CONT	SECT	JOB	HIGHWAY	
0016	03	114	IH 35	
DIST	COUNTY		SHEET NO.	
AUS	HAYS		1062	

DATE: 06-NOV-2020 19:27
 FILE: Projects\0745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP UTIL-IH 35_SH123_WATER MAIN-02-05a.dgn



- NOTES:**
- CONTRACTOR SHALL NOT PERFORM ANY CONSTRUCTION ACTIVITIES WITHIN THE ORDINARY HIGH WATER MARK (OHWM) AREA OF THE SAN MARCOS RIVER. OHWM SURVEY LINES SHOWN ARE APPROXIMATE AND ARE FOR INFORMATION ONLY.

FOR PROFILE VIEW SEE SHEET 9 OF 21

JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
BEND, TEES	C900 PVC	12"	4+41 TO 6+14
BEND, TEE, REDUCER	C900 PVC	12"	6+70 TO 7+53



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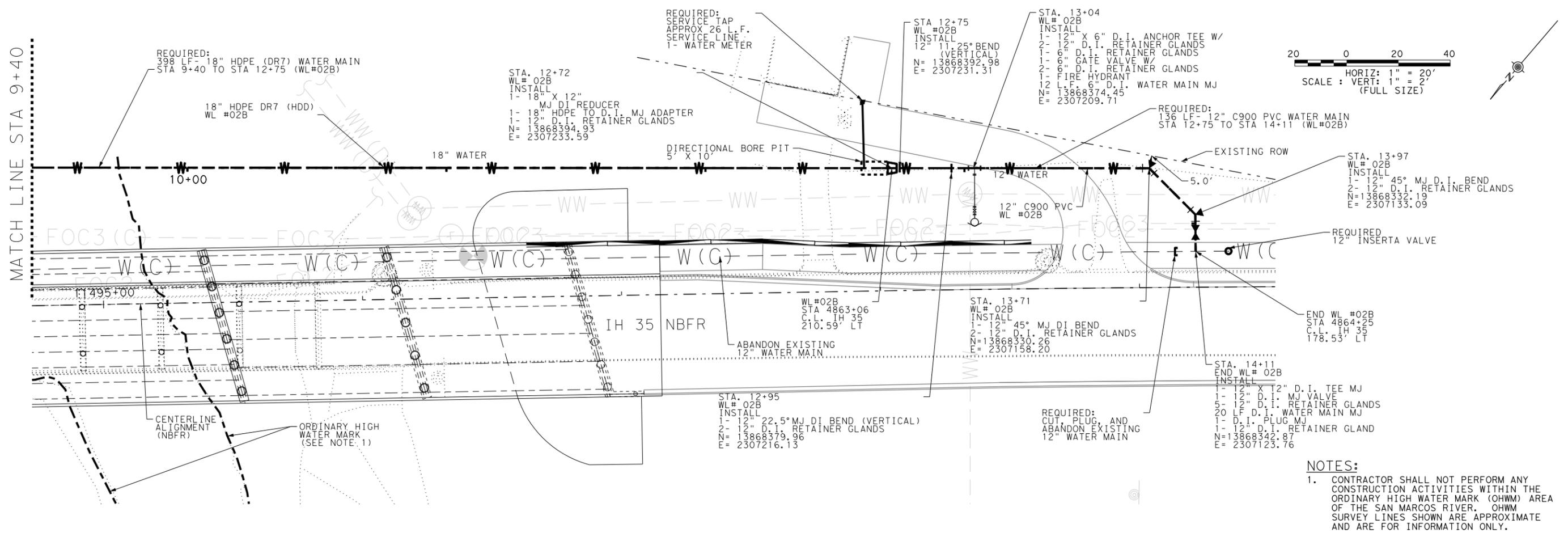


**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 8 OF 21

DS:	CONT:	SECT:	JOB:	HIGHWAY:
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DW:	DIST:	COUNTY:	SHEET NO.	
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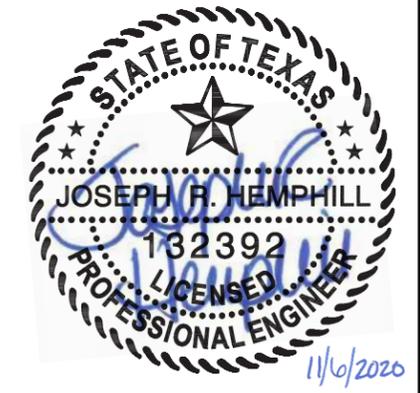
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NOTES:
 1. CONTRACTOR SHALL NOT PERFORM ANY CONSTRUCTION ACTIVITIES WITHIN THE ORDINARY HIGH WATER MARK (OHWM) AREA OF THE SAN MARCOS RIVER. OHWM SURVEY LINES SHOWN ARE APPROXIMATE AND ARE FOR INFORMATION ONLY.

FOR PROFILE VIEW SEE SHEET 11 OF 21

JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
TEE, REDUCER, BENDS	C900 PVC	12"	12+72 TO 13+15
BEND, GATE VALVE	C900 PVC	12"	13+51 TO 14+11



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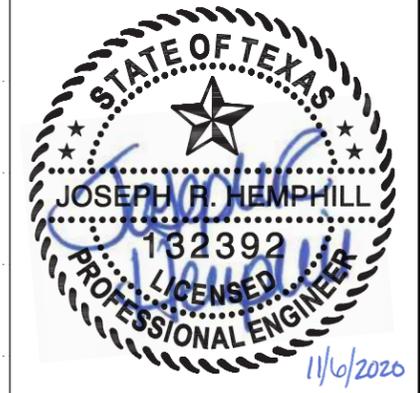
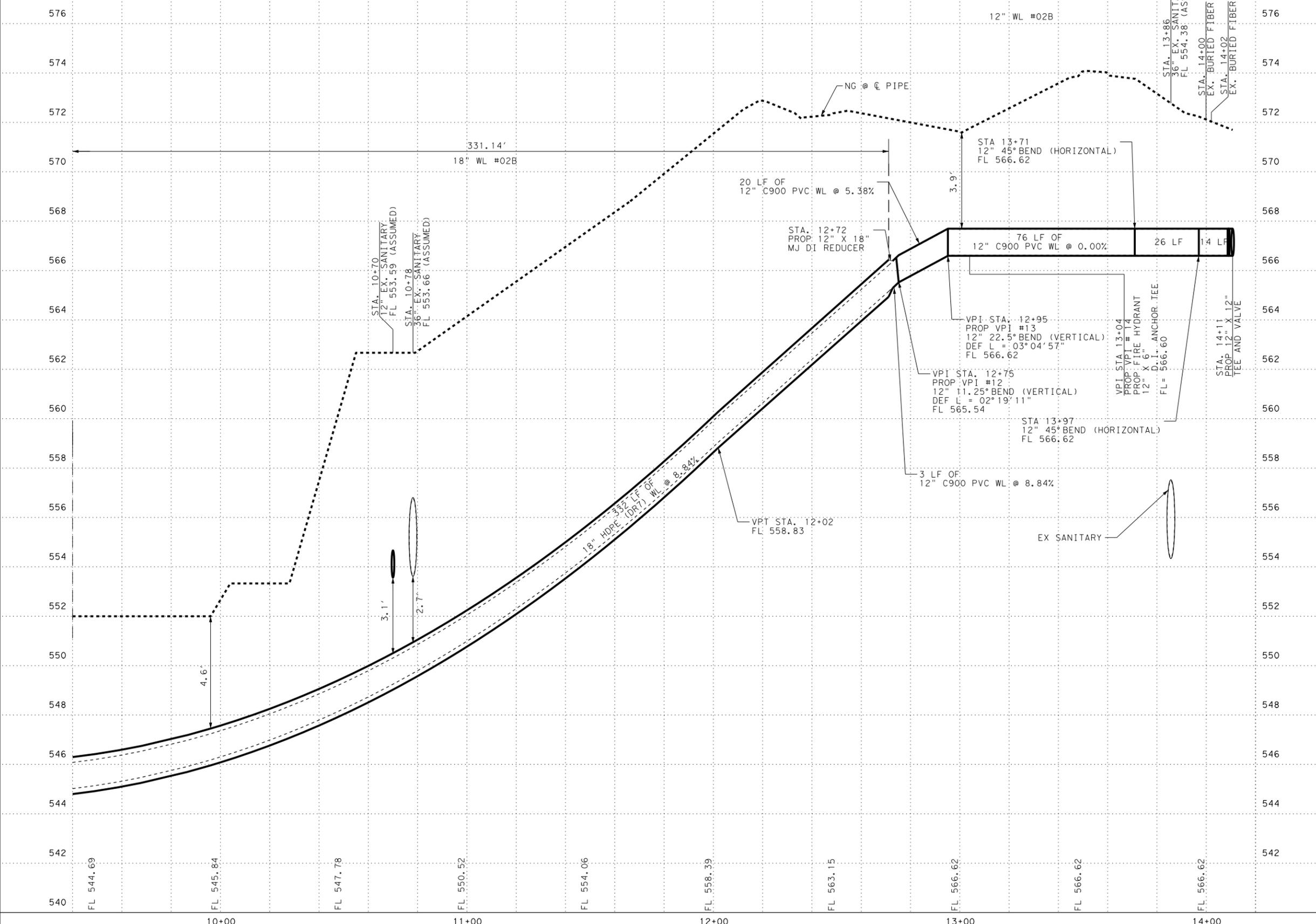
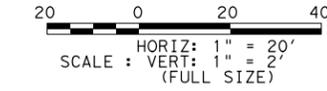
**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 10 OF 21

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FOR PLAN VIEW SEE SHEET 10 OF 21



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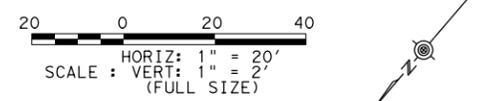
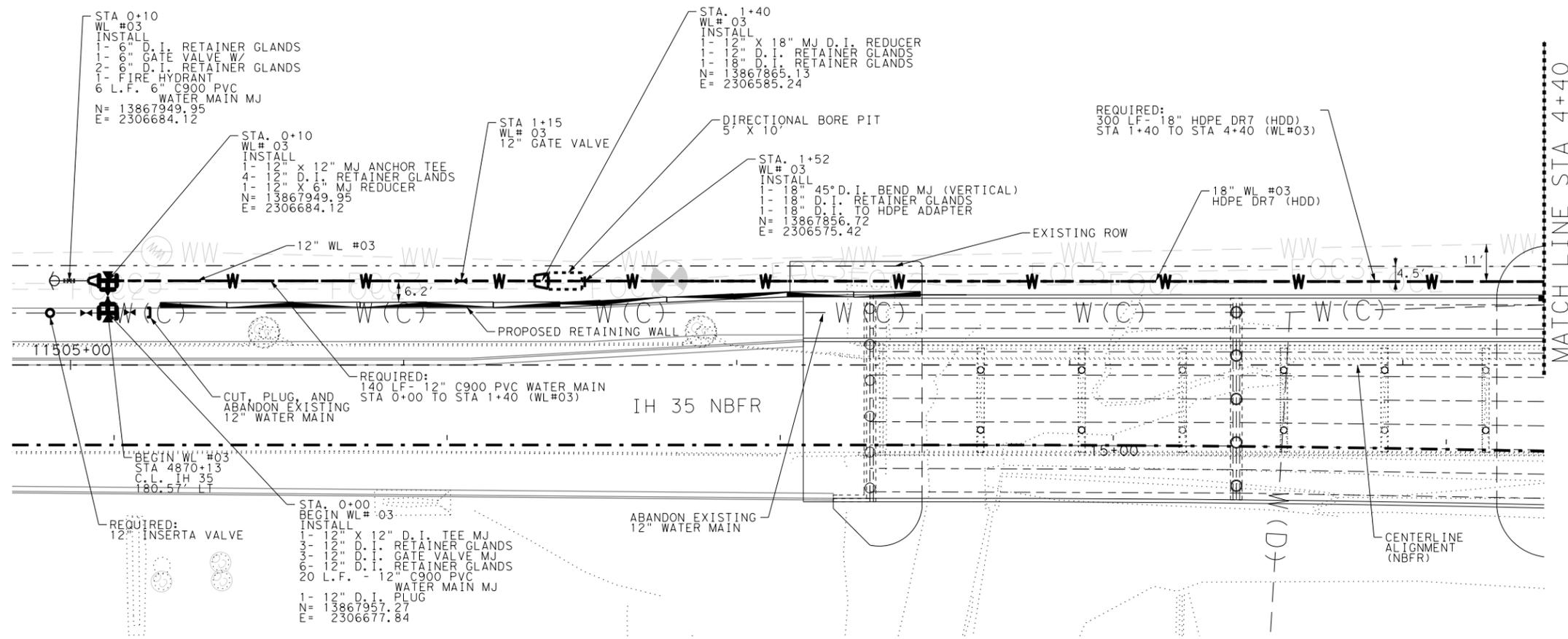


**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 11 OF 21

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TxDOT CONFLICT REPLACEMENT
 1 - 746 LF 12" WATER MAIN

FOR PROFILE VIEW SEE SHEET 13 OF 21

JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
TEE, VALVE, BEND	C900 PVC	12"	0+00 TO 1+40
REDUCER, BEND	HDPE	18"	1+40 TO 6+43



3.8.21



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 F-12679



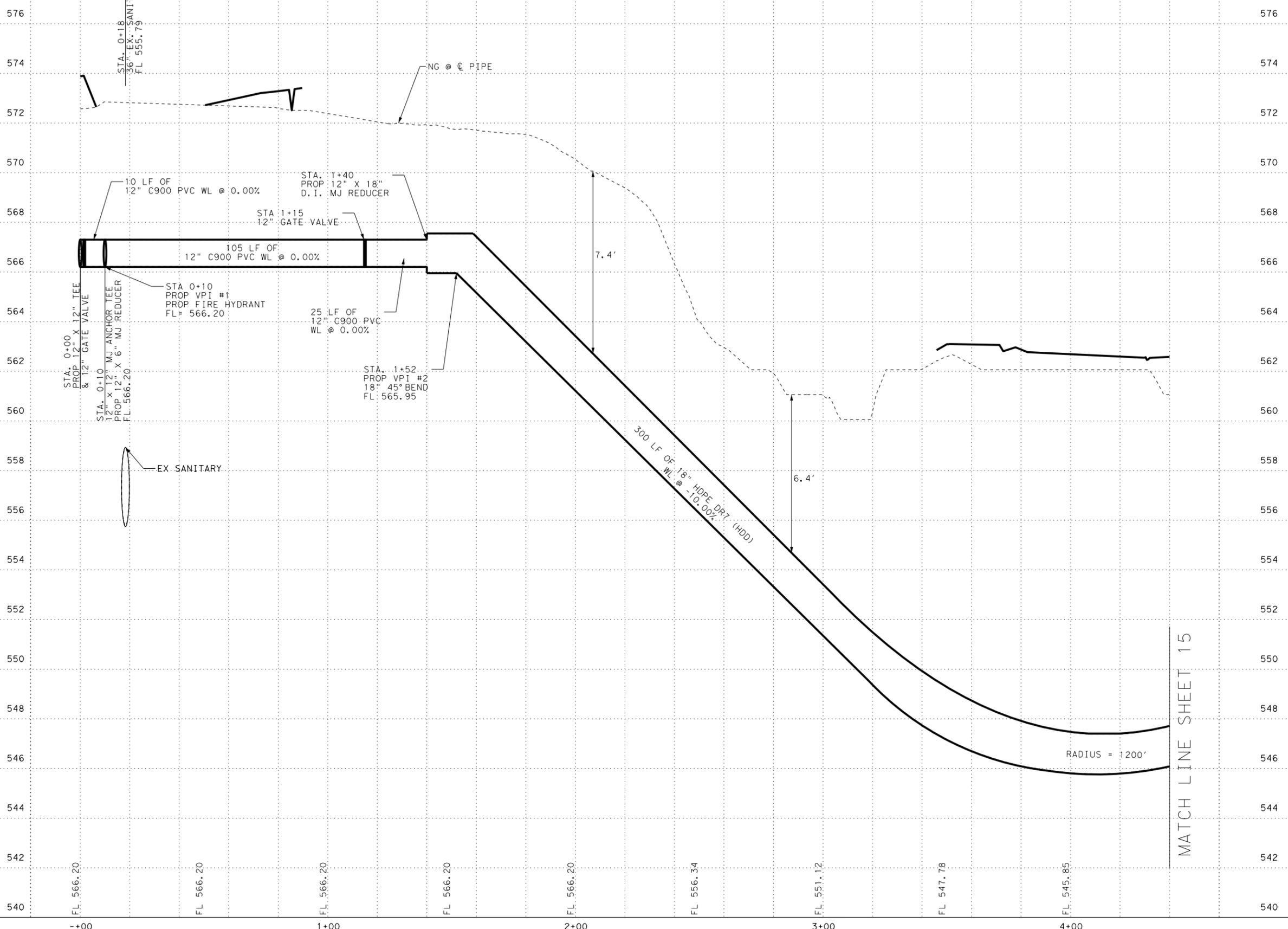
**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 12 OF 21

DS:	CK:	CONT	SECT	JOB	HIGHWAY
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		AUS		HAYS	1067

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 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP UTIL-IH 35_SH123_WATER_MAIN-03-01b.dgn

FOR PLAN VIEW SEE SHEET 12 OF 21



MATCH LINE SHEET 15



VOLKERT
F-12679



**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 13 OF 21					
DS:	CK:	CONT:	SECT:	JOB:	HIGHWAY:
		0016	03	114	IH 35
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		AUS		HAYS	1068

DATE: 21-JAN-2021 18:06
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FOR PLAN VIEW SEE SHEET 14 OF 21



3.8.21



VOLKERT
F-12679

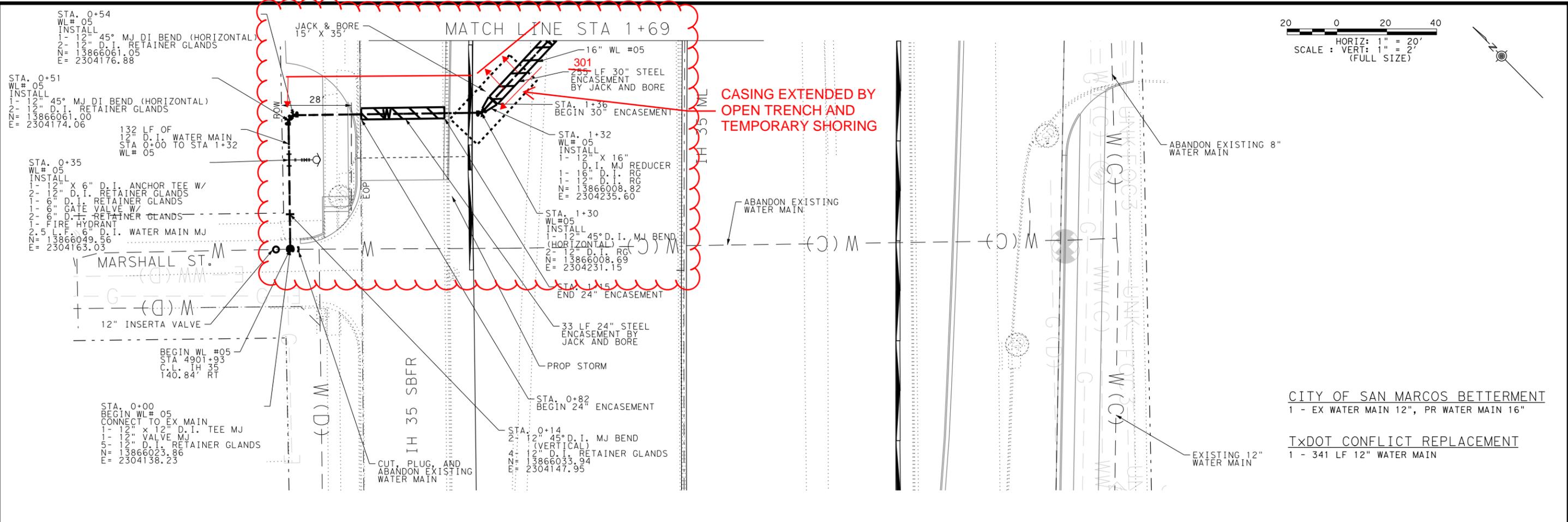


**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 15 OF 21

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		AUS		HAYS	1070

DATE: 21-JAN-2021 18:04
 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP_UTIL-IH 35_SH123_WATER_MAIN-05-01a.dgn



20 0 20 40
 HORIZ: 1" = 20'
 SCALE: VERT: 1" = 2'
 (FULL SIZE)

CITY OF SAN MARCOS BETTERMENT
 1 - EX WATER MAIN 12", PR WATER MAIN 16"
 TxDOT CONFLICT REPLACEMENT
 1 - 341 LF 12" WATER MAIN

FOR PROFILE VIEW SEE SHEET 19 OF 21

JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
TEE, VALVE, BEND	DUCTILE IRON	12"	0+00 TO 1+32
REDUCER, BENDS	DUCTILE IRON	16"	1+32 TO 4+50



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 F-12679



**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

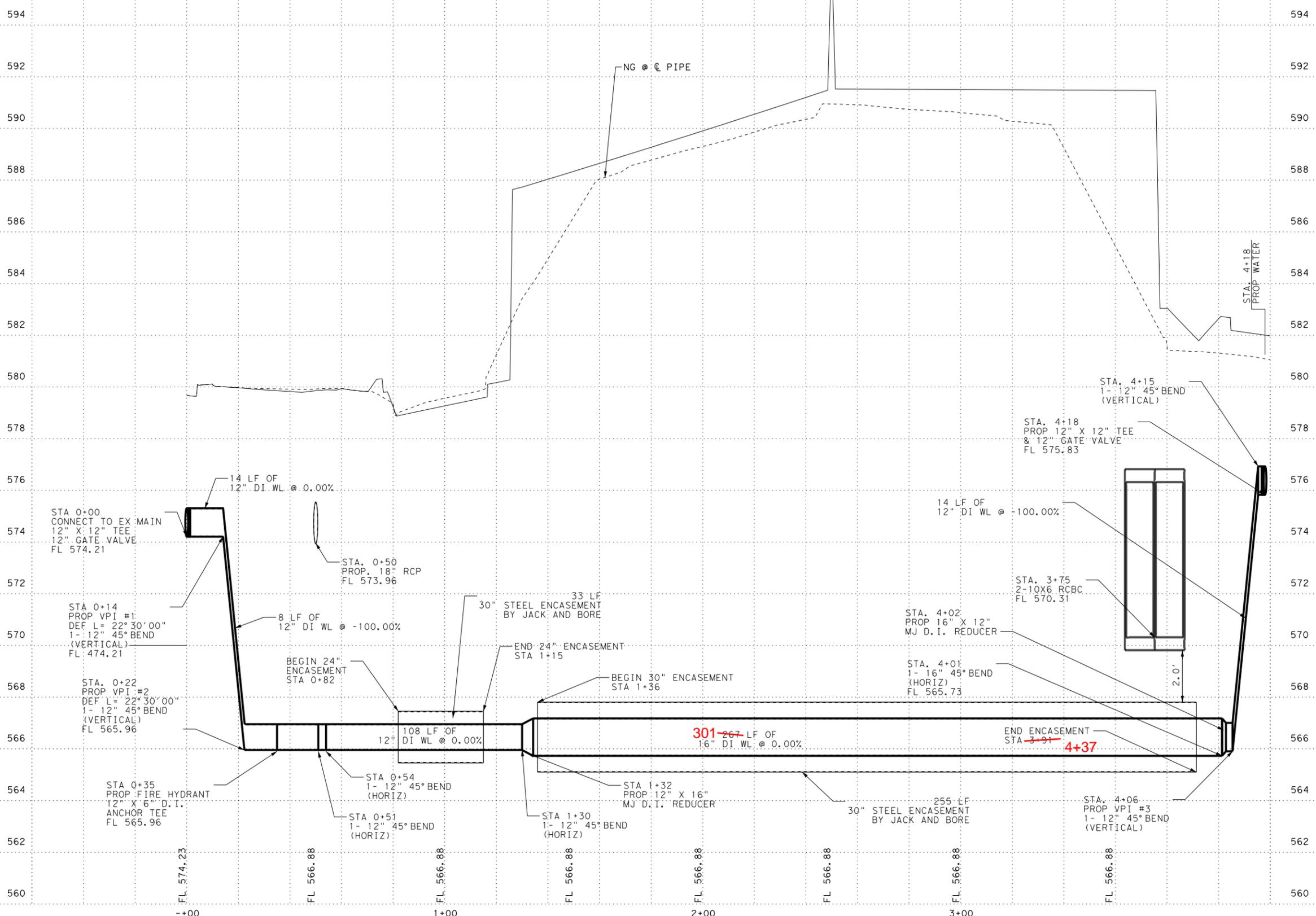
SHEET 18 OF 21

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		AUS		HAYS	1073

FOR PLAN VIEW SEE SHEET 17 AND 18 OF 21



DATE: 21-JAN-2021 18:06 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Utilities\PP UTIL - IH 35_SH123_WATER_MAIN-05-01b.dgn



3.8.21



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F-12679

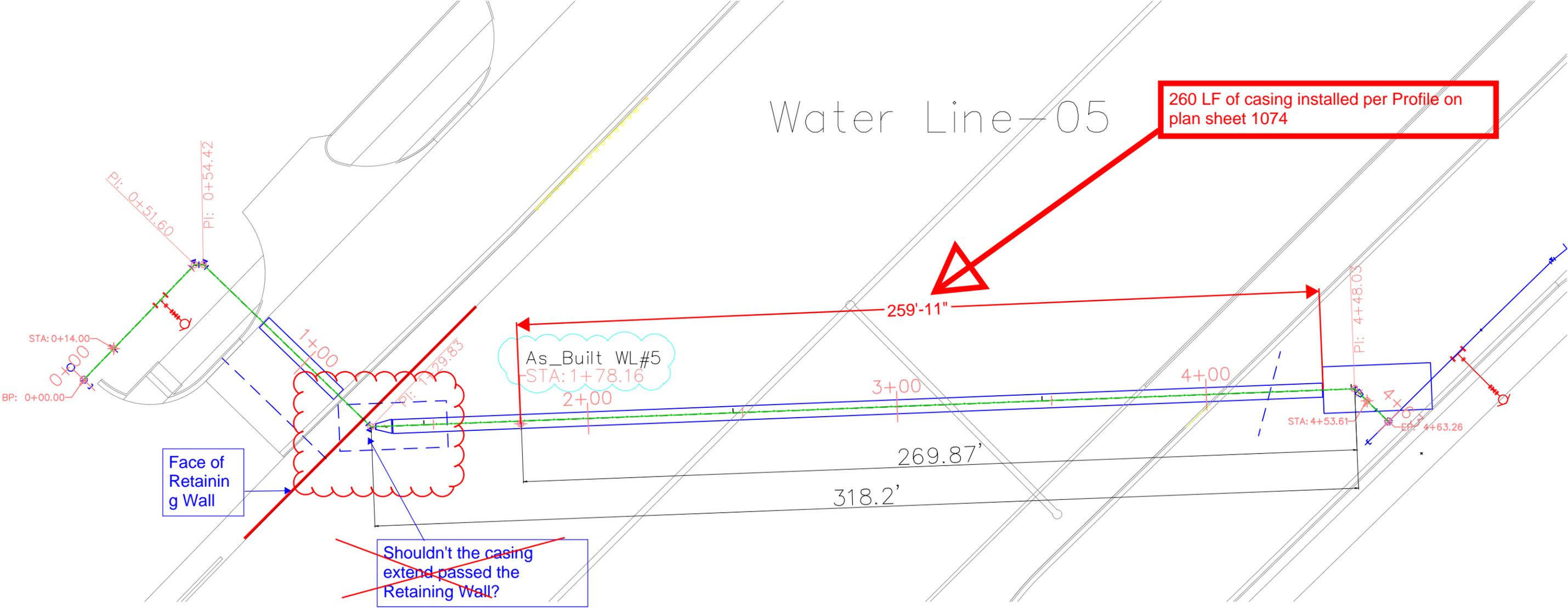


**IH 35 AT SH 123
WATER MAIN
PLAN AND PROFILE**

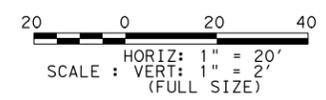
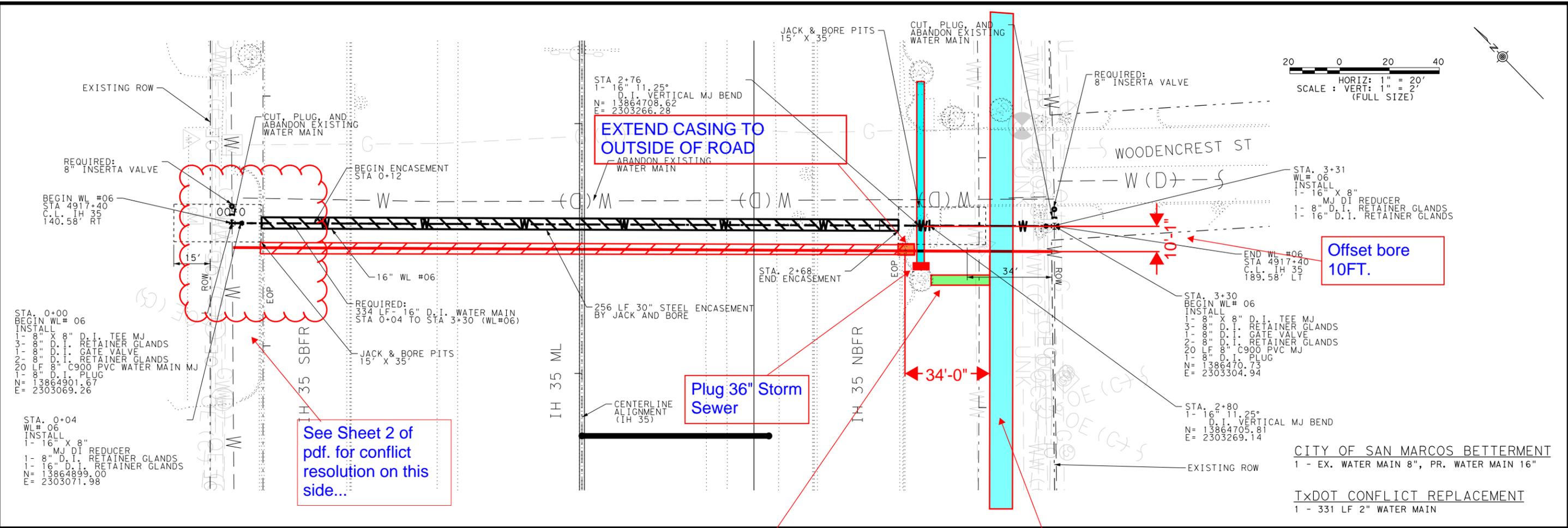
SHEET 19 OF 21					
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		0016	03	114	IH 35
DW:	CK:	DIST:		COUNTY:	SHEET NO.
		AUS		HAYS	1074

Water Line-05

260 LF of casing installed per Profile on plan sheet 1074



DATE: 06-NOV-2020 19:27
 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP UTIL - IH 35_SH123_WATER MAIN-06-01a.dgn



EXTEND CASING TO OUTSIDE OF ROAD

Offset bore 10FT.

Plug 36" Storm Sewer

See Sheet 2 of pdf. for conflict resolution on this side...

Divert Storm to Existing CMP

Existing 66" CMP

FOR PROFILE VIEW SEE SHEET 21 OF 21

JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
TEE, BEND, REDUCER, VALVE	DUCTILE IRON	16"	0+00 TO 3+34



VOLKERT
 F-12679

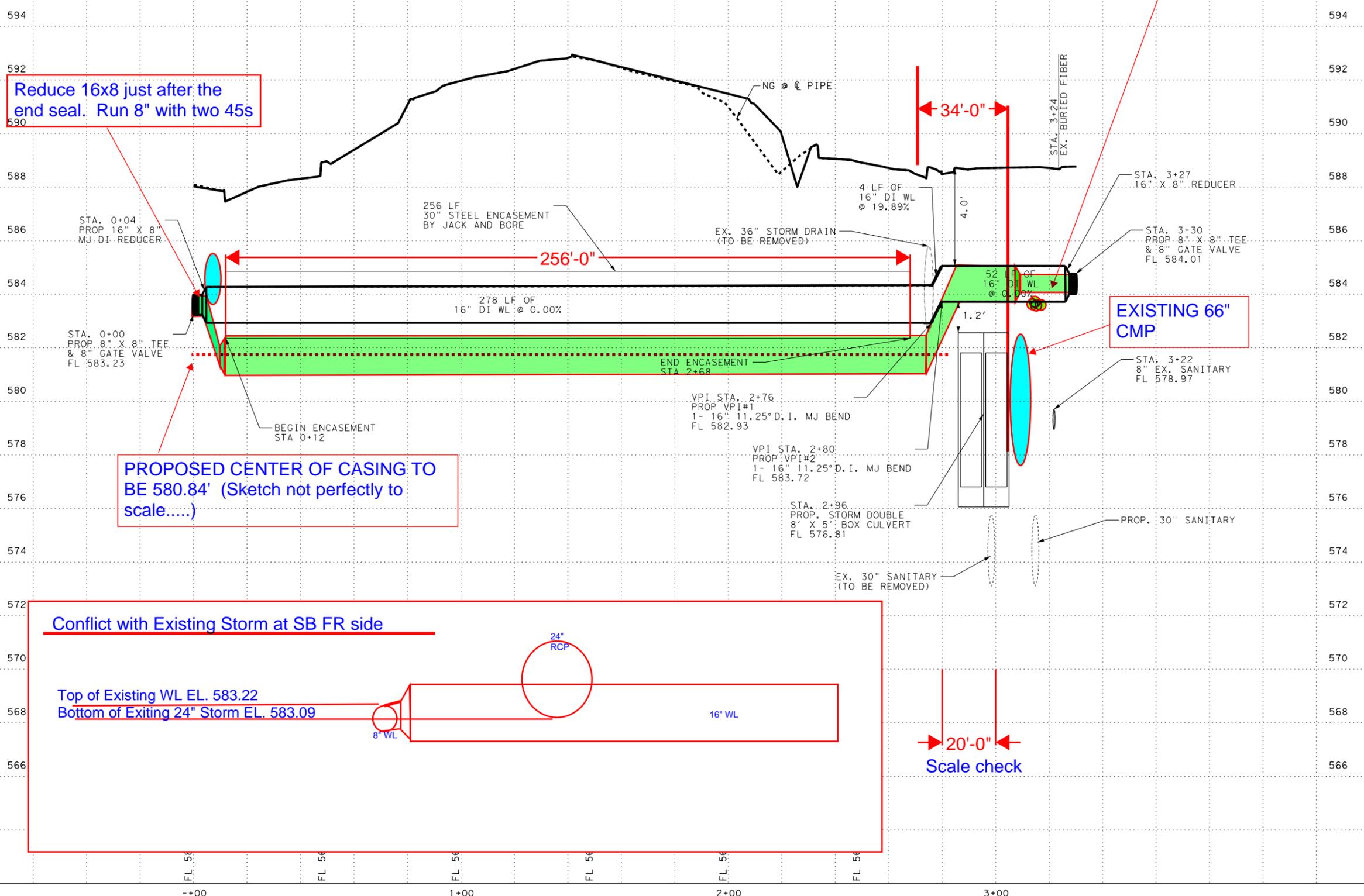


**IH 35 AT SH 123
 WATER MAIN
 PLAN AND PROFILE**

SHEET 20 OF 21

DS:	CONT:	SECT:	JOB:	HIGHWAY:
	0016	03	114	IH 35
DW:	DIST:	COUNTY:	SHEET NO.	
	AUS	HAYS	1075	

FOR PLAN VIEW SEE SHEET 20 OF 21



VOLKERT
F-12679



**IH 35 AT SH 123
WATER MAIN
PLAN AND PROFILE**

SHEET 21 OF 21

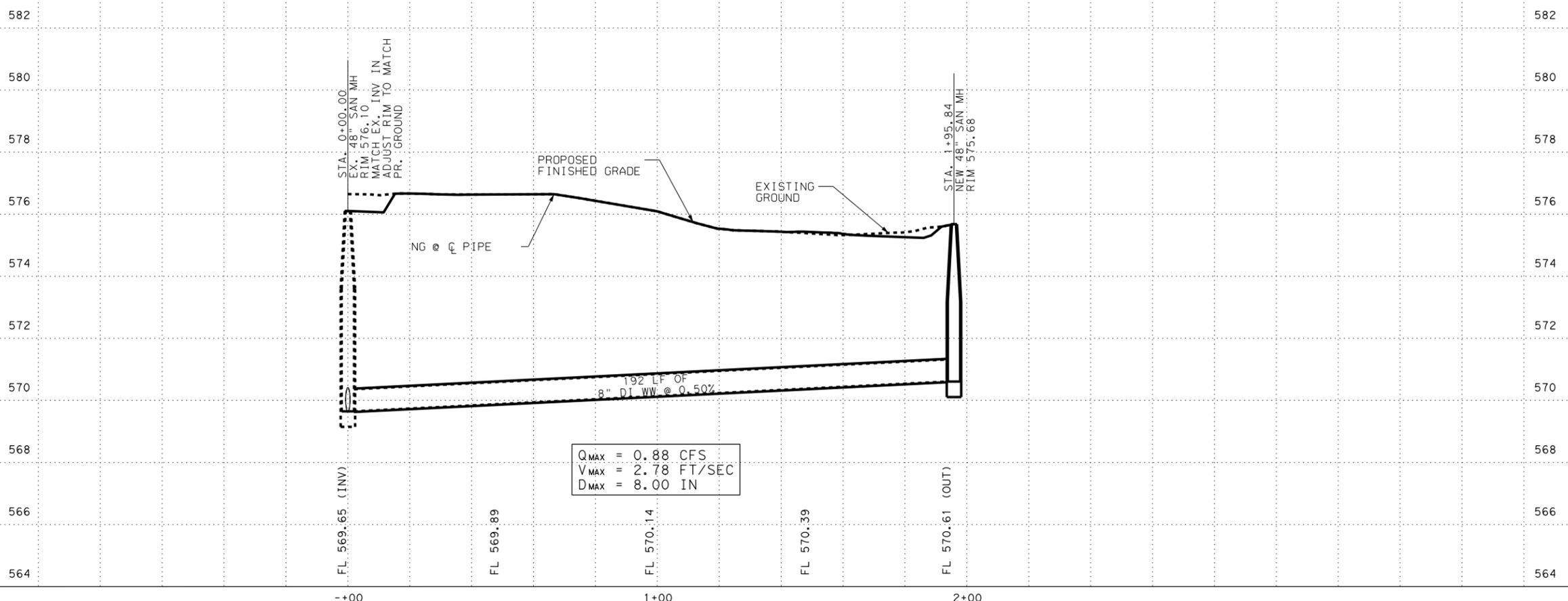
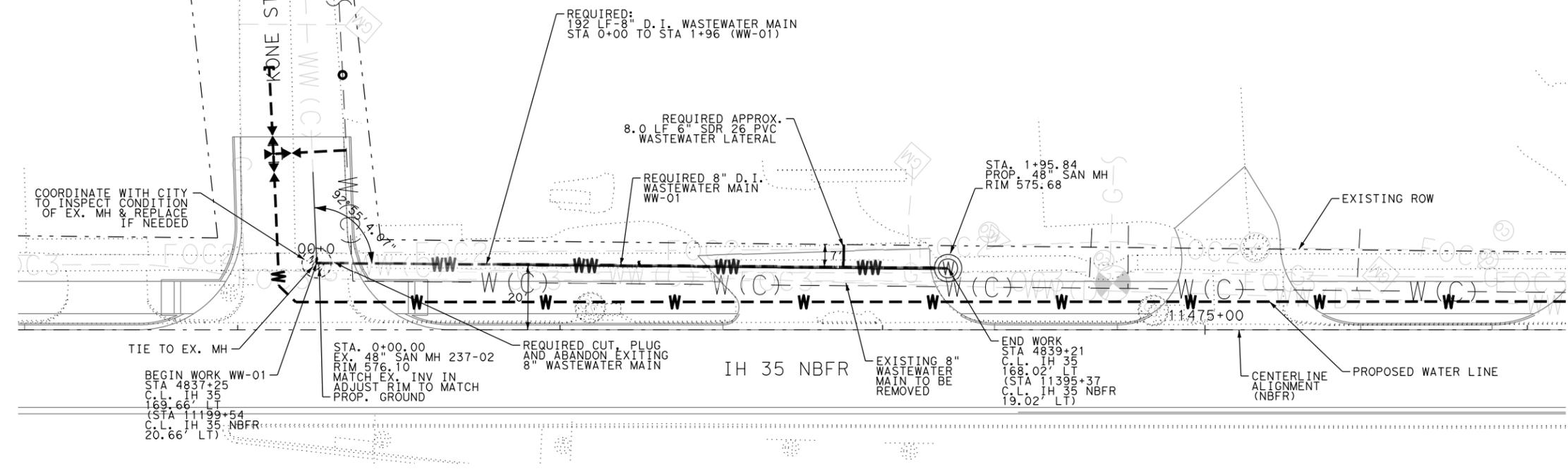
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DATE: 06-NOV-2020 19:27
 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP UTIL-IH 35_SH123_WASTEWATER-01.dgn



TxDOT CONFLICT REPLACEMENT
 1 - 196 LF WASTEWATER CONFLICT



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 F-12679

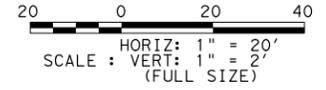


**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

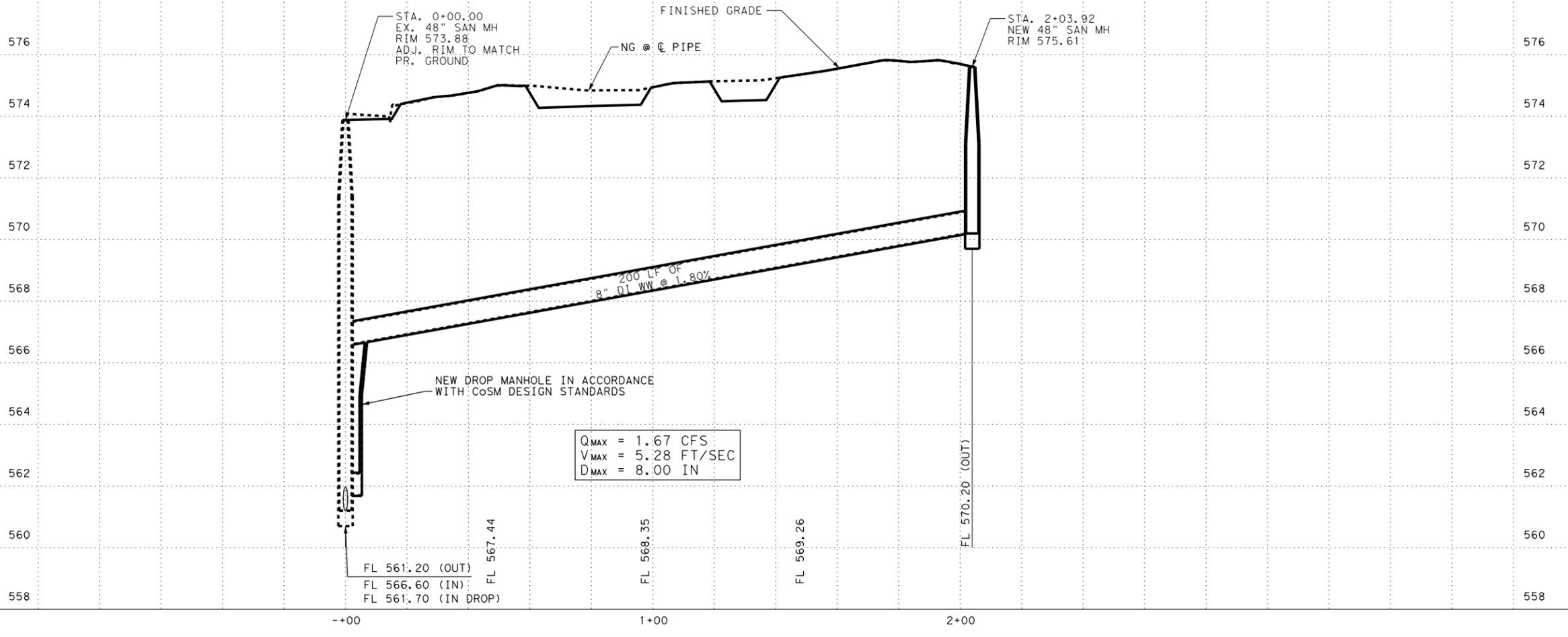
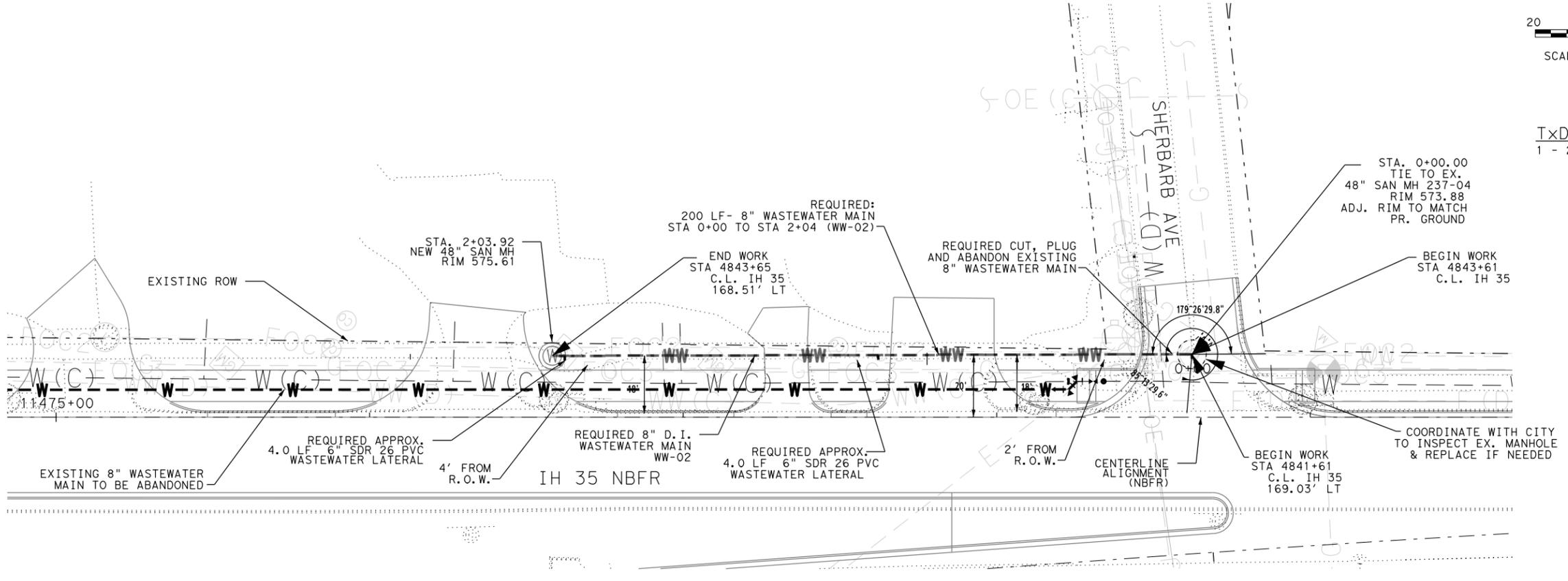
SHEET 1 OF 8

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 FILE: Projects\0745700 - IH35 at SH123_RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP UTIL - IH 35_SH123_WASTEWATER-02-01.dgn



TxDOT CONFLICT REPLACEMENT
 1 - 240 LF 8" WASTEWATER CONFLICT



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 F-12679

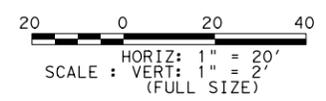
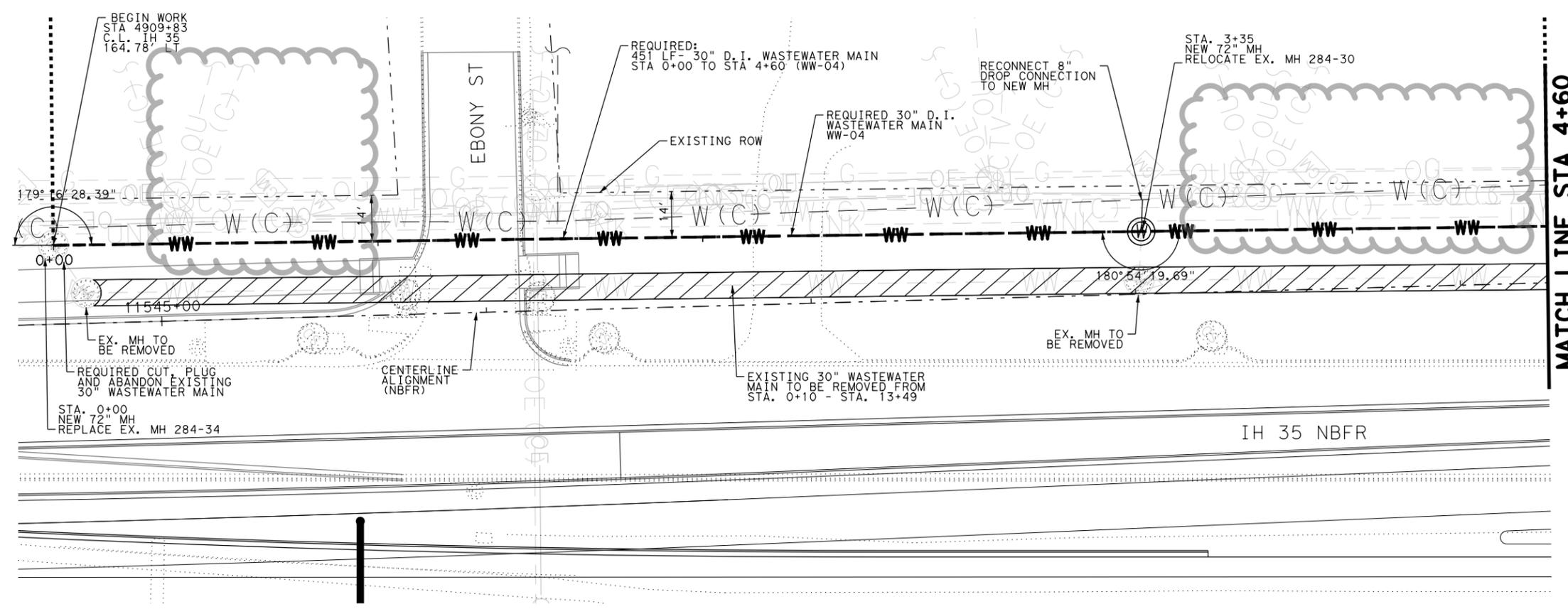


**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 2 OF 8

DES:	CK:	CONT:	SECT:	JOB:	HIGHWAY:
		0016	03	114	IH 35
DIST:	COUNTY:	SHEET NO.			
AUS	HAYS	1078			

DATE: 16-SEP-2021 19:19
 FILE: Projects\0745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Working Files\Utilities\PP_UTIL-IH_35_SH123_WASTEWATER-04-01.dgn



TxDOT CONFLICT REPLACEMENT
 1 - 1,305 LF 30" WASTEWATER CONFLICT

FOR PROFILE VIEW SEE SHEET 4 OF 8



VOLKERT
 F-12679



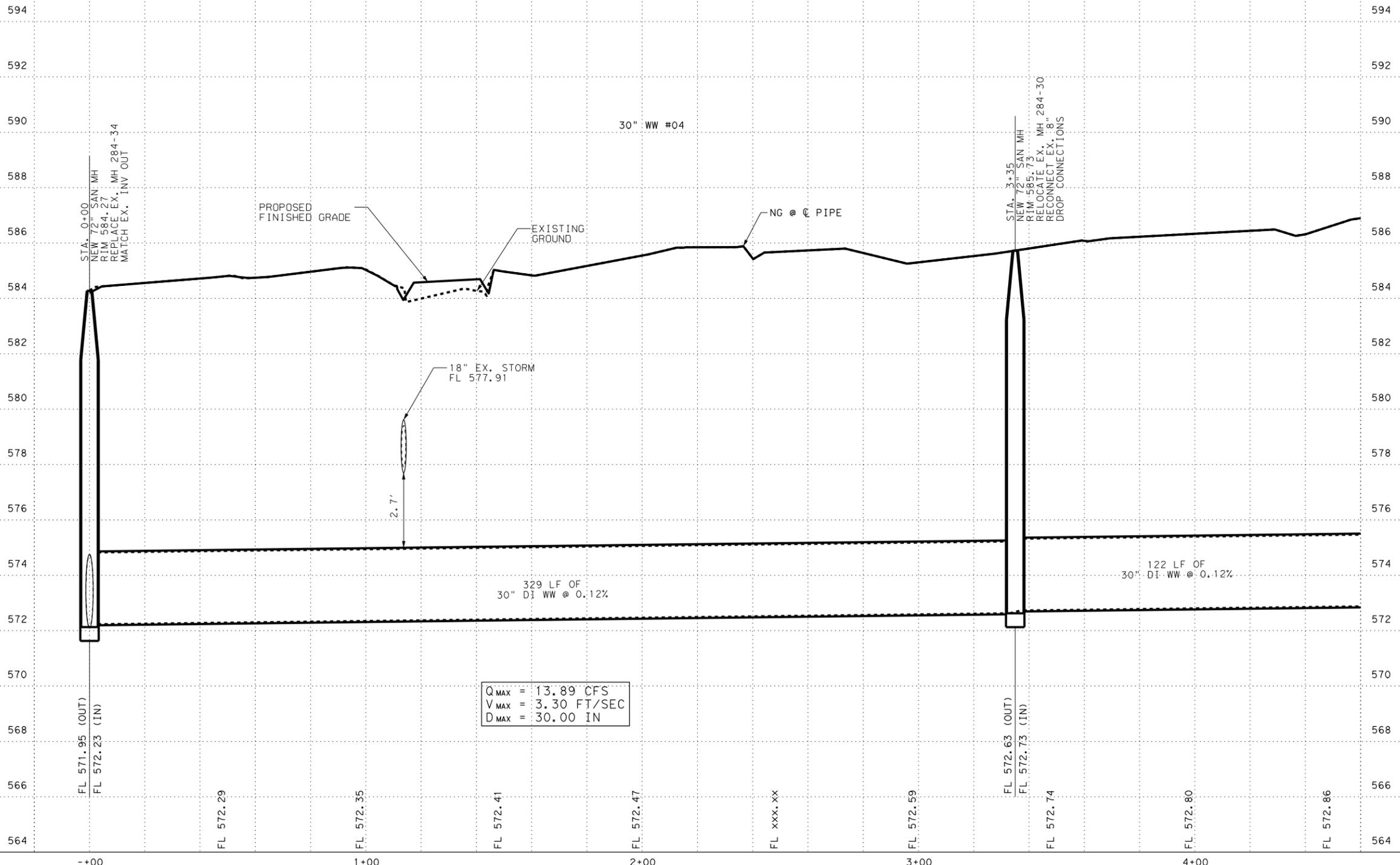
**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 3 OF 8

DS:	CK:	CONT:	SECT:	JOB:	HIGHWAY:
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FOR PLAN VIEW SEE SHEET 3 OF 8



VOLKERT
 F-12679

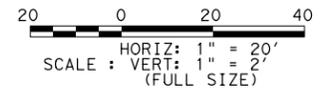
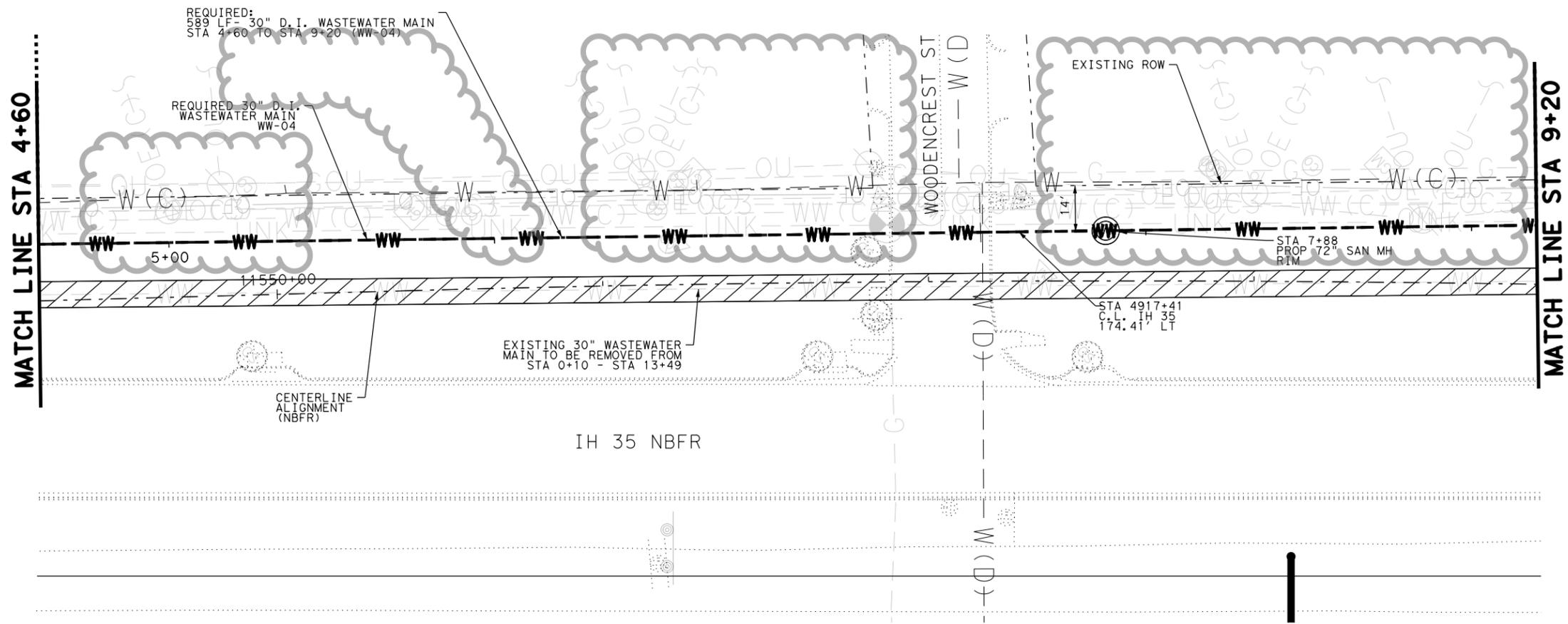


**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 4 OF 8

DESIGNER	CONT	SECT	JOB	HIGHWAY
CK: 0016	03		114	IH 35
DIST	COUNTY		SHEET NO.	
AUS	HAYS		1080	

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FOR PROFILE VIEW SEE SHEET 6 OF 8



VOLKERT
 F-12679



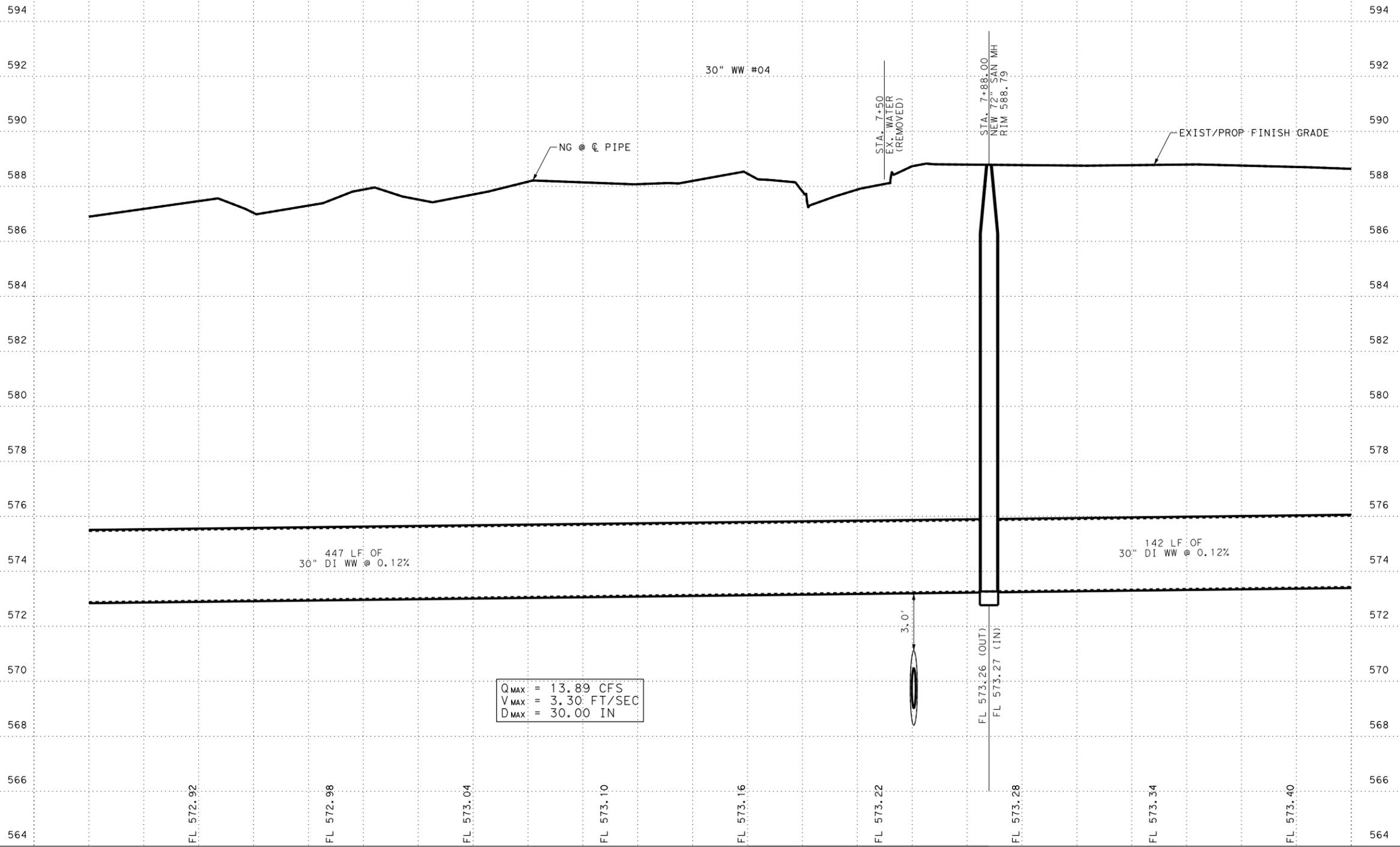
**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 5 OF 8

DS:	CK:	CONT:	SECT:	JOB:	HIGHWAY:
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		AUS		HAYS	1081

DATE: 06-NOV-2020 19:26
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FOR PLAN VIEW SEE SHEET 5 OF 8



VOLKERT
 F-12679

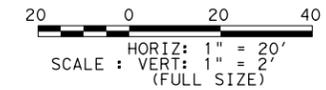
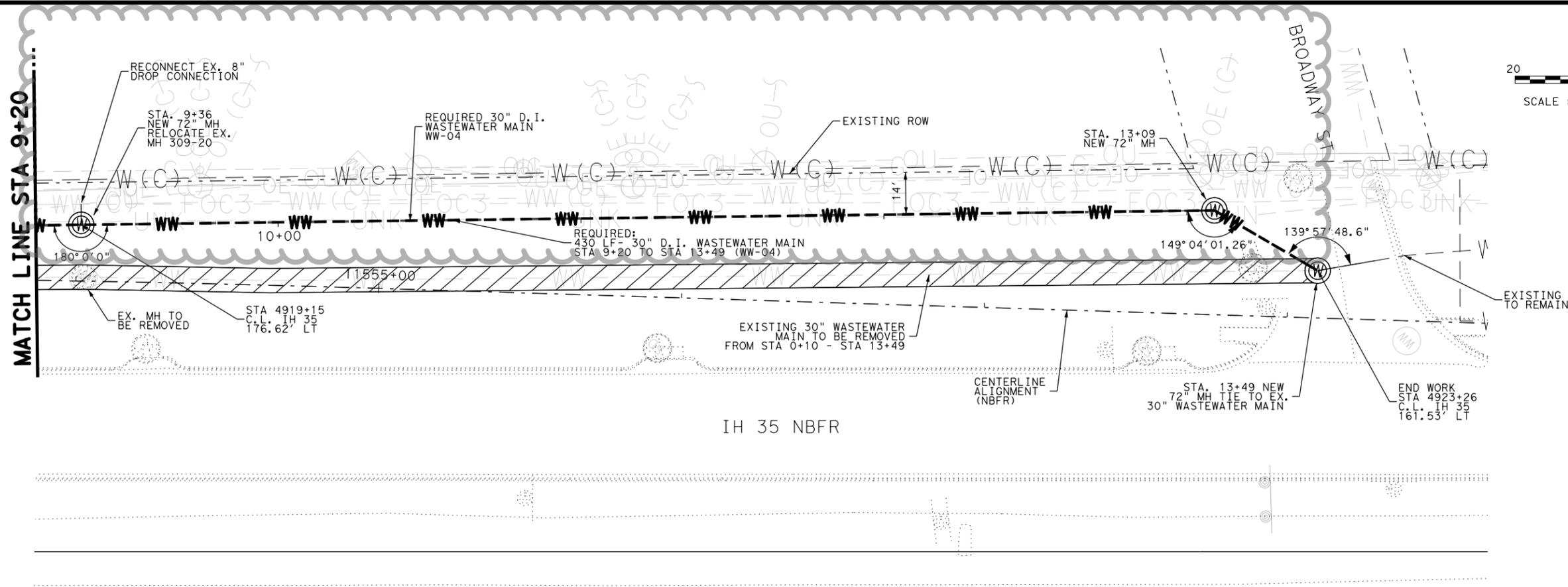


**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 6 OF 8

DESIGNER	CONT	SECT	JOB	HIGHWAY
CK: 0016	03		114	IH 35
DIST	COUNTY		SHEET NO.	
AUS	HAYS		1082	

DATE: 16-SEP-2021 19:19
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FOR PROFILE VIEW SEE SHEET 8 OF 8



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 F-12679



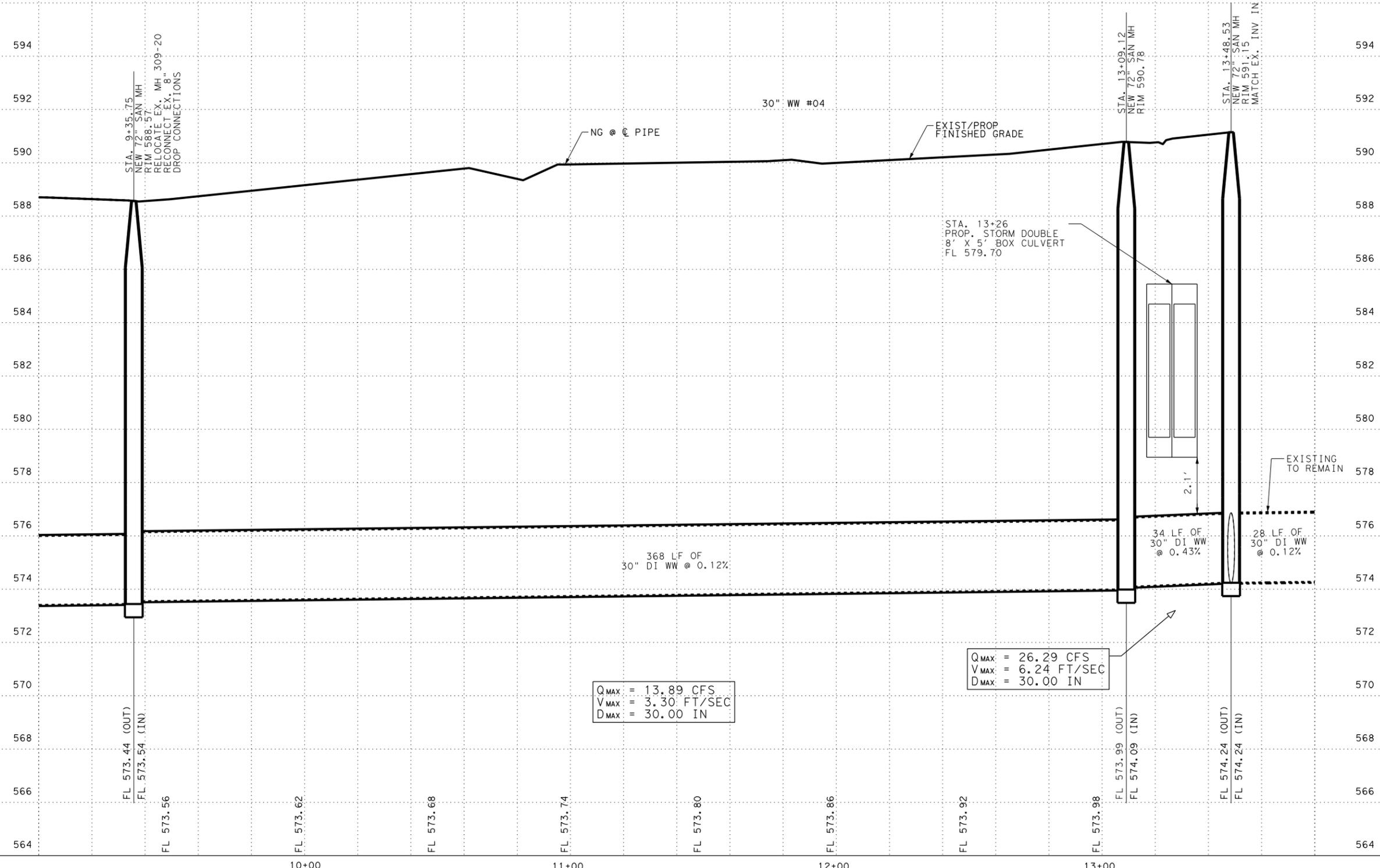
**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 7 OF 8

DS:	CK:	CONT:	SECT:	JOB:	HIGHWAY:
		0016	03	114	IH 35
DW:	CK:	DIST:		COUNTY:	SHEET NO.
		AUS		HAYS	1083

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FOR PLAN VIEW SEE SHEET 7 OF --



VOLKERT
 F-12679

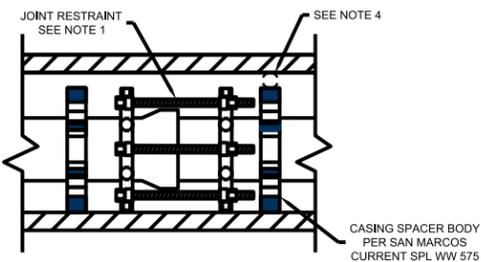
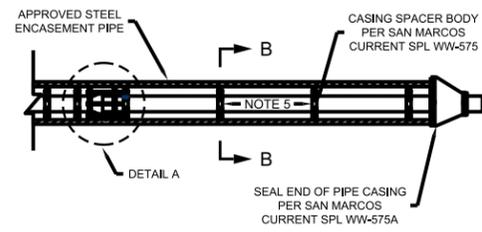
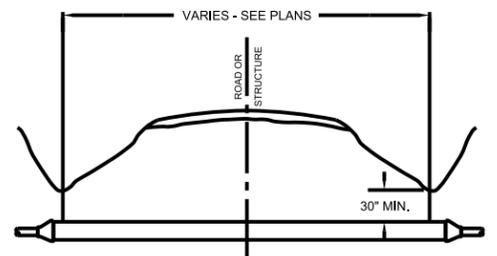


**IH 35 AT SH 123
 WASTEWATER
 PLAN AND PROFILE**

SHEET 8 OF 8

DS:	CK:	CONT	SECT	JOB	HIGHWAY
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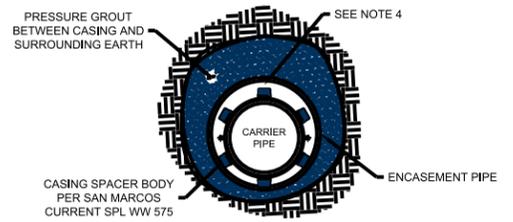
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DETAIL A

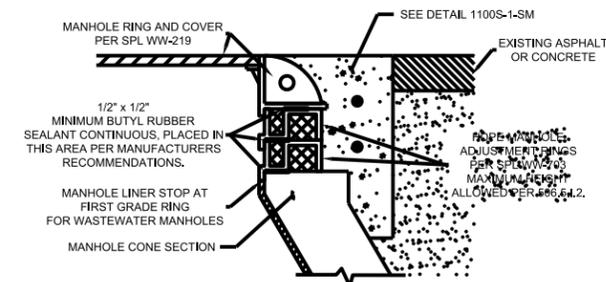
ENCASEMENT PIPE REQUIREMENTS - TYPICAL			
MAIN SIZE (INCHES)	NOM. DIA. STEEL (INCHES)	STEEL PIPE THICKNESS (INCHES)	PIPE WEIGHT (LBS./FT.)
6 / 8	18	0.375	70.59
12	24	0.375	94.62
16 / 18	30	0.375	118.85
20	36	0.438	166.19
24	42	0.438	194.02

RAILROAD CROSSING CASING REQUIREMENTS			
MAIN SIZE (INCHES)	NOM. DIA. STEEL CONDUIT (INCHES)	STEEL PIPE THICKNESS (INCHES)	PIPE WEIGHT (LBS./FT.)
6 / 8	18	0.375	70.59
12	24	0.438	110.22
16 / 18	30	0.500	157.53
20	36	0.562	212.70
24	42	0.625	276.18

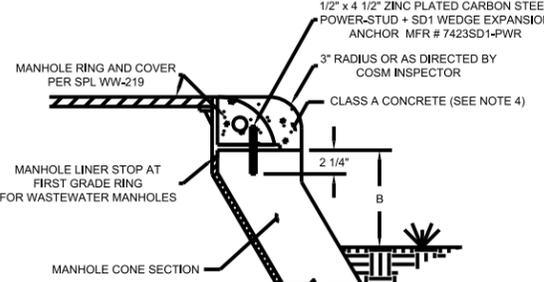


SECTION B - B

- NOTES:
1. ALL FITTINGS INSIDE ENCASEMENT PIPE SHALL BE RESTRAINED PER SAN MARCOS CURRENT SPL WW-27A. (THIS DETAIL ILLUSTRATES PVC PIPE ONLY RESTRAINTS WILL BE PER SPL FOR THE PIPE USED AS CARRIER PIPE)
 2. ALL FITTINGS INSIDE PIPE CASING WILL HAVE CASING SPACERS BODY PLACED 1 FOOT BEFORE AND AFTER FITTINGS.
 3. BOTH ENDS SHALL BE SEALED PER SAN MARCOS CURRENT SPL WW-575A.
 4. 1" MINIMUM BETWEEN SPACERS AND CASING PIPE ABOVE CENTER LINE OF PIPE.
 5. SPACERS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S PRODUCT SPECIFICATION BUT NO MORE THAN 8' APART.



IN PAVEMENT



OUTSIDE PAVEMENT

- NOTES:
1. IF MANHOLE IS WITHIN THE 100-YEAR FLOODPLAIN, USE BOLTED AND GASKET LIDS.
 2. DIMENSION B = (6'-12" TO FINISH GRADE) FOR MANHOLE LOCATED IN THE 100-YR FLOOD PLAN. = (2'-12" TO FINISH GRADE) FOR MANHOLE OUTSIDE THE 100-YR FLOOD PLAN.
 3. MANUFACTURER'S SHALL VERIFY DIMENSION AGAINST RING AND COVER SPECIFIED.
 4. INSPECTOR MAY APPROVE THE USE OF CONCRETE BAG PER SPL WW-704 AT THE INSPECTOR'S DISCRETION.

REFERENCES
DETAIL 1100S-1-SM

The City of San Marcos
Engineering and Capital Improvements

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LAURIE MOYER, P.E. ADOPTED

ENCASEMENT DETAIL WITH CASING SPACERS

STANDARD NO. 501S-1-SM
1 OF 2

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

The City of San Marcos
Engineering and Capital Improvements

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LAURIE MOYER, P.E. ADOPTED

ENCASEMENT DETAIL WITH CASING SPACERS

STANDARD NO. 501S-1-SM
2 OF 2

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

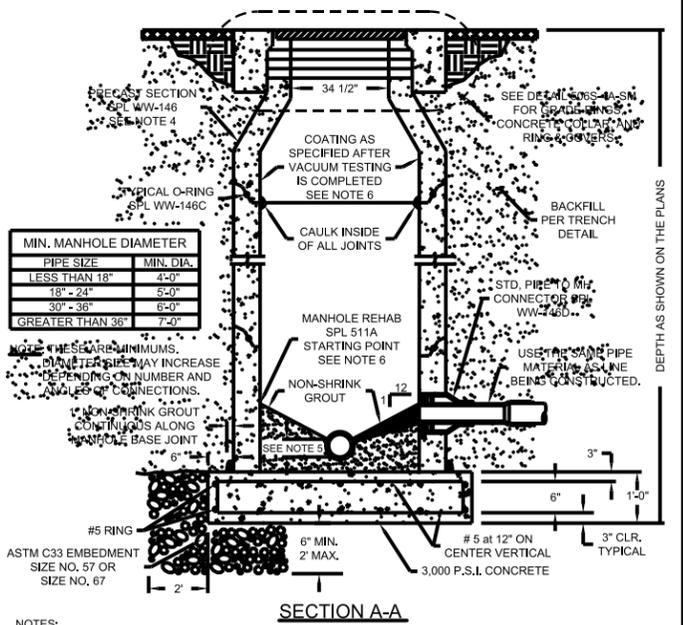
The City of San Marcos
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LAURIE MOYER, P.E. ADOPTED

MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION

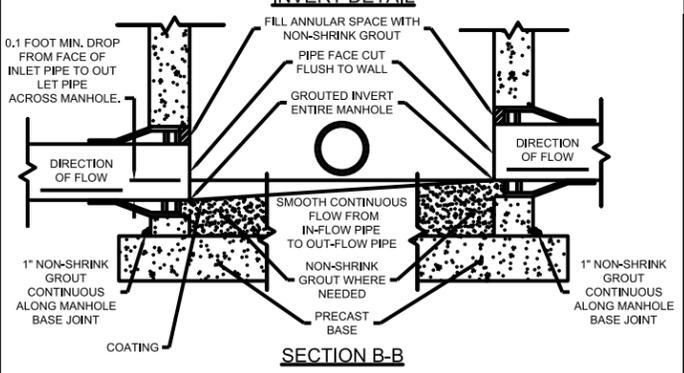
STANDARD NO. 506S-4A-SM
1 OF 1

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

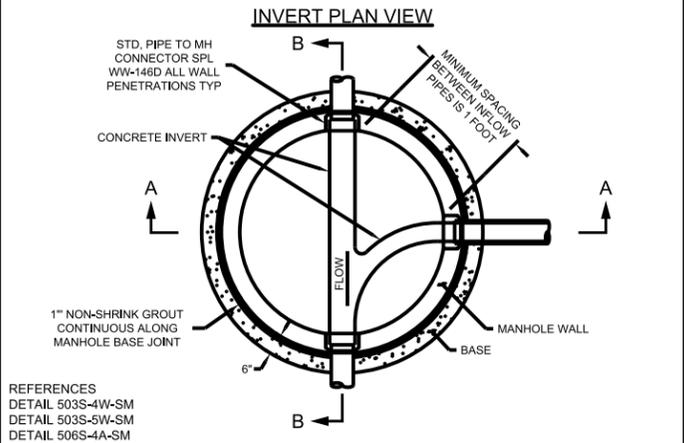


SECTION A-A

- NOTES:
1. SEE PLANS FOR MANHOLE LOCATION, CONFIGURATION, PIPE SIZES AND TYPES.
 2. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
 3. MONOLITHIC MANHOLE TO BE CAST-IN-PLACE SHALL CONFORM TO ASTM SPECIFICATION C478 FOR MATERIALS AND DESIGN. MANUFACTURER TO PROVIDE DETAILS.
 4. MANHOLES FOR MAINS 24" AND LARGER SHALL HAVE ECCENTRIC RISER SECTIONS.
 5. DEPTH OF U CHANNEL WILL BE 3/4 THE DIAMETER OF PIPES 24" OR LESS AND WILL BE THE DIAMETER OF PIPES GREATER THAN 24".
 6. MANHOLE COATING LIMITS - COAT ALL OF THE MANHOLE WALLS, AT TOP OF MANHOLE; SEE DETAIL 506S-4A-SM FOR END LOCATION AT GRADE RINGS. AT BOTTOM OF MANHOLE: NEW MANHOLES - COAT PER SPL 511; INCLUDING THE BOTTOM AND INVERT. MANHOLE REHABILITATION - COAT PER SPL 511A; EXCLUDING THE BOTTOM AND INVERT.



SECTION B-B



INVERT PLAN VIEW

REFERENCES
DETAIL 503S-4W-SM
DETAIL 503S-5W-SM
DETAIL 506S-4A-SM

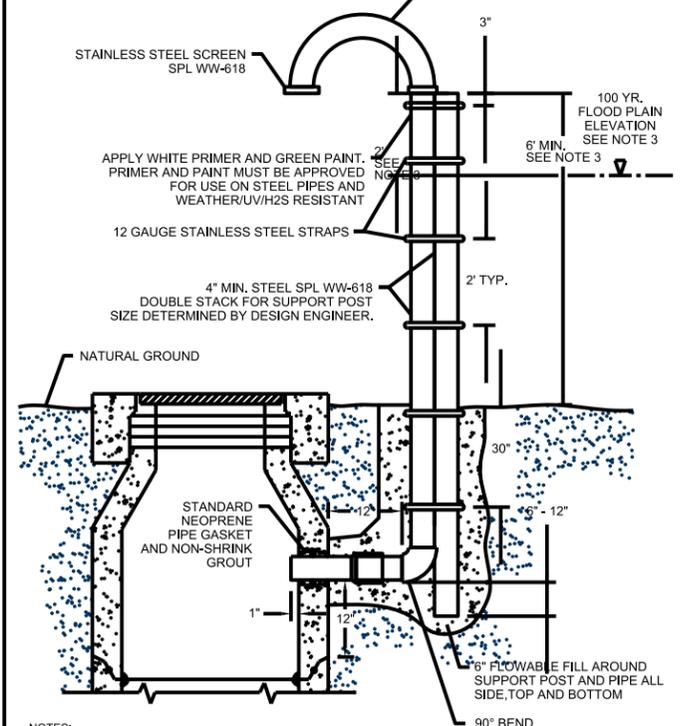
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WASTEWATER MANHOLE ON PRECAST BASE

STANDARD NO. 506S-10-SM
2 OF 2

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.



MANHOLE VENT

- NOTES:
1. NOT ALLOWED ON MANHOLES IN PAVEMENT
 2. MANHOLE VENT TO BE USED ONLY WHEN REQUIRED BY TCEQ OR CITY.
 3. THE BOTTOM OF STEEL SCREEN WILL BE THE GREATER OF:
A. 6 FEET ABOVE GROUND ELEVATION
B. 2 FEET ABOVE THE 100 YEAR FLOOD PLAN
 4. SEE CITY STANDARD MANHOLE DETAIL FOR MANHOLE INSTALLATION.

The City of San Marcos
Engineering and Capital Improvements

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MANHOLE VENT

STANDARD NO. 506S-MV-SM
1 OF 1

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.



VOLKERT
F-12679

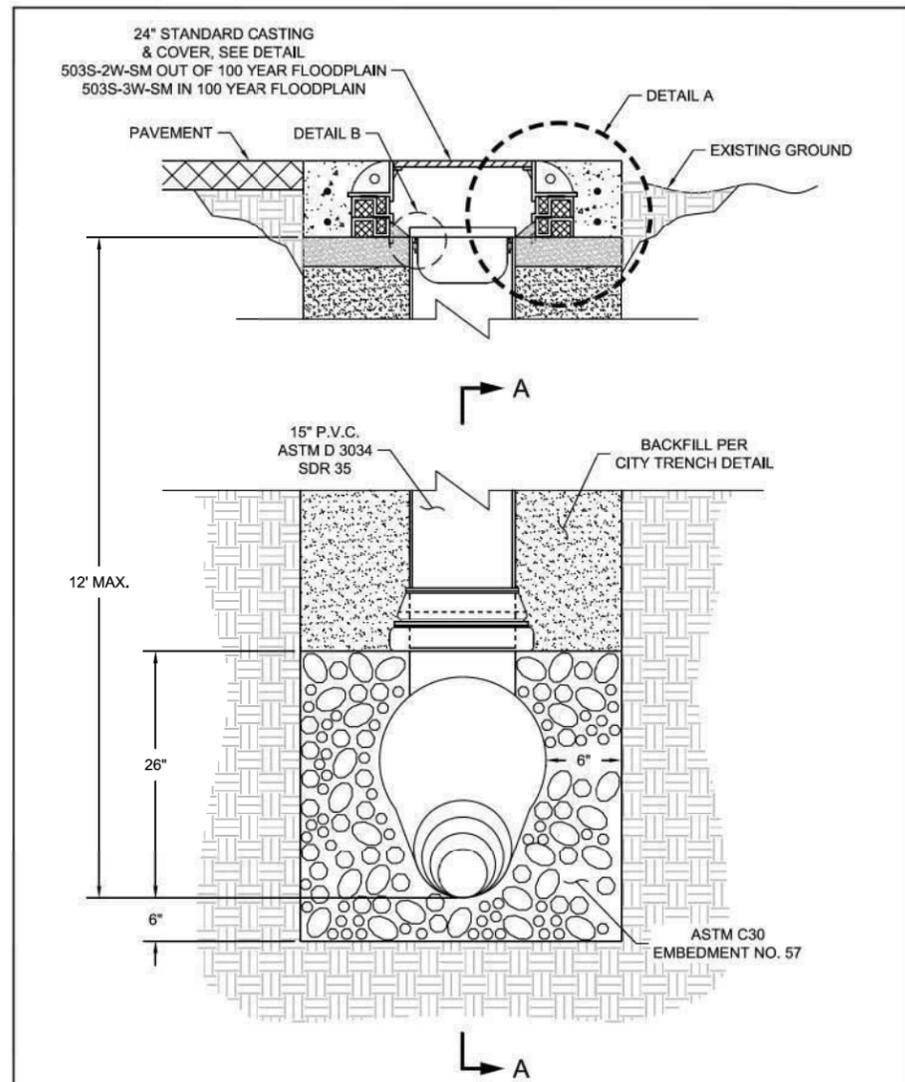


IH 35 AT SH 123
UTILITIES
DETAILS

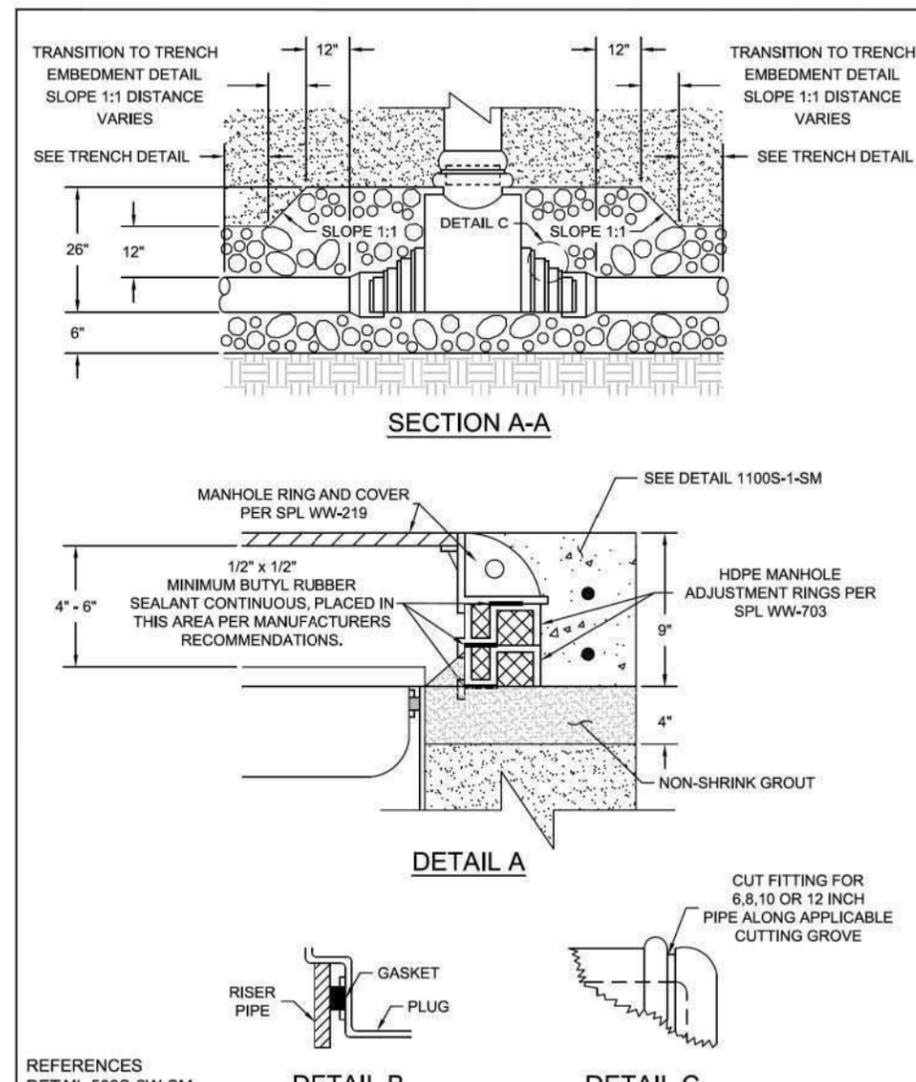
SHEET 1 OF 12

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The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2020	WASTEWATER ACCESS DEVICE (W.A.D.)	
RECORD COPY SIGNED BY	6/1/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.	506S-WAD-SM 1 OF 2
Laurie Moyer, P.E.	ADOPTED			



The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2020	WASTEWATER ACCESS DEVICE (W.A.D.)	
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Laurie Moyer, P.E.	ADOPTED			

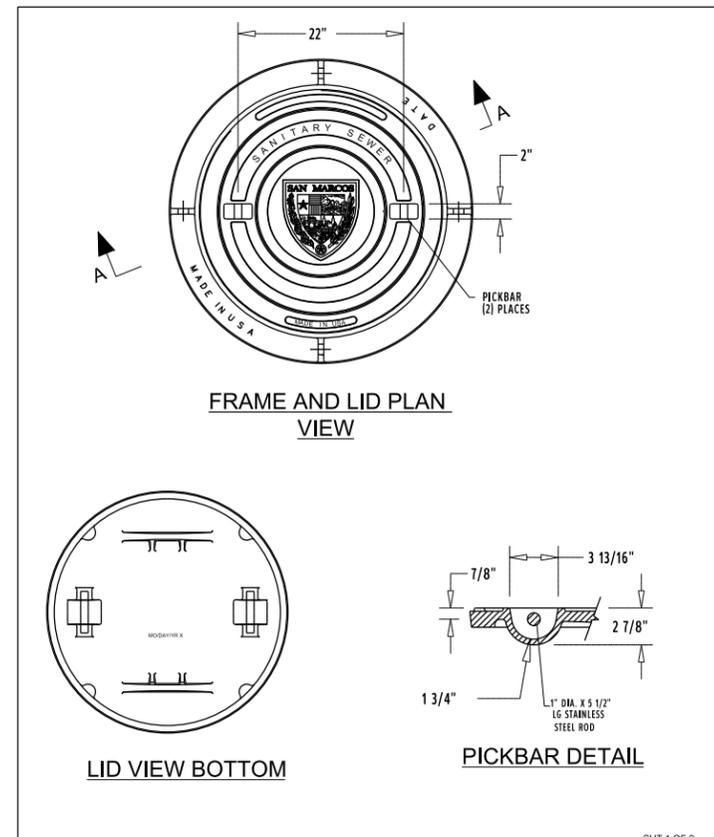


**IH 35 AT SH 123
UTILITIES
DETAILS**

SHEET 2 OF 12

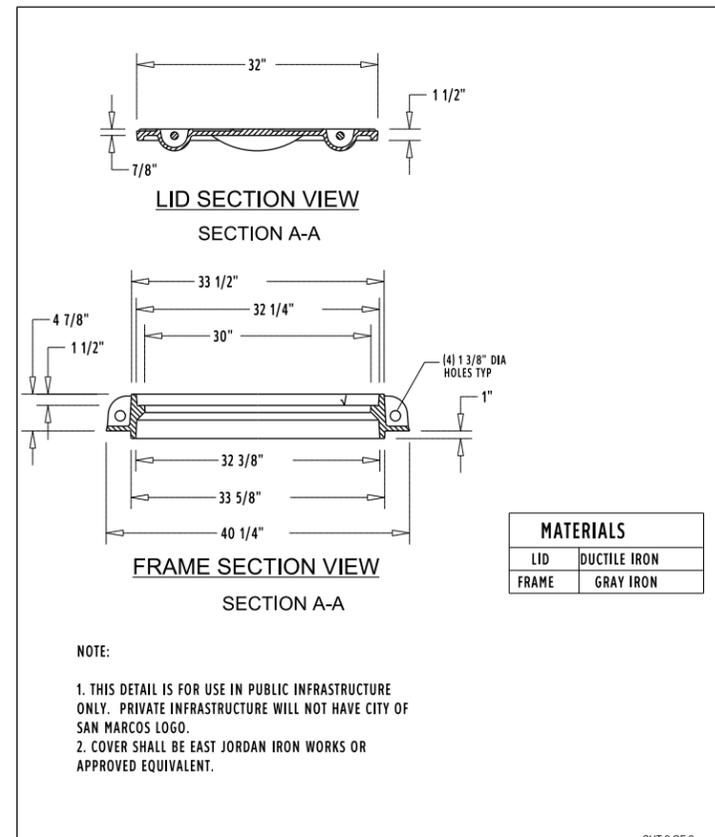
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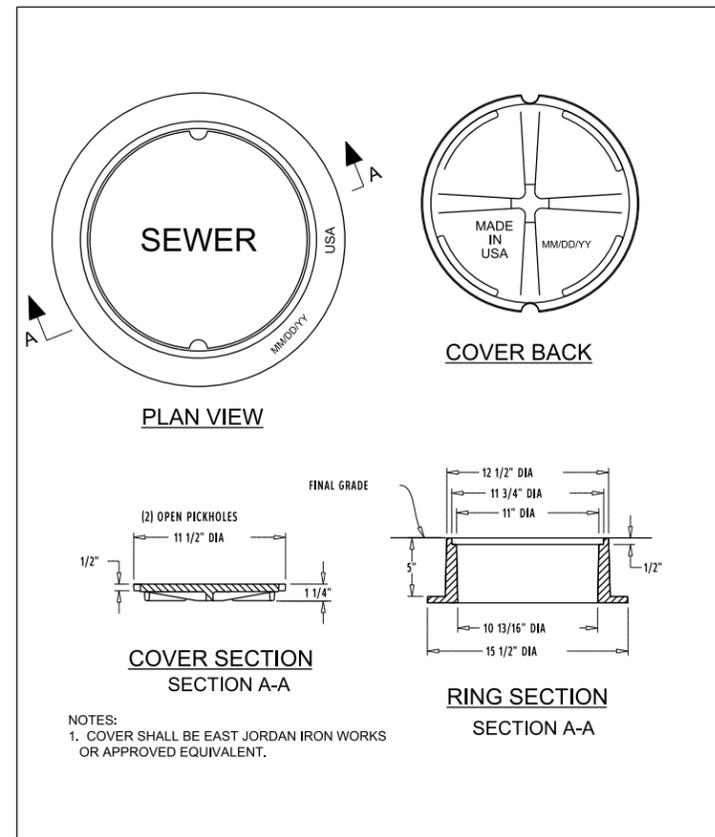
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The City of San Marcos Engineering and Capital Improvements		SANITARY SEWER MANHOLE RING AND COVER 32" - UNBOLTED	
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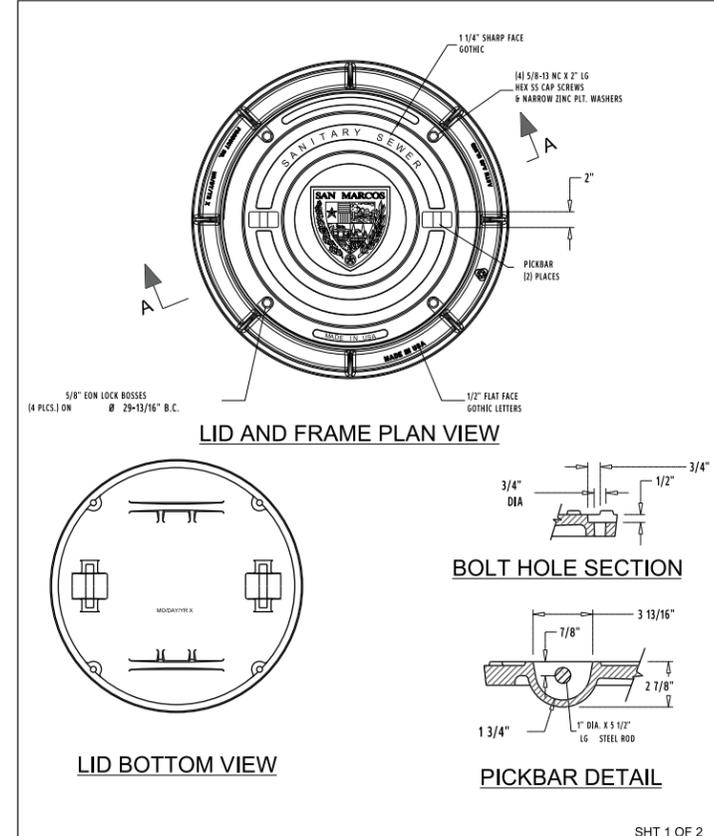
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The City of San Marcos Engineering and Capital Improvements		SANITARY SEWER MANHOLE RING AND COVER 32" - UNBOLTED	
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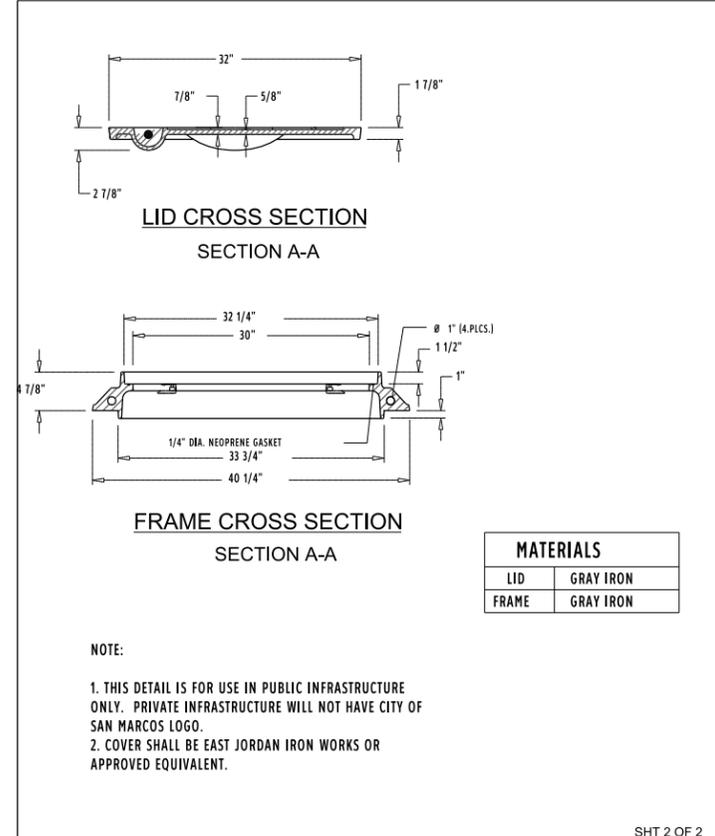
SHT 2 OF 2

The City of San Marcos Engineering and Capital Improvements		CLEANOUT RING AND COVER	
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SHT 1 OF 2

The City of San Marcos Engineering and Capital Improvements		SANITARY SEWER MANHOLE RING AND COVER 32" - BOLTED	
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SHT 2 OF 2

The City of San Marcos Engineering and Capital Improvements		SANITARY SEWER MANHOLE RING AND COVER 32" - BOLTED	
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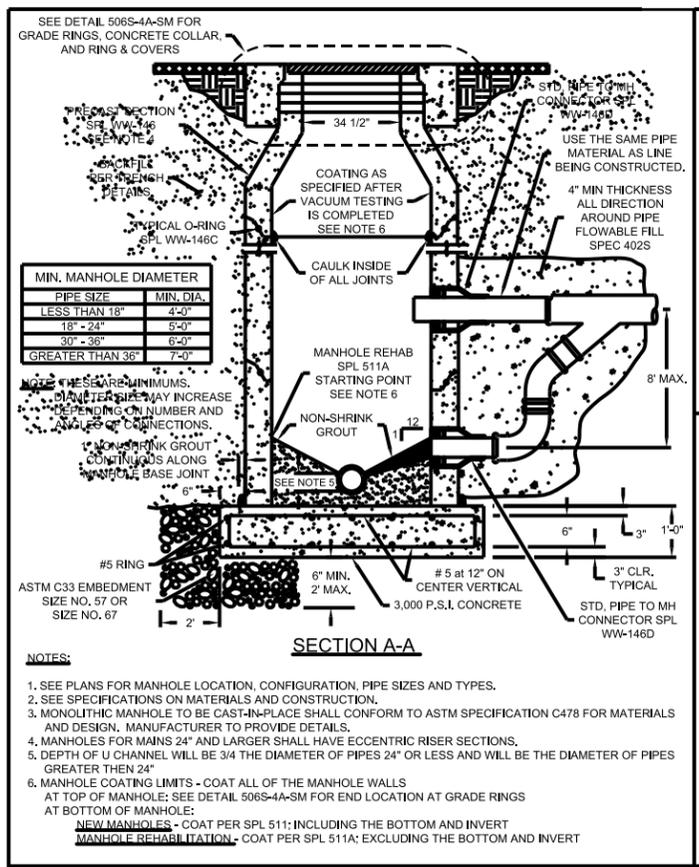


**IH 35 AT SH 123
UTILITIES
DETAILS**

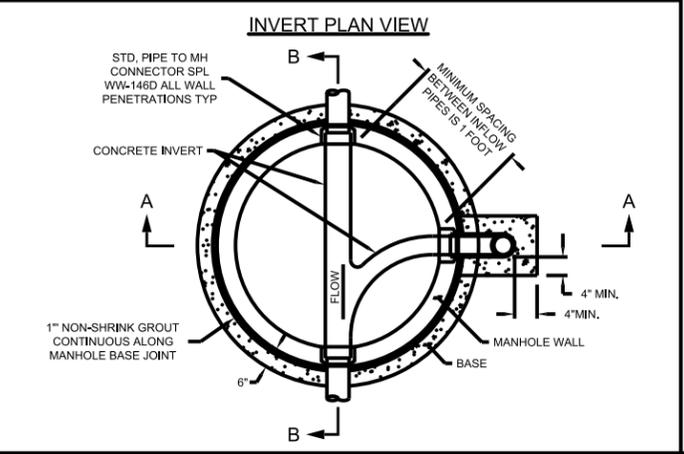
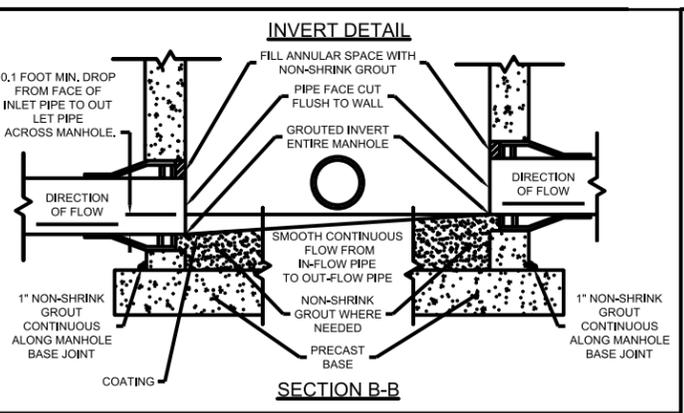
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DIST	COUNTY	SHEET NO.	
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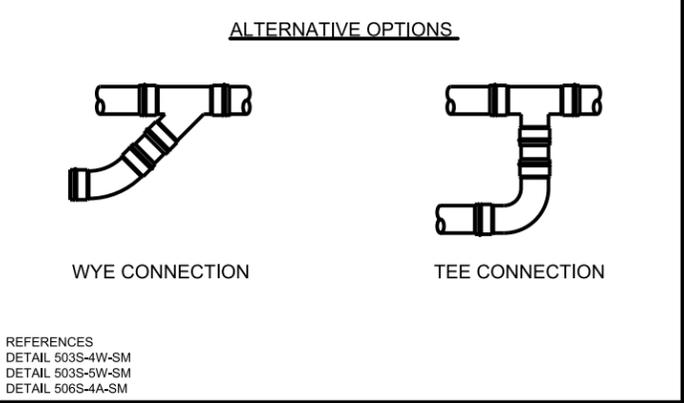
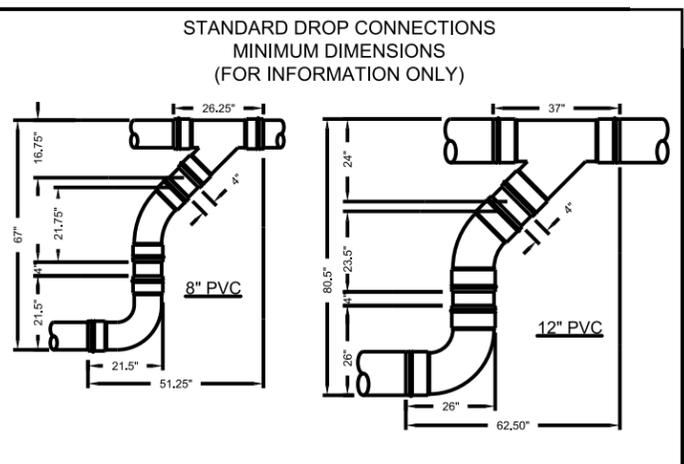
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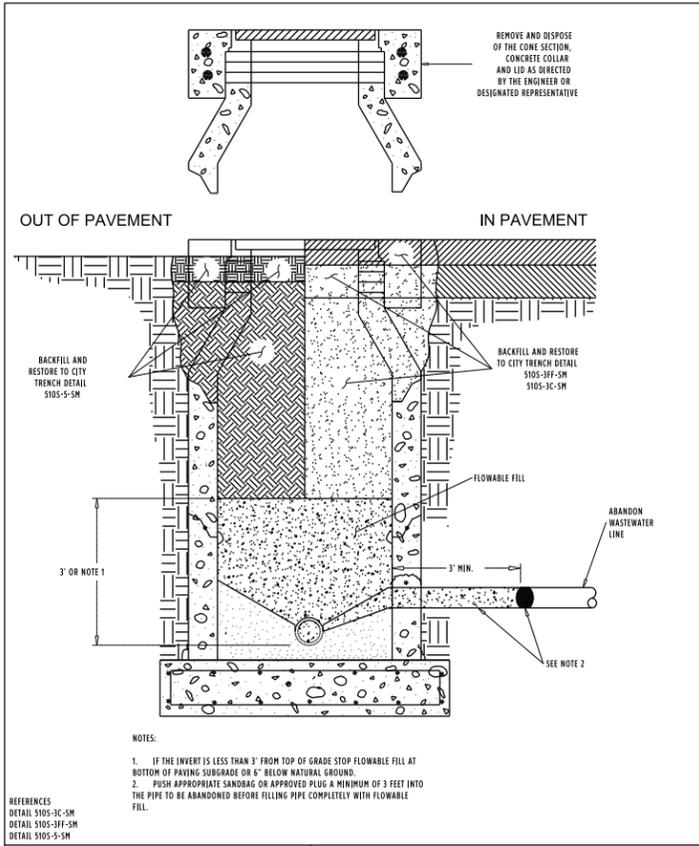
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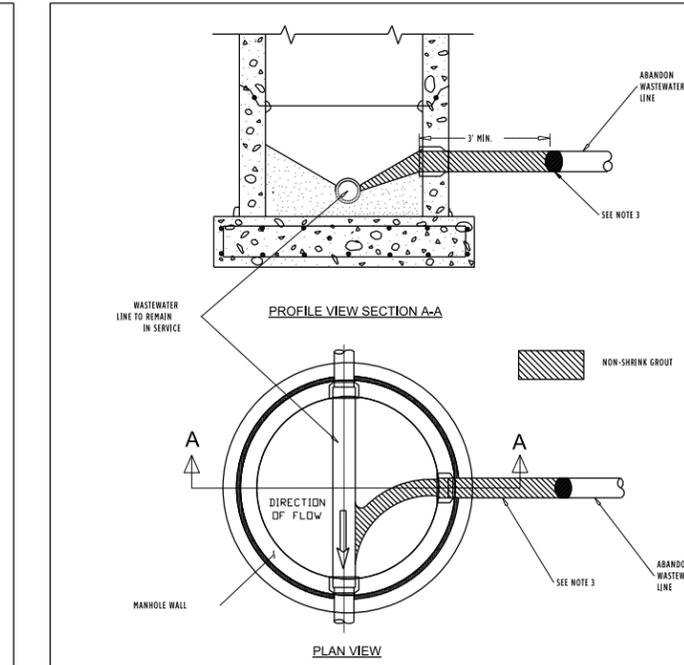
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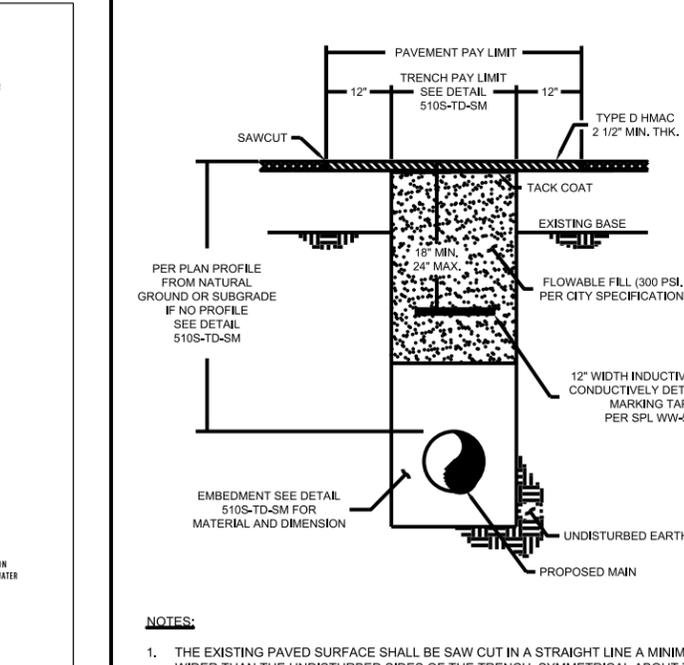
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IH 35 AT SH 123 UTILITIES DETAILS				
SHEET 4 OF 12				
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EMBEDMENT DIMENSIONS					
	SIZE	T	S	B	
NON STORM PIPE	ALL	12"	6"-12"	6" MIN.	
STORM PIPE	42" OR LESS	12"	12"	6" MIN.	
	GREATER THAN 42"	12"	12" - 18"	6" MIN.	

EMBEDMENT				
PIPE SIZE	BEDDING SAND	MODIFIED GRADE 5 GRAVEL	ASTM C33 SIZE NO. 67	ASTM C33 SIZE NO. 57
2" - 3" PVC PIPE	ALLOWED	ALLOWED		
ALL PIPE 4" AND GREATER			ALLOWED	ALLOWED

MINIMUM DEPTH OF COVER					
PIPE TYPE	SIZE	(D1) UNDER PAVEMENT	(D1) NATURAL GROUND	(D1) LESS THAN 3' OF COVER	(D2 - NOTE 2) UNDER PROPOSED ROAD
WATER	12" OR LESS	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL	36" BELOW BASE
	16" OR GREATER	48" MIN.	48" MIN.	NOT ALLOWED	48" BELOW BASE
WASTEWATER	ALL	60" MIN.	36" MIN.	DUCTILE IRON WILL BE USED. FLOWABLE FILL DETAIL WHERE EROSION MAY OCCUR	48" MIN. BELOW BASE
RECLAIMED WATER	ALL	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL	36" MIN. BELOW BASE
STORM	ALL	MANUFACTURER'S SPECIFICATION MINIMUM AND MAXIMUM DEPTH OF COVER WILL BE USED FOR STORM PIPES			

NOTES:

- ALL MEASUREMENTS ARE FROM OUTSIDE PIPE DIAMETER.
- FOR TABLE "MINIMUM DEPTH OF COVER" COLUMN "UNDER PROPOSED ROAD" IF D1 FROM COLUMN "UNDER PAVEMENT" PLACES THE PIPE LOWER THAN D2. THEN D1 FROM "UNDER PAVEMENT" WILL BE USED FOR MINIMUM DEPTH OF COVER.
- REFERENCE APPROPRIATE 510 PIPE TRENCH DETAILS FOR PAYMENT LIMITS. THIS DETAIL IS FOR DIMENSIONAL PURPOSES ONLY.

The City of San Marcos Engineering and Capital Improvements		UTILITY TRENCH DIMENSIONS		STANDARD NO. 510S-TD-SM	
RECORDED COPY SIGNED BY	1/23/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			
Laurie Moyer, P.E.	ADOPTED				1 OF 1

NOTES:

- THE EXISTING PAVED SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE A MINIMUM OF 12" WIDER THAN THE UNDISTURBED SIDES OF THE TRENCH, SYMMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
- IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, SEE DETAIL 510S-3T-SM.
- ALL DAMAGED AREAS OF PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED.
- ROAD BASE AND SURFACE MATERIALS IN THE TRENCH CUT SHALL BE REPLACED IN KIND OF EQUAL THICKNESS, OR MINIMUM BASE THICKNESS OF 10", WHICHEVER IS GREATER.

The City of San Marcos Engineering and Capital Improvements		TYPICAL TRENCH WITH PAVED SURFACE		STANDARD NO. 510S-3-SM	
RECORDED COPY SIGNED BY	6/1/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			
Laurie Moyer, P.E.	ADOPTED				1 OF 1

NOTES:

- THE EXISTING PAVED SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE A MINIMUM OF 12" WIDER THAN THE UNDISTURBED SIDES OF THE TRENCH, SYMMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
- IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE SEE DETAIL 510S-3T-SM.
- ALL DAMAGED AREAS OF PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH MINIMUM OF 6" OF BASE OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
- TIEBARS WILL BE A 24" #4 REBAR PLACED EVERY 18" MID DEPTH OF EXISTING CONCRETE ON ALL SIDES OF TRENCH OR PER INSPECTORS RECOMMENDATION.

The City of San Marcos Engineering and Capital Improvements		TYPICAL TRENCH WITH CONCRETE PAVEMENT		STANDARD NO. 510S-3C-SM	
RECORDED COPY SIGNED BY	6/1/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			
Laurie Moyer, P.E.	ADOPTED				1 OF 1

NOTE:

- RESTORE ALL DISTURBED SURFACES TO EXISTING CONDITION AND ELEVATION. NATURAL GROUND WILL HAVE 6" OR DEPTH TO TRENCH CAP FROM EXISTING ELEVATION (WHICH EVER IS LESS) OF TOP SOIL AND BE REVEGETATED. ALL OTHER PAVEMENT AND SURFACE STRUCTURES SHALL BE REPLACED TO MATCH EXISTING CONDITIONS. IF UNDER PAVEMENT WILL FOLLOW DETAIL 510S-3-SM OR 510S-3C-SM FOR STREET REPAIR.
- SELECT BACKFILL COMPACTED TO NO LESS THAN 95% NOR MORE THAN 102% OF THE DENSITY ACCORDING TO TEX. 114E AT A MOISTURE CONTENT OF -2% TO +3% OF OPTIMUM FILL. THIS APPLIES UNDER ALL EXISTING OR PROPOSED TRAFFIC LOADING STRUCTURES, 2' FROM BUILDINGS, UNDER FLEX BASE OR IN 100 YEAR FLOOD PLAIN. ALL OTHER BACKFILL WILL BE COMPACTED TO 90% OF MAX DENSITY.

The City of San Marcos Engineering and Capital Improvements		CONCRETE TRENCH CAP		STANDARD DETAIL 510S-1-SM	
RECORDED COPY SIGNED BY	8/4/2014	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			
Laurie Moyer, P.E.	ADOPTED				1 OF 1

NOTES:

- ALL PORTIONS OF THE PIPE, JOINTS AND JOINT RESTRAINTS WITHIN CONCRETE ENCASEMENT WILL BE WRAPPED IN 8 MIL POLY.
- ALL CONCRETE ENCASEMENT SHALL BE POURED AT A PLANE 6" ABOVE THE PIPE BETWEEN EXCAVATED TRENCH WALL.
- CONCRETE ENCASEMENT WILL BE USED ONLY WHERE CALLED OUT IN THE PLANS AND LIMITS OF PAYMENT WILL BE PER THIS DETAIL.
- BACKFILL AND RESTORATION WORK WILL BE PER APPROPRIATE TRENCH DETAIL WITH EMBEDMENT FOLLOWING THIS DETAIL.
- SUPPORTS ARE SUBSIDIARY TO CONCRETE ENCASEMENT.

The City of San Marcos Engineering and Capital Improvements		CONCRETE ENCASEMENT		STANDARD DETAIL 510S-CE-SM	
RECORDED COPY SIGNED BY	5-1-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			
Laurie Moyer, P.E.	ADOPTED				1 OF 1

NOTE:

- IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH 4" COLD MIX OR 4" TEMPORARY HOT MIX ASPHALTIC CONCRETE. NO SEPARATE PAY ITEM.

The City of San Marcos Engineering and Capital Improvements		UTILITY TRENCH TEMPORARY ASPHALT PAVEMENT		STANDARD DETAIL 510S-3T-SM	
RECORDED COPY SIGNED BY	8/4/2014	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			
Laurie Moyer, P.E.	ADOPTED				1 OF 1

mobility CAPITAL AREA **35**

VOLKERT
F-12679

Texas Department of Transportation

**IH 35 AT SH 123
UTILITIES
DETAILS**

SHEET 5 OF 12

CONT	0016	SECT	03	JOB	114	HIGHWAY	IH 35
DIST		COUNTY					
AUS		HAYS					1089

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TRENCH DETAIL NATURAL GROUND

PER PLAN PROFILE FROM NATURAL GROUND OR SUBGRADE IF NO PROFILE SEE DETAIL 510S-TD-SM

TRENCH PAY LIMIT SEE DETAIL 510S-TD-SM

EXISTING ELEVATION

RESTORATION (SEE NOTE 1)

18" MIN. 24" MAX.

COMPACTED BACKFILL SEE ITEM 510.3.25 OF STANDARD SPECIFICATIONS

12" WIDTH INDUCTIVELY AND CONDUCTIVELY DETECTABLE MARKING TAPE PER SPL WW-597

FILTER FABRIC AT TOP OF EMBEDMENT FOR PIPES

UNDISTURBED EARTH

PROPOSED MAIN

EMBEDMENT SEE DETAIL 510S-TD-SM FOR MATERIAL AND DIMENSION

NOTES:

- RESTORE ALL DISTURBED SURFACES ABOVE AND SURROUNDING THE TRENCH TO EXISTING CONDITION AND ELEVATION. NATURAL GROUND WILL HAVE 6" OF TOP SOIL, SEEDED AND A RETENTION BLANKET INSTALLED ON TOP. ALL OTHER SURFACE STRUCTURES SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.

REFERENCES
 DETAIL 510S-TD-SM

The City of San Marcos Engineering and Capital Improvements		TRENCH DETAIL NATURAL GROUND	
RECORD COPY SIGNED BY	6/1/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 510S-5-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 1

PIPE LINE MARKER

3 3/4"

BURIED PIPE LINE

3" DECAL SHALL BE WITH WHITE LETTERING BACKGROUND PER UTILITY MARKER TABLE

LONG DURABLE AND FLEXIBLE UTILITY MARKER FOR PIPE LINE AND SHALL BE MANUFACTURED BY CARSONITE INTERNATIONAL UTILITY MARKERS (CRM) OR APPROVED EQUAL

PIPE LINE TYPE	STICKER BACKGROUND COLOR	LABEL (WHITE TEXT)	UTILITY MARKER COLOR
WATER	BLUE	WATER	BLUE
SANITARY SEWER	GREEN	SEWER	GREEN
RECLAIMED WATER	PURPLE	RECYCLE	PURPLE

*NOTE IF UTILITY MARKER COLOR CAN NOT BE OBTAINED WHITE UTILITY MARKER WILL BE USED INSTEAD AND LABEL TEXT WILL BE THE COLOR LISTED UNDER UTILITY MARKER COLOR.

NOTES:

- PIPE LINE MARKERS SHALL BE LOCATED AT THE FOLLOWING LOCATION WHERE A MAIN IS INSTALLED IN RURAL AREAS.
 - 500' INTERVALS ALONG PIPE
 - FENCES ALONG THE PIPE CENTERLINE
 - ALL AT GRADE APPURTENANCES (VALVES, AIR RELEASE VALVES, ETC.)
 - RAILROAD CROSSING
 - STREAM BED
 - OTHER UTILITY CROSSING
 - LOCATIONS OF MAJOR CHANGES IN DIRECTION (OUT OF PAVEMENT).

THE City of San Marcos
Engineering and Capital Improvements

RECORDED COPY SIGNED BY
Laurie Moyer, P.E.

7-10-2015
ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD

510S-M-SM

N.T.S. STANDARD DETAIL

PIPE MANDREL

PIPE SIZE	A	B	MANDREL O.D.	PIPE O.D.	WALL THICKNESS
6" SDR 26	3.5"	6.0"	5.503"	6.275"	0.214"
8" SDR 26	4.5"	6.0"	7.366"	8.400"	0.323"
10" SDR 26	5.5"	7.5"	9.207"	10.500"	0.404"
12" SDR 26	7.0"	9.0"	10.961"	12.500"	0.481"
15" SDR 26	9.0"	11.5"	13.418"	15.300"	0.588"

NOTES:

- AFTER WELDING IS COMPLETED, TRUE THE OUTSIDE DIAMETER DIMENSION. FOR THE FULL LENGTH OF "B" TO 0.010".
- MANDREL OD MUST BE EQUAL TO 95% OF THE ID OF THE PIPE
- ADJUSTABLE MANDREL NOT ACCEPTABLE.
- REFERENCE THE PIPE MANUFACTURER'S SPECIFICATIONS FOR MANDREL SIZE AND SUPPLY CALCULATED DIMENSIONS IN A SUBMITTAL.
- A PROVING RING IS REQUIRED.
- MANDREL WILL HAVE AN ODD NUMBER OF RUNNERS (9 OR MORE).

THE City of San Marcos
Engineering and Capital Improvements

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510S-PM-SM

N.T.S. STANDARD DETAIL

EMBEDMENT

PIPE SIZE	BEDDING SAND	MODIFIED GRADE 5 GRAVEL	ASTM C33 SIZE NO. 67	ASTM C33 SIZE NO. 57
1" COPPER OR 1" POLYETHYLENE	ALLOWED			
2" - 3" PVC PIPE	ALLOWED	ALLOWED		
ALL PIPE 4" AND GREATER			ALLOWED	ALLOWED

NOTES:

- WHEN DEPTH OF COVER IS LESS THAN 3' FROM EXISTING OR PROPOSED SURFACE A CONCRETE TRENCH CAP WILL BE INSTALLED WITH A MINIMUM THICKNESS OF 6" CLASS A (3000 PSI) CONCRETE PLACED ABOVE EMBEDMENT AS DEPICTED IN THIS DETAIL. THICKNESS WILL BE DETERMINED BY ENGINEER AND NOT BE LESS THAN A MINIMUM OF 6". WHEN DEPTH OF COVER IS 3' OR GREATER FROM EXISTING OR PROPOSED SURFACE A FILTER FABRIC WILL BE INSTALLED ABOVE ALL EMBEDMENT EXCEPT BEDDING SAND.
- RESTORE ALL DISTURBED SURFACES ABOVE AND SURROUNDING THE TRENCH TO EXISTING CONDITION AND ELEVATION, RESTORATION WORK IS SUBSIDIARY TO SERVICE LATERAL WORK.

THE City of San Marcos
Engineering and Capital Improvements

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510S-S&L-SM

1 OF 2

SELECT BACKFILL			
	ASPHALT PAVEMENT X = 6", Y = 6"	CONCRETE PAVEMENT X = 6", Y = 6"	OUT OF PAVEMENT X = 0, Y = 0
A (SEE NOTE 1)	TYPE D HMAC MATCH EXISTING ASPHALT THICKNESS 2.5" MIN.	3,600 PSI CONCRETE MATCH EXISTING THICKNESS 6" MIN. WITH #4 REBAR 18" O.C. BOTH WAYS. 24" TIE BAR 18" O.C. 12" INTO EXISTING PAVEMENT.	NATURAL GROUND WILL HAVE 6" OF TOP SOIL, SEEDED AND A RETENTION BLANKET INSTALLED ON TOP. ALL OTHER SURFACE STRUCTURES SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
B	TYPE B HMAC MATCH EXISTING BASE THICKNESS 10" MIN.	TYPE B HMAC MATCH EXISTING BASE THICKNESS 5" MIN.	IN AND NEAR FLOOD PLAIN OF ALL STREAMS AND WATERCOURSES, UNDER OR ADJACENT TO UTILITIES, STRUCTURES, TWO FEET FROM PAVEMENT ETC. SELECT BACKFILL WILL BE COMPACTED TO NO LESS THAN 95% NOR MORE THAN 102% OF THE DENSITY ACCORDING TO TEX. 114E AT A MOISTURE CONTENT OF -2% TO +3% OF OPTIMUM, UNLESS OTHERWISE DIRECTED BY CITY. ALL OTHER LOCATIONS WILL BE COMPACTED TO 90% OF MAX DENSITY.
C	SELECT BACKFILL WILL BE COMPACTED TO NO LESS THAN 95% NOR MORE THAN 102% OF THE DENSITY ACCORDING TO TEX. 114E AT A MOISTURE CONTENT OF -2% TO +3% OF OPTIMUM.		
FLOWABLE FILL			
	ASPHALT PAVEMENT Z = 6"	CONCRETE PAVEMENT Z = 6"	OUT OF PAVEMENT Z = 0
D (SEE NOTE 1)	TYPE D HMAC MATCH EXISTING ASPHALT THICKNESS 2.5" MIN.	3,600 PSI CONCRETE MATCH EXISTING THICKNESS 6" MIN. WITH #4 REBAR 18" O.C. BOTH WAYS. 24" TIE BAR 18" O.C. 12" INTO EXISTING PAVEMENT.	NATURAL GROUND WILL HAVE 6" OF TOP SOIL, SEEDED AND A RETENTION BLANKET INSTALLED ON TOP. ALL OTHER SURFACE STRUCTURES SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
E	FLOWABLE FILL PER CITY 402S SPECIFICATION.		

THE City of San Marcos
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510S-S&L-SM

2 OF 2

TYPICAL RESTRAINT

EXAMPLE: JOINT RESTRAINT TABLE			
JOINT (TYPE)	PIPE MATERIAL	PIPE SIZE	RESTRAINT DISTANCE
JOINT (A) SEE NOTE 5	MATERIAL (B)	SIZE (C)	RESTRAINT DISTANCE (X)

NOTES:

- ALL JOINT RESTRAINTS WILL BE PER CURRENT CITY OF SAN MARCOS STANDARD PRODUCT LIST.
- ALL BELL JOINTS RESTRAINTS AND METAL PIPES WILL BE WRAPPED IN 8 MIL POLY PER SPL 27D.
- A JOINT RESTRAINT TABLE FOR ALL FITTINGS WILL BE SUBMITTED WITH PLANS.
- CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT OUTSIDE THE REQUIRED RESTRAINT DISTANCE.
- JOINT RESTRAINT TABLE MUST INCLUDE ALL JOINTS AND FITTINGS THAT RESTRICT THE FLOW OF WATER THAT ARE IN THE PLAN SET INCLUDING BUT NOT LIMITED TO: (BENDS, TEES, CROSSES, VALVES, DEAD ENDS, REDUCERS...ETC)
- PIPES SECTION AND JOINTS THAT ARE RESTRAINED SHALL HAVE AN ADHESIVE TAPE TO THE TOP OF THE PIPE AND JOINTS PER SPL ITEM WW-597A ALONG THE FULL LENGTH OF THE RESTRAINT PIPE SECTION.

THE City of San Marcos
Engineering and Capital Improvements

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THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

510S-PR-SM

1 OF 1

STATE OF TEXAS
 JOSEPH R. HEMPHILL
 132392
 LICENSED PROFESSIONAL ENGINEER
 11/10/2020

mobility CAPITAL AREA 35

VOLKERT
 F-12679

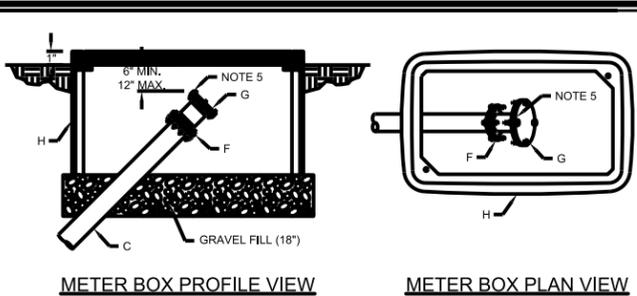
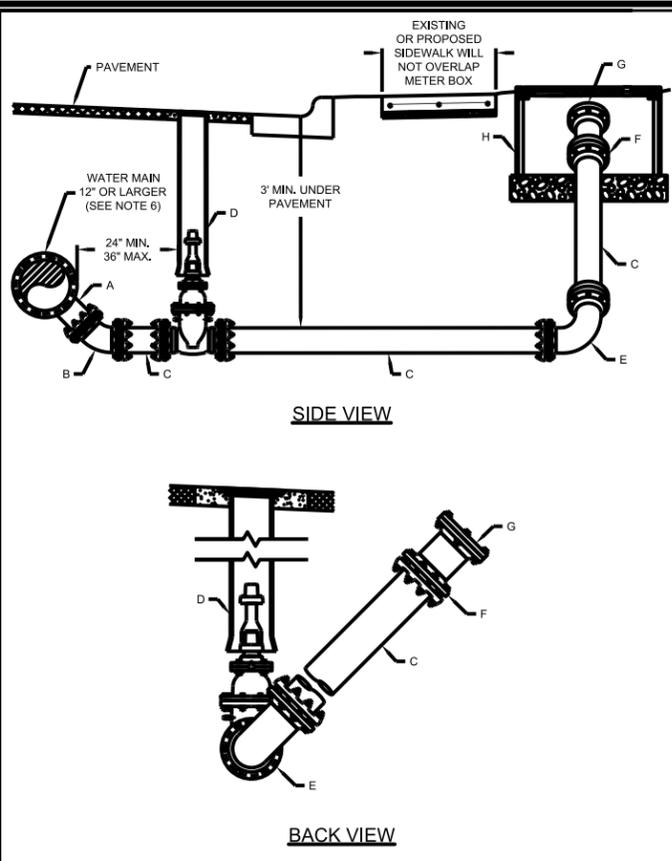
Texas Department of Transportation

IH 35 AT SH 123 UTILITIES DETAILS

SHEET 6 OF 12

DS:	CONT	SECT	JOB	HIGHWAY
CK:	0016	03	114	IH 35
DW:	CK:	DIST	COUNTY	SHEET NO.
		AUS	HAYS	1090

DATE: 06-NOV-2020 19:26 FILE: Projects\0745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Utilities\UTIL-IH 35_SH123_DETAILS-07.dgn



MATERIAL LIST		
LABEL	ITEM	SIZE
A	TEE ROTATED 45° PER STANDARD PRODUCT LIST NO. WW-27B	MAIN SIZE x 6"
B	DUCTILE IRON 45° BEND - MEGALUG RESTRAINT, OR APPROVED EQUIVALENT M.J. X M.J. WITH M.J. ADAPTOR PER STANDARD PRODUCT LIST NO. WW-27B	6"
C	SUPPLY PIPE C900 OR DUCTILE IRON FULLY RESTRAINED PER STANDARD PRODUCT LIST NO. WW-308 OR WW-27	6"
D	TAPPING VALVE (RESILIENT WEDGE GATE, IRON BODY NJ X NJ) WITH VALVE BOX. SEE DETAIL 511S-7-SM FOR GATE VALVE INSTALLATION.	6"
E	DUCTILE IRON 90° BEND ROTATED 45° (SLOPE 1:1) - MEGALUG RESTRAINT, OR APPROVED EQUIVALENT M.J. X M.J. PER STANDARD PRODUCT LIST NO. WW-27B	6"
F	MECHANICAL JOINT FLANGE ADAPTOR M.J. X FLANGE PER STANDARD PRODUCT LIST NO. WW-27B	6"
G	BLIND FLANGE	6"
H	METER BOX (2" IRRIGATION METER BOX PER STANDARD PRODUCT LIST NO. WW-145A)	REQUIRED

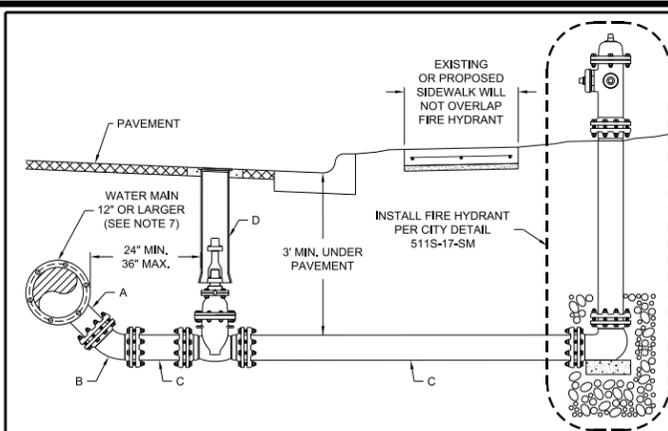
NOTES:

- ALL D.I. PIPE AND FITTINGS WILL BE COMPLETELY WRAPPED WITH 8-MIL POLYETHYLENE FILM.
- ALL BACKFILL AND EMBEDMENT PER TRENCH DETAIL 510S-S&L-SM.
- THIS DETAIL IS ONLY FOR WATER MAINS THAT ARE 16" OR LARGER AT LOW POINTS ON THE MAIN. TOP OF BOX MUST BE 1" ABOVE NATURAL GROUND OR FLUSH WITH PAVEMENT SURFACE.
- THE HIGHEST POINT ON THE BLIND FLANGE WILL BE CENTERED IN THE METER BOX.
- CONNECTION TEE SHALL HAVE A 24" MIN. SEPARATION FROM THE WATER MAIN BELLS AND SPIGOTS.

REFERENCES:
 DETAIL 510S-S&L-SM
 DETAIL 511S-7-SM

The City of San Marcos Engineering and Capital Improvements		DRAIN VALVE	
RECORD COPY SIGNED BY	12/19/2017	STANDARD NO.	511-AW-03-SM
LAURIE MOYER, P.E.	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 2

The City of San Marcos Engineering and Capital Improvements		DRAIN VALVE	
RECORD COPY SIGNED BY	12/19/2017	STANDARD NO.	511-AW-03-SM
LAURIE MOYER, P.E.	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	2 OF 2



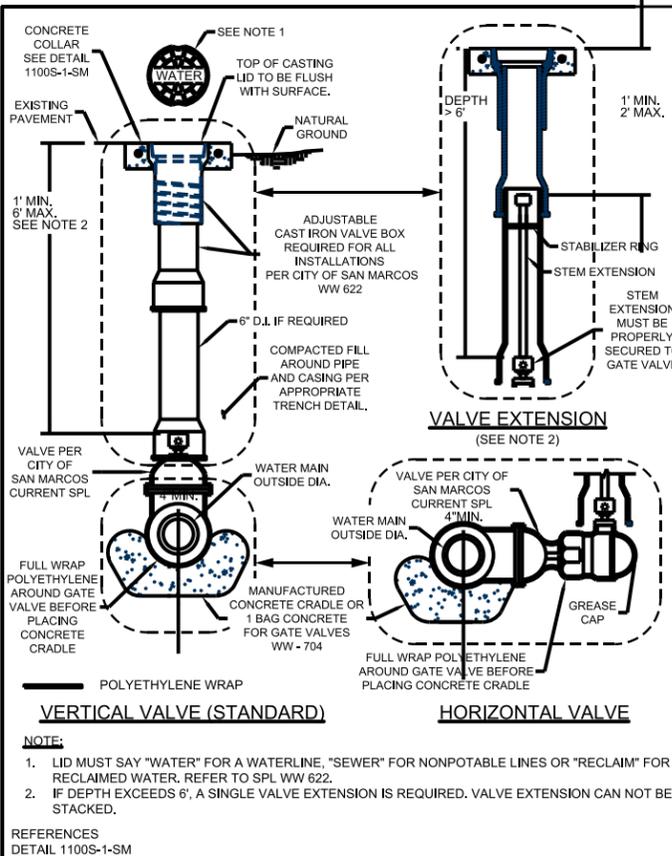
MATERIAL LIST		
LABEL	ITEM	SIZE
A	TEE ROTATED 45° PER STANDARD PRODUCT LIST NO. WW-27B	MAIN SIZE x 6"
B	DUCTILE IRON 45° BEND - MEGALUG RESTRAINT, OR APPROVED EQUIVALENT M.J. X M.J. WITH M.J. ADAPTOR PER STANDARD PRODUCT LIST NO. WW-27B	6"
C	SUPPLY PIPE C900 OR DUCTILE IRON FULLY RESTRAINED PER STANDARD PRODUCT LIST NO. WW-308	6"
D	GATE VALVE (RESILIENT WEDGE GATE, IRON BODY MJ X MJ) WITH VALVE BOX. SEE DETAIL 511S-7-SM FOR GATE VALVE INSTALLATION.	6"

NOTES:

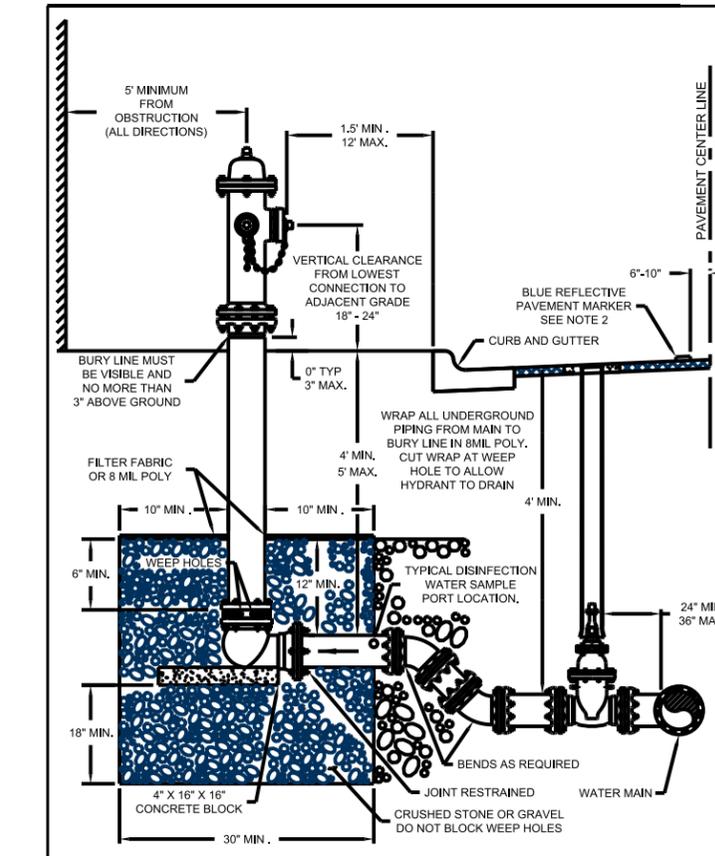
- ALL DUCTILE IRON PIPE, SLEEVE AND FITTINGS WILL BE COMPLETELY WRAPPED WITH 8-MIL POLYETHYLENE FILM.
- ALL BACKFILL AND EMBEDMENT PER TRENCH DETAIL 510S-S&L-SM.
- THIS DETAIL IS ONLY FOR WATER MAINS THAT ARE 16" OR LARGER AT LOW POINTS ON THE MAIN.
- INSTALL FIRE HYDRANT PER CITY DETAIL 511S-17-SM
- FOR FLUSHING OPERATION FIRE HYDRANT WILL BE FULLY OPENED TO PREVENT ROCKS AND DEBRIS FROM WEDGING IN THE FIRE HYDRANT PLUG.
- 45° DUCTILE IRON BENDS MAY BE USED AFTER GATE VALVE TO BRING SUPPLY PIPE TO FIRE HYDRANT TO PROPER GRADE.
- CONNECTION TEE SHALL HAVE A 24" MIN. SEPARATION FROM THE WATER MAIN BELLS AND SPIGOTS.

REFERENCES:
 DETAIL 510S-S&L-SM
 DETAIL 511S-7-SM
 DETAIL 511S-17-SM

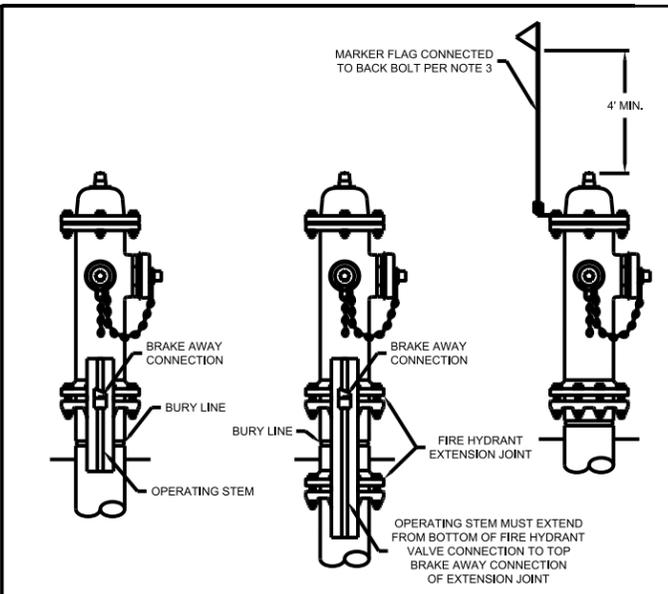
The City of San Marcos Engineering and Capital Improvements		BLOW-OFF HYDRANT	
RECORD COPY SIGNED BY	6/2/2017	STANDARD NO.	511S-BH-SM
LAURIE MOYER, P.E.	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 1



The City of San Marcos Engineering and Capital Improvements		TYPICAL GATE VALVE 2" - 24"	
RECORD COPY SIGNED BY	2/15/2019	STANDARD NO.	511S-7-SM
LAURIE MOYER, P.E.	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 1



The City of San Marcos Engineering and Capital Improvements		STANDARD FIRE HYDRANT	
RECORD COPY SIGNED BY	2/15/2019	STANDARD NO.	511-17-SM
LAURIE MOYER, P.E.	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 2



NOTES:

- PUBLIC HYDRANTS SHALL BE FACTORY PAINTED WITH BRIGHT ALUMINUM BASED SILVER PAINT AND PRIVATE HYDRANTS SHALL BE PAINTED RED.
- A BLUE REFLECTIVE PAVEMENT MARKER MUST BE PLACED WITH EVERY FIRE HYDRANT ADJACENT TO A ROADWAY 6"-10" OFF CENTER LINE OF ROAD ON FIRE HYDRANT SIDE.
- FIRE HYDRANTS OUTSIDE ROW SHALL HAVE MARKING FLAGS IN RURAL AREAS.
- FIRE HYDRANT MUST GO ON PAVEMENT SIDE OF FENCE, OR FENCE MUST BE REBUILT AROUND FIRE HYDRANT TO ALLOW ACCESS FROM PAVEMENT TO FIRE HYDRANT.
- FIRE HYDRANT MAY ONLY MINIMALLY OBSTRUCT SIDEWALK AT EITHER EDGE.
- NO OBJECT THAT WILL OBSTRUCT MAINTENANCE OR USE OF THE FIRE HYDRANT WILL BE LOCATED WITHIN 5 FEET OF THE FIRE HYDRANT INCLUDING BUT NOT LIMITED TO (TREES, FENCES, TELEPHONE POLE, DUMPSTER, PERMANENT/NONPERMANENT STRUCTURES...ETC.).
- FIRE HYDRANT ASSEMBLY MUST BE PER CURRENT CITY OF SAN MARCOS STANDARD PRODUCT LIST.

REFERENCES:
 DETAIL 520S-WMT-SM

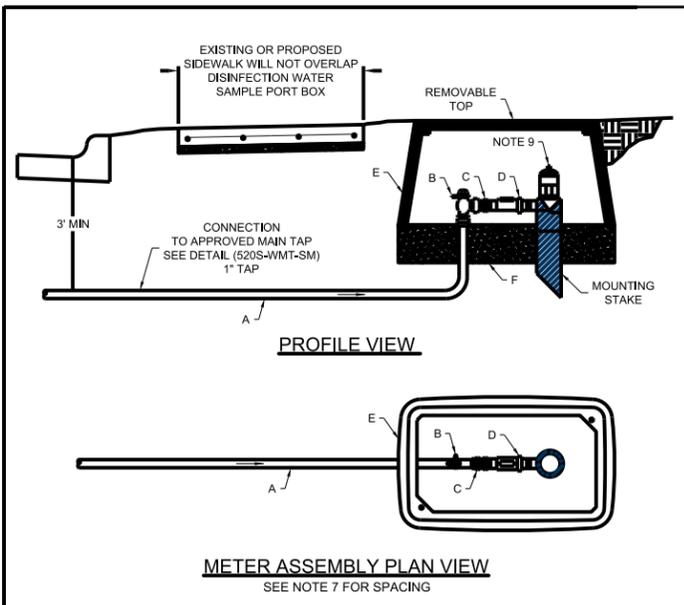
The City of San Marcos Engineering and Capital Improvements		STANDARD FIRE HYDRANT	
RECORD COPY SIGNED BY	2/15/2019	STANDARD NO.	511-17-SM
LAURIE MOYER, P.E.	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	2 OF 2



**IH 35 AT SH 123
UTILITIES
DETAILS**

SHEET 7 OF 12				
DS:	CK:	CONT	SECT	JOB
		0016	03	114
DW:	CK:	DIST	COUNTY	SHEET NO.
		AUS	HAYS	1091

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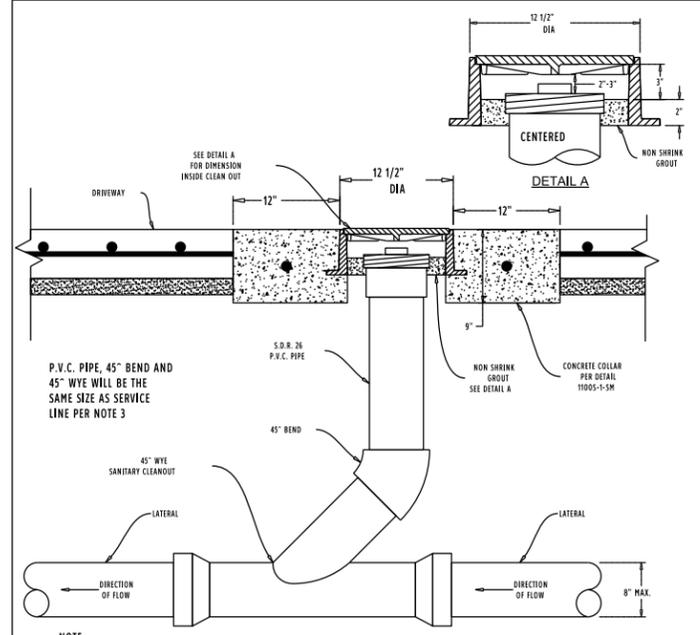


- NOTES:**
- TOP OF BOXES SHALL BE 1" ABOVE GROUND OR FLUSH WITH PAVEMENT SURFACE.
 - PIPING AND TUBING SHALL BE EMBEDDED AS REQUIRED IN DETAIL 510S-S&L-SM.
 - CUT-OFF VALVE AND CONNECTION TO YARD PIPING TO BE SUBMITTED FOR APPROVAL.
 - SCH 40 PVC MALE ADAPTORS ARE NOT PERMITTED.
 - REPAIR TRENCH PER DETAIL 510S-S&L-SM.
 - THE SAMPLING STATION WILL BE CENTERED IN THE METER BOX.
 - TAP TO CITY WATER LINE WILL USE CITY DETAIL 520S-WMT-SM WITH 1" TAP TO MAIN.
 - TYPICAL CONNECTION IS OFF FIRE HYDRANT LEAD.
 - IF METER NOT IDENTIFIED FOR INSTALLATION BRASS PLUGS REQUIRED AT WATER METER COUPLING CONNECTIONS.

MATERIALS		
LABEL	ITEM	SIZE
*A	TUBING PER STANDARD PRODUCT LIST - TYPE K COPPER WW-613 OR POLYETHYLENE WW-65	1"
B	APPROVED ANGLE METER STOP WITH PADLOCK WING. (COMPRESSION-TYPE FITTING) PER STANDARD PRODUCT LIST NO. WW-68	1" X 3/4"
C	BRASS NIPPLE - THREADED	3/4"
D	SAMPLING STATION PER STANDARD PRODUCT LIST NO. 68A	REQUIRED
E	USE SINGLE SERVICE METER BOX PER STANDARD PRODUCT LIST NO. WW-145A HYDE METER BOXES	REQUIRED
F	6" COMPACTED SAND	REQUIRED

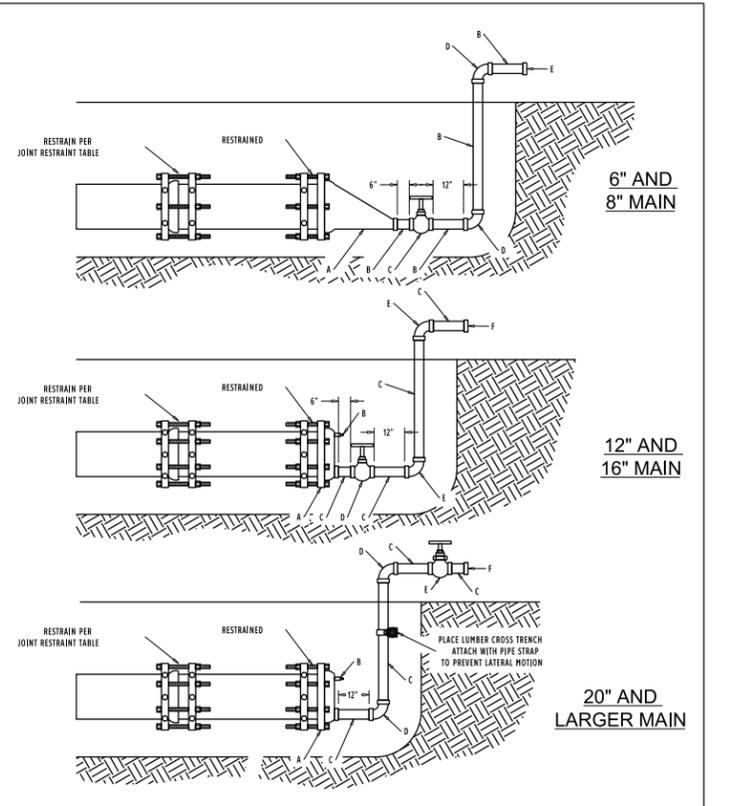
* ALL FITTING CONNECTED TO POLYETHYLENE PIPE WILL REQUIRE A STAINLESS STEEL INSERT.

The City of San Marcos Engineering and Capital Improvements		DISINFECTION WATER SAMPLE PORT		The City of San Marcos Engineering and Capital Improvements		DISINFECTION WATER SAMPLE PORT	
RECORDED COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	511S-SP-SM	RECORDED COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	511S-SP-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 2	Laurie Moyer, P.E.	ADOPTED		2 OF 2



- NOTE:**
- SERVICE SHALL BE DESIGNED TO AVOID CLEANOUT LOCATION WITHIN DRIVEWAYS.
 - THIS STANDARD DETAIL IS ONLY FOR EXISTING CLEANOUTS THAT ARE LOCATED WITHIN EXISTING DRIVEWAYS.
 - THIS STANDARD IS ONLY FOR SERVICES 8" OR LESS AND ALL FITTING AND PIPE FOR CLEANOUT WILL BE THE SAME SIZE AS LATERAL.
 - SUBGRADE SHALL BE COMPACTED AS PER STANDARD DETAIL 510S-S&L-SM.
 - CONCRETE COLLAR IN DRIVEWAY WILL BE PER 1100S-1-SM FOR MANHOLE DIMENSIONS MINIMUM OF 9" DEPTH.
 - TRAFFIC BEARING FRAME AND COVER ONLY. HEAVY DUTY.

The City of San Marcos Engineering and Capital Improvements		EXISTING WASTEWATER CLEANOUT ADJUSTMENT TO GRADE IN DRIVEWAY		The City of San Marcos Engineering and Capital Improvements		EXISTING WASTEWATER CLEANOUT ADJUSTMENT TO GRADE IN DRIVEWAY	
RECORDED COPY SIGNED BY	2-15-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	520S-4-SM	RECORDED COPY SIGNED BY	2-15-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	520S-4-SM
Laurie Moyer, P.E.	ADOPTED		R.T.S. STANDARD DETAIL	Laurie Moyer, P.E.	ADOPTED		1 OF 1



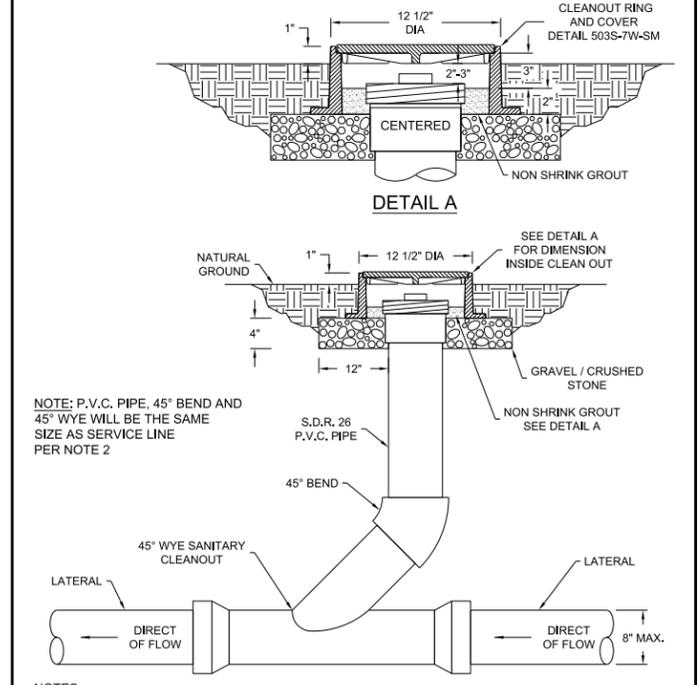
6" AND 8" MAINS		
LABEL	ITEM	SIZE
A	6" OR 8" M.J. X 2" THREAD C.I. OR D.I. ECCENTRIC REDUCER	
B	2" G.I. NIPPLE, THREADED	
C	2" BALL VALVE THREADED	
D	2" 90° G.I. BEND THREADED	
E	2" G.I. SOLID PLUG THREADED	

12" AND 16" MAINS		
LABEL	ITEM	SIZE
A	12" OR 16" M.J. X 2" THREAD ECCENTRIC CAP	
B	1" ECCENTRIC TAP AND 1" SOLID PLUG, THREADED	
C	2" G.I. NIPPLE, THREADED	
D	2" BALL VALVE THREADED	
E	2" 90° G.I. BEND THREADED	
F	2" G.I. SOLID PLUG THREADED	

20" OR LARGER MAINS		
LABEL	ITEM	SIZE
A	20" OR LARGER M.J. X 4" THREAD ECCENTRIC CAP	
B	1" ECCENTRIC TAP, 1" G.I. COUPLING WELDED TO FLANGE AND 1" SOLID PLUG, THREADED	
C	4" G.I. NIPPLE, THREADED	
D	4" 90° G.I. BEND THREADED	
E	4" BALL VALVE THREADED	
F	4" G.I. SOLID PLUG THREADED	

- NOTES:**
- TEMPORARY BLOW-OFF ASSEMBLY IS FOR CONSTRUCTION USE ONLY.
 - AFTER LINE HAS BEEN FLOWED PERMANENT FLUSHING DEVICE (AUTOMATIC FLUSH VALVE OR FIRE HYDRANT) WILL BE USED AFTER CONSTRUCTION OR BETWEEN PHASES OF CONSTRUCTION FOR ALL DEAD END MAINS.

The City of San Marcos Engineering and Capital Improvements		TEMPORARY BLOW-OFF ASSEMBLY		The City of San Marcos Engineering and Capital Improvements		TEMPORARY BLOW-OFF ASSEMBLY	
RECORDED COPY SIGNED BY	2-15-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	511S-TBA-SM	RECORDED COPY SIGNED BY	2-15-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	511S-TBA-SM
Laurie Moyer, P.E.	ADOPTED		R.T.S. STANDARD DETAIL	Laurie Moyer, P.E.	ADOPTED		1 OF 1



- NOTE:**
- THIS DETAIL IS NOT FOR ANY LOCATION THAT WILL HAVE TRAFFIC LOADS.
 - THIS STANDARD IS ONLY FOR LATERALS 8" OR LESS AND ALL FITTING AND PIPE FOR CLEANOUT WILL BE THE SAME SIZE AS LATERAL.
 - TRENCH SHALL BE COMPACTED AND RESTORED AS PER STANDARD DETAIL 510S-S&L-SM.
 - CLEAN OUT WILL BE LOCATED IN R.O.W. OR WASTEWATER EASEMENT.

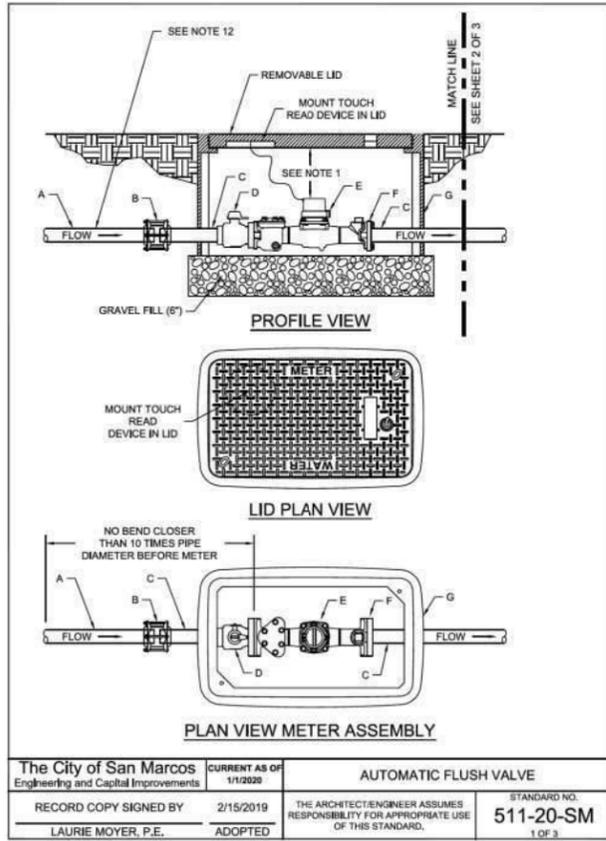
The City of San Marcos Engineering and Capital Improvements		WASTEWATER CLEANOUT		The City of San Marcos Engineering and Capital Improvements		WASTEWATER CLEANOUT	
RECORDED COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	520S-4A-SM	RECORDED COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	520S-4A-SM
Laurie Moyer, P.E.	ADOPTED		1 OF 1	Laurie Moyer, P.E.	ADOPTED		1 OF 1



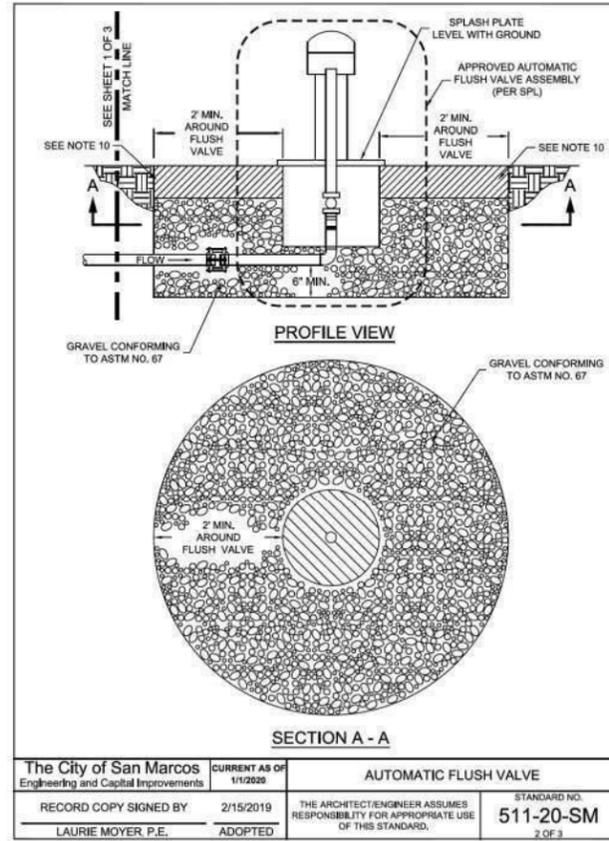
**IH 35 AT SH 123
UTILITIES
DETAILS**

SHEET 8 OF 12				
DS:	CONT:	SECT:	JOB:	HIGHWAY:
CK:	0016	03	114	IH 35
DW:	CK:	DIST:	COUNTY:	SHEET NO.:
		AUS	HAYS	1092

DATE: 06-NOV-2020 19:26 FILE: Projects\0745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Utilities\I-H 35_SH123_DETAILS-09.dgn



The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2020	AUTOMATIC FLUSH VALVE	
RECORD COPY SIGNED BY	2/15/2019	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-20-SM 1 OF 3
Laurie Moyer, P.E.				



The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2020	AUTOMATIC FLUSH VALVE	
RECORD COPY SIGNED BY	2/15/2019	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-20-SM 2 OF 3
Laurie Moyer, P.E.				

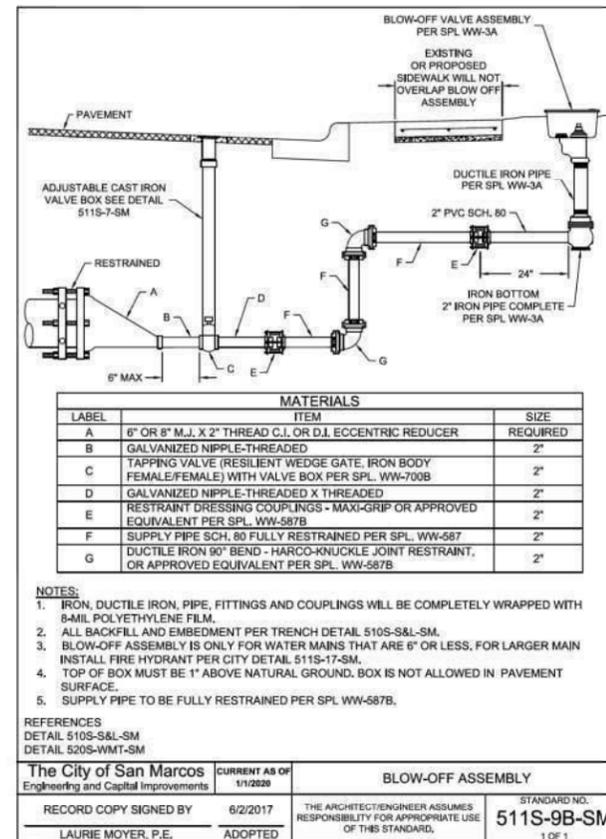
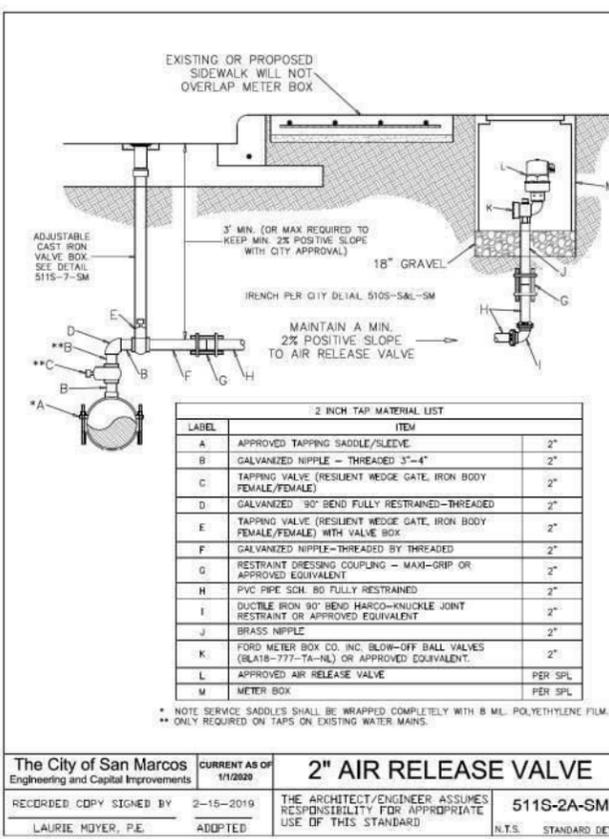
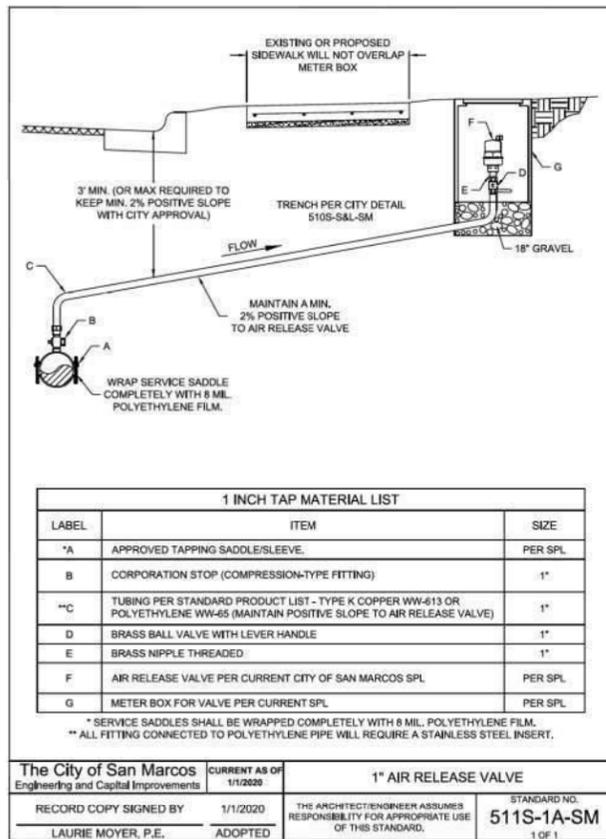
MATERIALS		
LABEL	ITEM	SIZE
A	SUPPLY PIPE SCH. 80 FULLY RESTRAINED PER STANDARD PRODUCT LIST NO. WW-587	2"
B	RESTRAINT DRESSING COUPLINGS - MAXI-GRIP OR APPROVED EQUIVALENT PER STANDARD PRODUCT LIST NO. WW-587B	2"
C	BRASS NIPPLES-THREADED X THREADED	2"
D	BRONZE BALL VALVE WITH LOCK WINGS THREADED BY FLANGE PER STANDARD PRODUCT LIST NO. WW-68	2"
E	WATER METER PER STANDARD PRODUCT LIST NO. WW-144 WATER METERS	2"
F	METER FLANGE ADAPTOR	2"
G	METER BOX PER STANDARD PRODUCT LIST NO. WW-145A HDPE METER BOXES	REQUIRED

NOTES:

- TOP OF METER BOX SHALL BE 1" ABOVE GRADE AFTER REVEGETATION OR FLUSH WITH PAVEMENT SURFACE. METER BOX WILL BE LOCATED BEHIND BACK CURB, OUT OF SIDEWALK OR TRAFFIC LOADED AREA.
- FOR PIPES AND FITTINGS OUTSIDE THE METER BOX SHALL BE EMBEDDED AND BACKFILLED PER DETAIL 510S-S&L-SM WITHIN THE ROW OR EASEMENT.
- WATER METER WILL BE HORIZONTALLY CENTERED WITH THE METER BOX.
- TAP TO CITY WATER LINE WILL BE PER CITY DETAIL 520S-WMT-SM WITH A 2" TAP TO THE MAIN.
- IF THE METER BOX IS SET AFTER THE METER IS INSTALLED, SIDE NOTCHES IN THE BOX TO BE FILLED WITH MORTAR AFTER INSTALLATION OF PIPE.
- PIPES AND FITTINGS TO BE AS SHOWN PER DETAIL.
- FOR APPROVED METER TYPE CALL THE WATER & WASTEWATER UTILITIES DEPT. AT (512)393-8010.
- NO BY PASS REQUIRED.
- PIPE AND METER IN METER BOX WILL MATCH THE DEPTH OF THE CONNECTION PIPE TO THE AUTOMATIC FLUSH VALVE ASSEMBLY.
- FOR NATURAL GROUND USE 6" OF TOP SOIL AND REVEGETATE PER CITY SPECIFICATIONS.
- INSTALLATION OF AUTOMATIC FLUSH VALVE ASSEMBLY TO BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
- AUTOMATIC FLUSH VALVE SHALL CONNECT TO THE MAIN PER DETAIL 520S-WMT-SM. TEMPORARY AUTOMATIC FLUSH VALVE FOR THE PURPOSE OF A FUTURE MAIN EXTENSION SHALL CONNECT TO THE END OF THE MAIN USING A 8 INCH M.J. X 2 INCH THREAD DUCTILE IRON ECCENTRIC REDUCER IN PLACE OF A TAP AS SHOWN ON DETAIL 520S-WMT-SM. FOR MAINS LARGER THAN 8 INCHES A CAP WILL BE USED IN PLACE OF A REDUCER WITH A 2 INCH THREAD CONNECTION PORT.

REFERENCES:
 DETAIL 510S-S&L-SM
 DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements		CURRENT AS OF 1/1/2020	AUTOMATIC FLUSH VALVE	
RECORD COPY SIGNED BY	2/15/2019	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-20-SM 3 OF 3
Laurie Moyer, P.E.				



VOLKERT
 F-12679

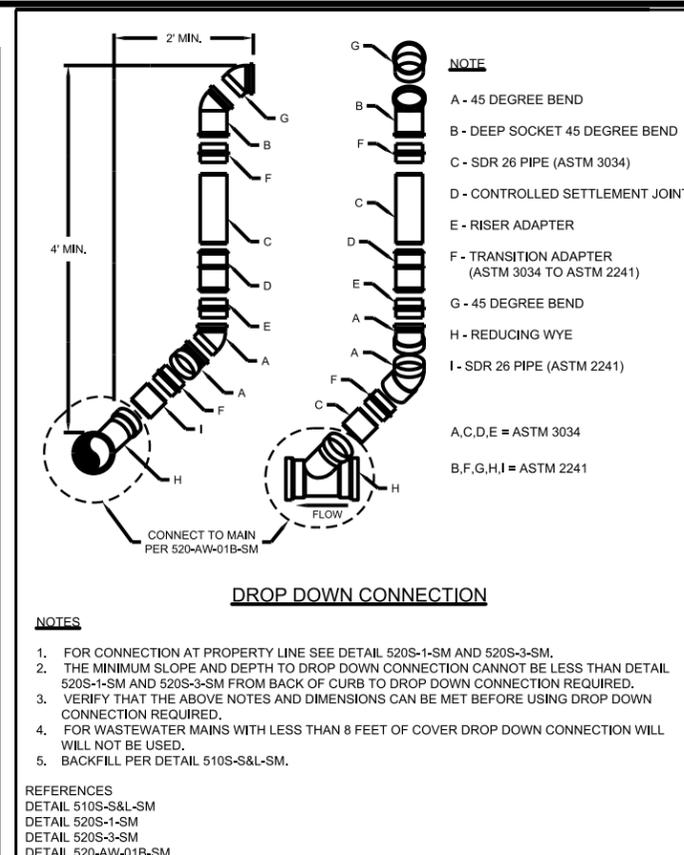
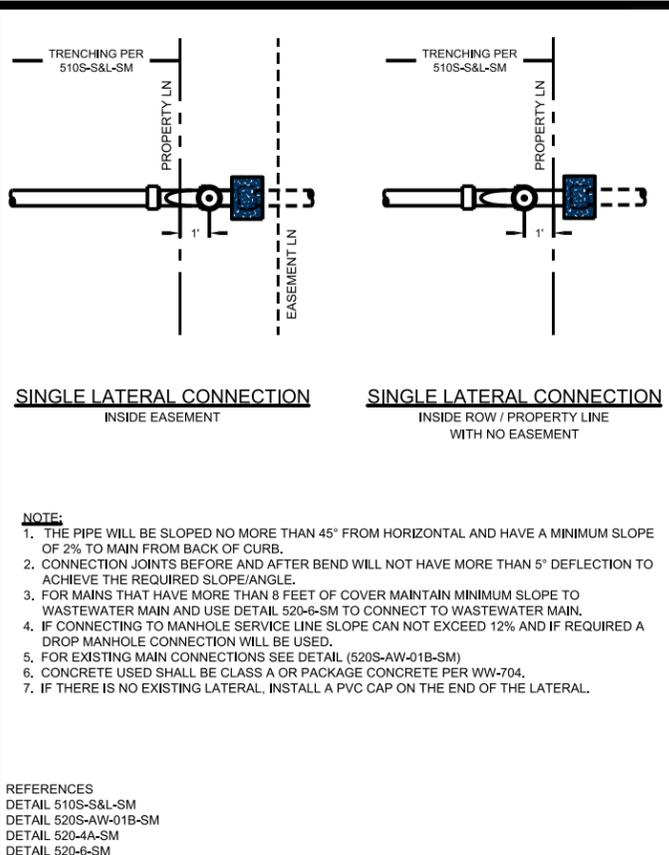
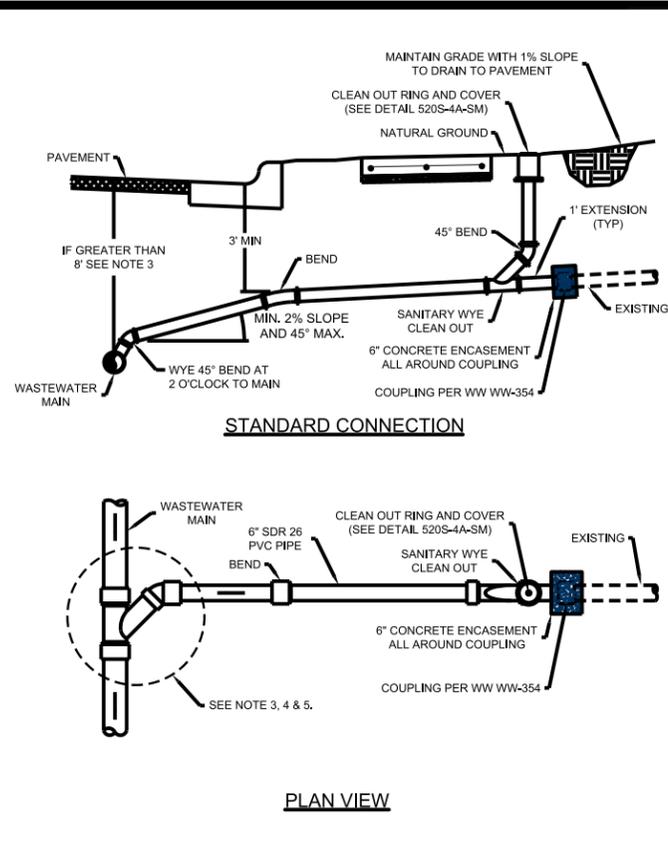


IH 35 AT SH 123 UTILITIES DETAILS

SHEET 9 OF 12

©	CONT	SECT	JOB	HIGHWAY
05	CK:	0016	03	114
06	CK:	DIST	COUNTY	SHEET NO.
		AUS	HAYS	1093

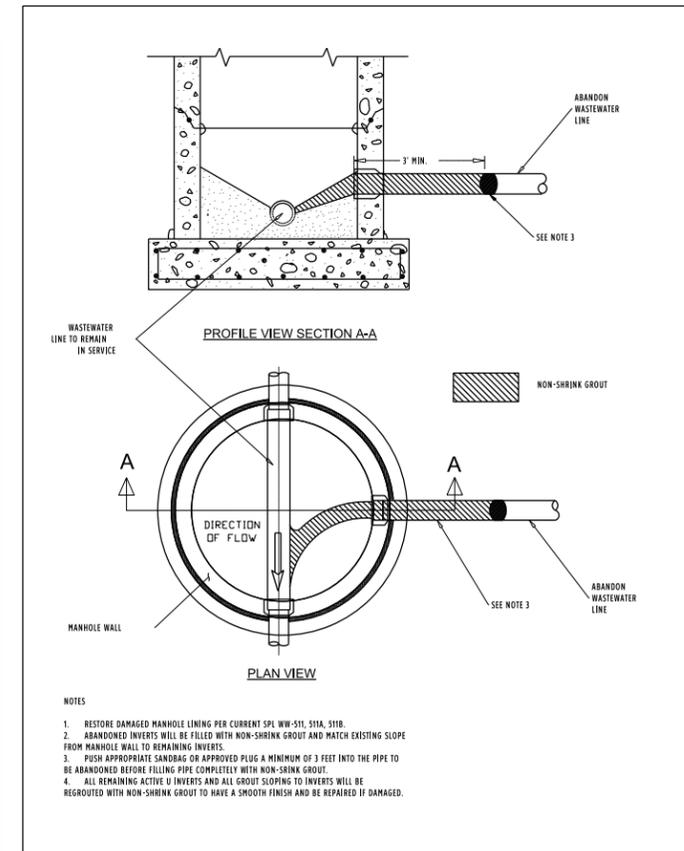
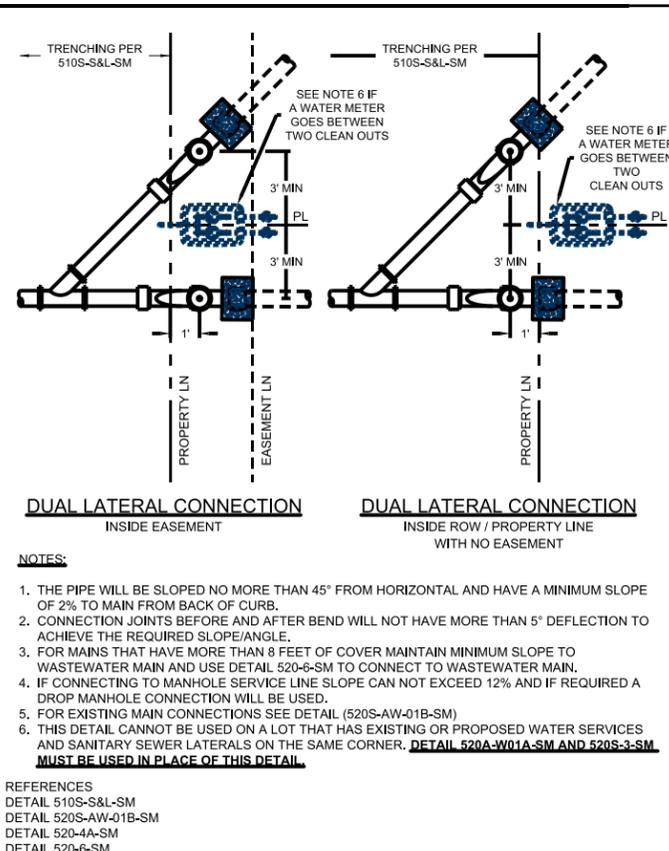
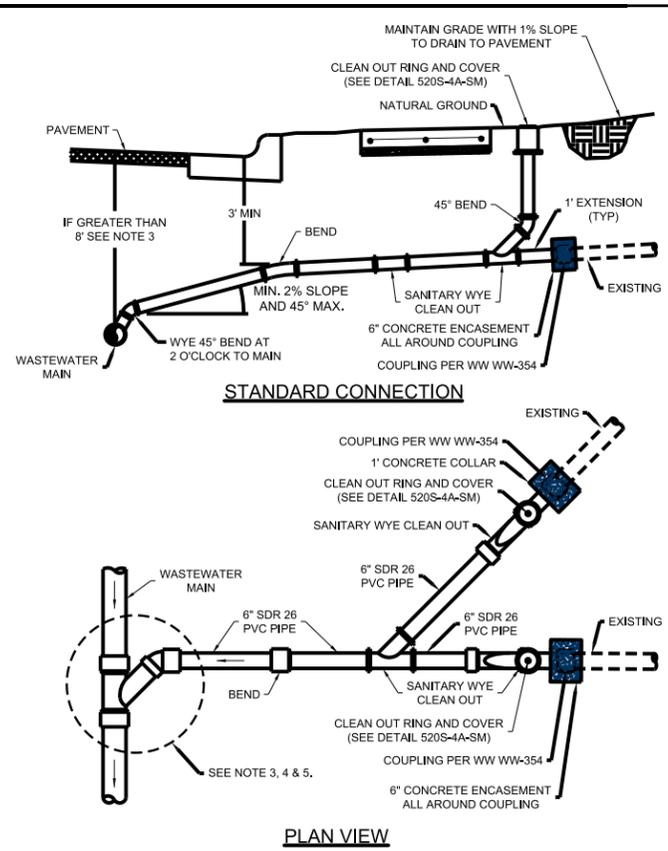
DATE: 06-NOV-2020 19:26 FILE: Projects\0745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Utilities\IHL 35 SH123 UTIL-10.dgn



The City of San Marcos Engineering and Capital Improvements		SINGLE WASTEWATER LATERAL CONNECTION	
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	STANDARD NO. 520S-1-SM	1 OF 2

The City of San Marcos Engineering and Capital Improvements		SINGLE WASTEWATER LATERAL CONNECTION	
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	STANDARD NO. 520S-1-SM	2 OF 2

The City of San Marcos Engineering and Capital Improvements		WASTEWATER DEEP LATERAL CONNECTION DETAIL	
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	STANDARD NO. 520-6-SM	1 OF 1



The City of San Marcos Engineering and Capital Improvements		DUAL WASTEWATER LATERAL CONNECTION	
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	STANDARD NO. 520S-3-SM	1 OF 2

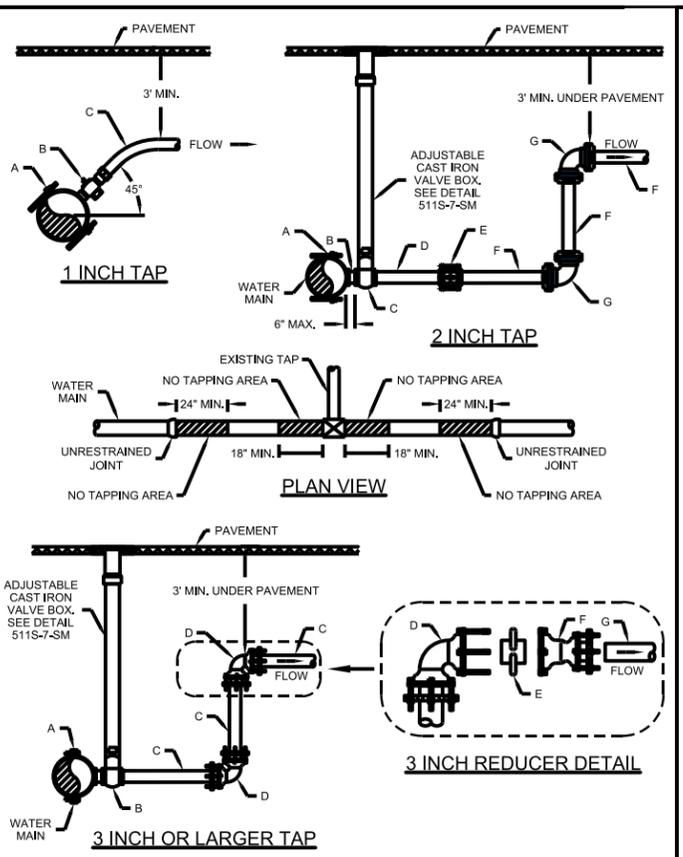
The City of San Marcos Engineering and Capital Improvements		DUAL WASTEWATER LATERAL CONNECTION	
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	STANDARD NO. 520S-3-SM	2 OF 2

The City of San Marcos Engineering and Capital Improvements		ABANDONMENT LINE AT ACTIVE MANHOLE	
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	STANDARD NO. 506S-15A-SM	1 OF 1



IH 35 AT SH 123 UTILITIES DETAILS				
SHEET 10 OF 12				
CONT	SECT	JOB	HIGHWAY	
0016	03	114	IH 35	
DIST	COUNTY		SHEET NO.	
AUS	HAYS		1094	

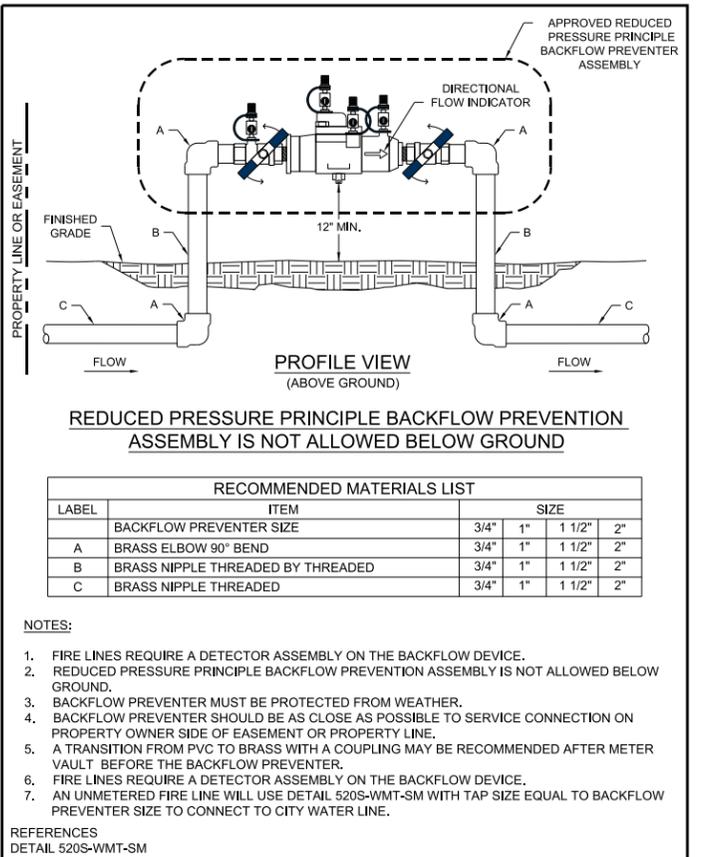
DATE: 06-NOV-2020 19:26 FILE: Projects\0745700 - IH35 at SH123 RECONSTRUCTION\4 - Design\Master Design Files\Utilities\UTIL-IH 35_SH123_DETAILS-11.dgn



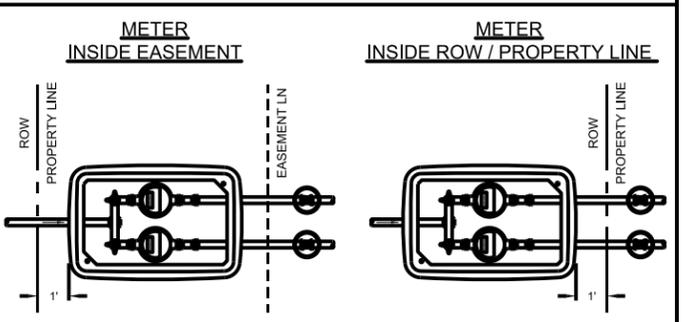
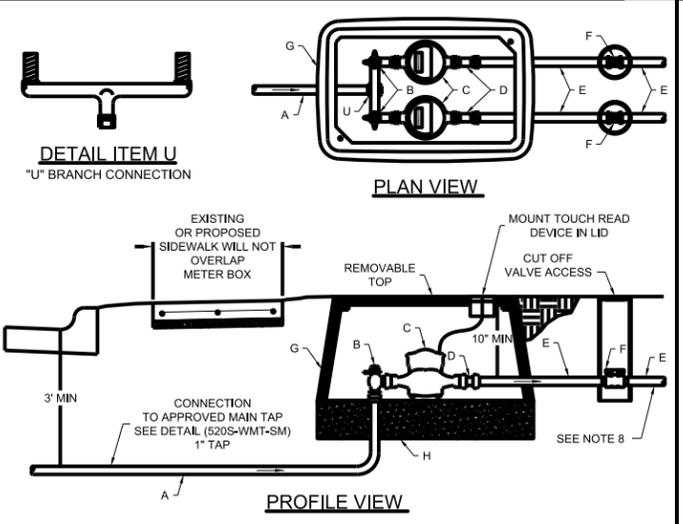
The City of San Marcos Engineering and Capital Improvements		WATER MAIN TAP	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.
Laurie Moyer, P.E.	ADOPTED		520S-WMT-SM
		1 OF 2	

1 INCH TAP MATERIAL LIST		
LABEL	ITEM	SIZE
*A	APPROVED TAPPING SADDLE PER SPL NO. WW-264/WW-256	REQUIRED
B	CORPORATION STOP, FORD TYPE Q COMPRESSION FITTING OR APPROVED EQUIVALENT PER SPL NO. WW-68	1"
**C	TUBING PER SPL NO. TYPE K COPPER WW-613 OR POLYETHYLENE WW-65	1"
* SERVICE SADDLES SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM. ** ALL FITTING CONNECTED TO POLYETHYLENE PIPE WILL REQUIRE A STAINLESS STEEL INSERT.		
2 INCH TAP MATERIAL LIST		
LABEL	ITEM	SIZE
A	APPROVED TAPPING SADDLE PER SPL NO. WW-264	REQUIRED
B	GALVANIZED NIPPLE-THREADED	2"
C	TAPPING VALVE (RESILIENT WEDGE GATE, IRON BODY FEMALE/FEMALE) WITH VALVE BOX DETAIL 511S-7SM	2"
D	GALVANIZED NIPPLE-THREADED X THREADED	2"
E	RESTRAINT DRESSING COUPLINGS - MAXI-GRIP OR APPROVED EQUIVALENT PER SPL NO. WW-587B	2"
F	SUPPLY PIPE SCH. 80 FULLY RESTRAINED PER SPL NO. WW-587	2"
G	DUCTILE IRON 90° BEND - HARCO-KNUCKLE JOINT RESTRAINT, OR APPROVED EQUIVALENT PER SPL NO. WW-587B	2"
4 INCH AND LARGER TAP MATERIAL LIST		
LABEL	ITEM	SERVICE SIZE
A	APPROVED TAPPING SLEEVE PER SPL NO. WW-244	REQUIRED
B	TAPPING VALVE (RESILIENT WEDGE GATE, IRON BODY M.J.X M.J.) WITH VALVE BOX DETAIL 511S-7SM	4" 4" 6" 8" 10"
C	SUPPLY PIPE C900 PER SPL NO. WW-308A OR DUCTILE IRON PER SPL NO. WW-27 FULLY RESTRAINED	4" 4" 6" 8" 10"
D	DUCTILE IRON 90° BEND - MEGALUG RESTRAINT, OR APPROVED EQUIVALENT PER SPL NO. WW-27B AND NO. WW-27A	4" 4" 6" 8" 10"
E	MECHANICAL JOINT ADAPTOR PER SPL NO. WW-27B	4"
F	CAST IRON MECHANICAL JOINT REDUCER PER SPL NO. WW-27B	4"x3"
G	PVC SUPPLY PIPE SCH. 80 FULLY RESTRAINED PER SPL NO. WW-587	3"
* WHEN CONDITIONS ALLOW 45° BENDS ARE PREFERRED OVER 90° BENDS		
NOTES:		
1. MAIN SIZE CAN NOT BE LESS THAN OR EQUAL TO TAP. TEE PER SPL NO. WW-27B MAY BE USED WITH ENGINEERING DEPARTMENT APPROVAL FOR SIZE ON SIZE CONNECTION.		
2. BACKFILL AND EMBEDMENT WILL BE PER CITY DETAIL 510-S&L-SM.		
3. 3" SERVICE AND FIRE LINES WILL USE A 4" TAP AND HAVE A REDUCER TO A 3" LINE AFTER FIRST BEND LEADING TO A HORIZONTALLY LEVELED LINE.		
4. ALL PARTS WILL BE PER THE CURRENT CITY OF SAN MARCOS STANDARD PRODUCTS LIST.		
5. WHEN A TAP IS PROPOSED ON AN EXISTING ASBESTOS CEMENT (AC) PIPE THE CONTRACTOR WILL REPLACE THE AC PIPE SEGMENT WITH AN APPROVED PVC PIPE PER CITY STANDARD PRODUCT LIST (SPL). NEW PIPE WILL BE CONNECTED TO THE EXISTING AC PIPE WITH A WIDE RANGE COUPLING ADAPTOR PER CITY SPL.		
REFERENCES DETAIL 510S-S&L-SM DETAIL 511S-7-SM		

The City of San Marcos Engineering and Capital Improvements		WATER MAIN TAP	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.
Laurie Moyer, P.E.	ADOPTED		520S-WMT-SM
		2 OF 2	



The City of San Marcos Engineering and Capital Improvements		REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY 3/4" - 2"	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.
Laurie Moyer, P.E.	ADOPTED		520S-19F-SM
		1 OF 1	

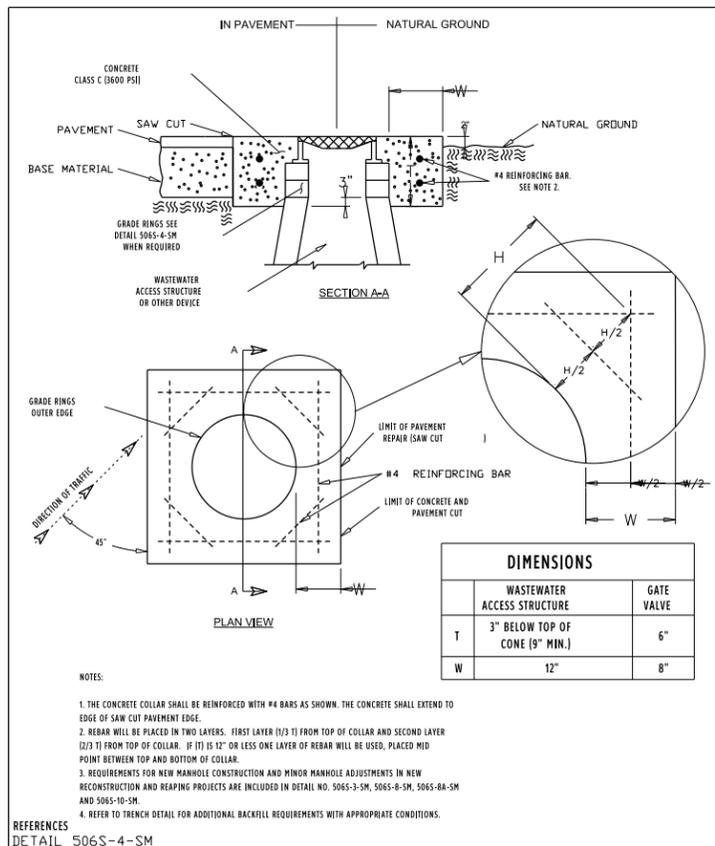


The City of San Marcos Engineering and Capital Improvements		5/8" & 3/4" DUEL METER SERVICE CONNECTIONS (IRRIGATION OR DOMESTIC)	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.
Laurie Moyer, P.E.	ADOPTED		520S-9-SM
		1 OF 2	

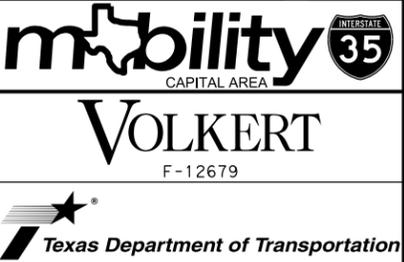
MATERIALS		
LABEL	ITEMS	METER SIZE
*A	TUBING PER STANDARD PRODUCT LIST - TYPE K COPPER WW-613 OR POLYETHYLENE WW-65	5/8" 3/4"
B	APPROVED ANGLE METER STOP WITH PADLOCK WING. (FORD TYPE Q COMPRESSION FITTING OR APPROVED EQUIVALENT.) PER STANDARD PRODUCT LIST NO. WW-68	5/8" 3/4"
C	WATER METER PER STANDARD PRODUCT LIST NO. WW-144	5/8" 3/4"
D	WATER METER COUPLING - CONNECTION SWIVEL NUT	5/8" 3/4"
E	CUSTOMER YARD PIPE - AS SPECIFIED	REQUIRED
F	CUSTOMER CUT - OFF VALVE IN VALVE BOX AND LID	REQUIRED
G	METER BOX AND LID PER STANDARD PRODUCT LIST NO. WW-145A HDPE METER BOXES	REQUIRED
H	6" COMPACTED SAND	REQUIRED
U	"U" BRANCH CONNECTION (COMPRESSION - TYPE FITTING) PER STANDARD PRODUCT LIST NO. WW-68	1" x 1/2" 1" x 3/4"
* ALL FITTING CONNECTED TO POLYETHYLENE PIPE WILL REQUIRE A STAINLESS STEEL INSERT.		

- NOTES:
- TOP OF METER BOX SHALL BE 1" ABOVE GRADE AFTER REVEGETATION OR FLUSH WITH PAVEMENT SURFACE. METER BOX WILL BE LOCATED BEHIND BACK CURB, OUT OF SIDEWALK OR TRAFFIC LOADED AREA.
 - FOR PIPES AND FITTINGS OUTSIDE THE METER BOX SHALL BE EMBEDDED AND BACKFILLED PER DETAIL 510S-S&L-SM WITHIN THE ROW OR EASEMENT.
 - WATER METER WILL BE HORIZONTALLY CENTERED WITH THE METER BOX.
 - TAP TO CITY WATER LINE WILL BE PER CITY DETAIL 510S-WMT-SM WITH A 1" TAP TO THE MAIN.
 - CUT-OFF VALVE AND CONNECTION TO YARD PIPING TO BE SUBMITTED FOR APPROVAL.
 - METERS TO BE SUPPLIED BY CONTRACTOR FOR COMMERCIAL ACCOUNTS.
 - ALL PARTS WILL BE PER THE CURRENT CITY OF SAN MARCOS STANDARD PRODUCTS LIST.
 - SERVICE LINE TO APPROVED BACKFLOW PREVENTER FOR NONE SINGLE FAMILY RESIDENTIAL LOTS WHEN REQUIRED.
- REFERENCES
DETAIL 510S-S&L-SM
DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements		5/8" & 3/4" DUEL METER SERVICE CONNECTIONS (IRRIGATION OR DOMESTIC)	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.
Laurie Moyer, P.E.	ADOPTED		520S-9-SM
		2 OF 2	



The City of San Marcos Engineering and Capital Improvements		Concrete Riser Collar	
RECORDED COPY SIGNED BY	2-15-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.
Laurie Moyer, P.E.	ADOPTED		1100S-1-SM
		N.T.S. STANDARD DETAIL	

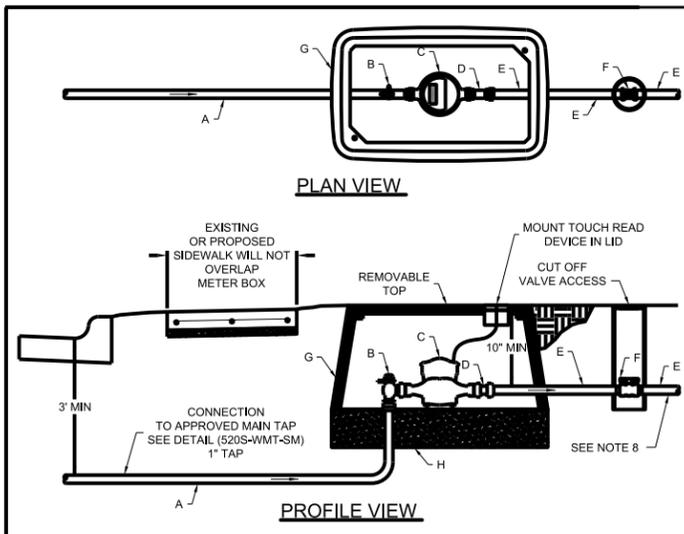


IH 35 AT SH 123 UTILITIES DETAILS

SHEET 11 OF 12

CONTRACT NO.	0016	SECTION	03	JOB NO.	114	HIGHWAY	IH 35
DISTRICT	AUS	COUNTY	HAYS	SHEET NO.	1095		

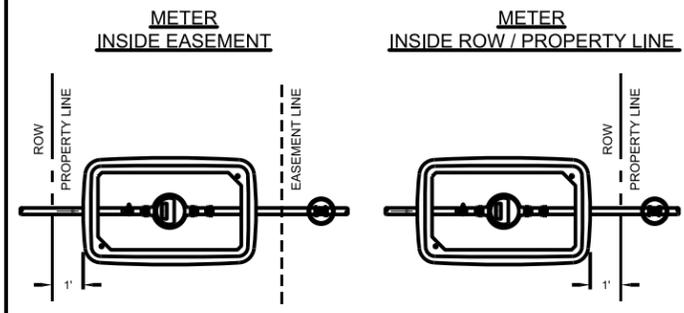
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MATERIALS				
LABEL	ITEMS	METER SIZE		
		5/8"	3/4"	1"
* A	TUBING PER STANDARD PRODUCT LIST - TYPE K COPPER WW-613 OR POLYETHYLENE WW-65	1"	1"	1"
B	APPROVED ANGLE METER STOP WITH PADLOCK WING. (FORD TYPE Q COMPRESSION FITTING OR APPROVED EQUIVALENT.) PER STANDARD PRODUCT LIST NO. WW-68	5/8"	3/4"	1"
C	WATER METER PER STANDARD PRODUCT LIST NO. WW-144	5/8"	3/4"	1"
D	WATER METER COUPLING - CONNECTION SWIVEL NUT	5/8"	3/4"	1"
E	CUSTOMER YARD PIPE - AS SPECIFIED	REQUIRED		
F	CUSTOMER CUT - OFF VALVE IN VALVE BOX AND LID	REQUIRED		
G	METER BOX AND LID PER STANDARD PRODUCT LIST NO. WW-145A HDPE METER BOXES	REQUIRED		
H	6" COMPACTED SAND	REQUIRED		

* ALL FITTING CONNECTED TO POLYETHYLENE PIPE WILL REQUIRE A STAINLESS STEEL INSERT.

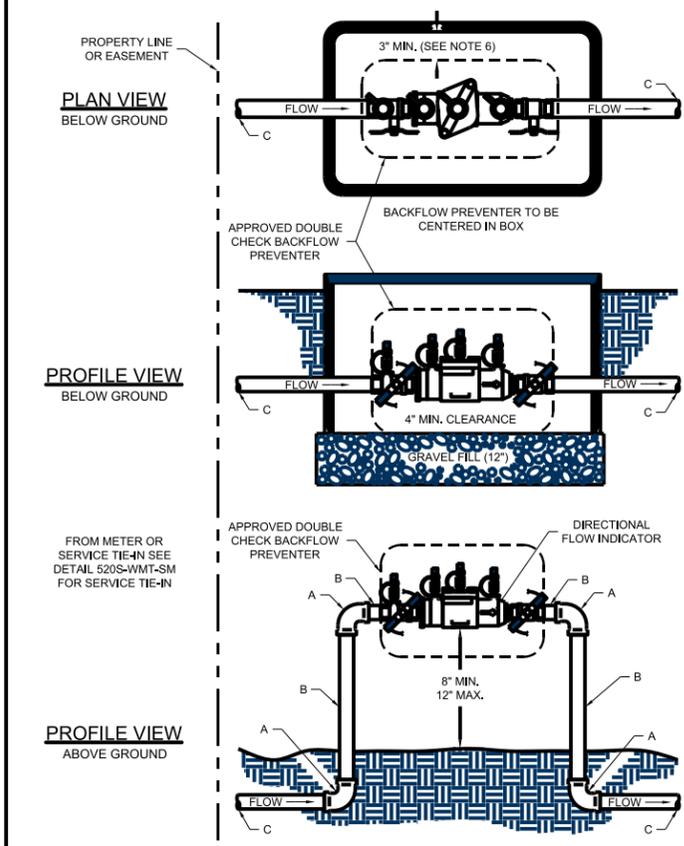
- NOTES:**
- TOP OF METER BOX SHALL BE 1" ABOVE GRADE AFTER REVEGETATION OR FLUSH WITH PAVEMENT SURFACE. METER BOX WILL BE LOCATED BEHIND BACK CURB, OUT OF SIDEWALK OR TRAFFIC LOADED AREA.
 - FOR PIPES AND FITTINGS OUTSIDE THE METER BOX SHALL BE EMBEDDED AND BACKFILLED PER DETAIL 510S-S&L-SM WITHIN THE ROW OR EASEMENT.
 - WATER METER WILL BE HORIZONTALLY CENTERED WITH THE METER BOX.
 - TAP TO CITY WATER LINE WILL BE PER CITY DETAIL 510S-WMT-SM WITH A 1" TAP TO THE MAIN.
 - CUT-OFF VALVE AND CONNECTION TO YARD PIPING TO BE SUBMITTED FOR APPROVAL.
 - METERS TO BE SUPPLIED BY CONTRACTOR FOR COMMERCIAL ACCOUNTS.
 - ALL PARTS WILL BE PER THE CURRENT CITY OF SAN MARCOS STANDARD PRODUCTS LIST.
 - SERVICE LINE TO APPROVED BACKFLOW PREVENTER FOR NONE SINGLE FAMILY RESIDENTIAL LOTS WHEN REQUIRED.



REFERENCES
 DETAIL 510S-S&L-SM
 DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements	5/8", 3/4" & 1" SINGLE METER SERVICE CONNECTION (IRRIGATION OR DOMESTIC)	STANDARD NO. 520S-11-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 1 OF 2

The City of San Marcos Engineering and Capital Improvements	5/8", 3/4" & 1" SINGLE METER SERVICE CONNECTION (IRRIGATION OR DOMESTIC)	STANDARD NO. 520S-11-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 2 OF 2



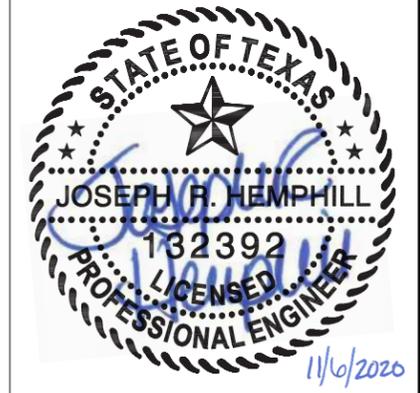
RECOMMENDED MATERIALS LIST				
LABEL	ITEM	SIZE		
		3/4"	1"	1 1/2" 2"
	BACKFLOW PREVENTER SIZE	3/4"	1"	1 1/2" 2"
A	BRASS ELBOW 90° BEND	3/4"	1"	1 1/2" 2"
B	BRASS NIPPLE THREADED BY THREADED	3/4"	1"	1 1/2" 2"
C	BRASS NIPPLE THREADED	3/4"	1"	1 1/2" 2"

- NOTES:**
- FIRE LINES REQUIRE A DETECTOR ASSEMBLY ON THE BACKFLOW DEVICE.**
 - BACKFLOW PREVENTER MUST BE PROTECTED FROM WEATHER.
 - BACKFLOW PREVENTER SHOULD BE AS CLOSE AS POSSIBLE TO SERVICE CONNECTION ON PROPERTY OWNER SIDE OF EASEMENT OR PROPERTY LINE.
 - A TRANSITION FROM PVC TO BRASS WITH A COUPLING MAY BE RECOMMENDED AFTER METER VAULT BEFORE THE BACKFLOW PREVENTER.
 - A UNMETERED FIRE LINE WILL USE DETAIL 520S-WMT-SM WITH TAP SIZE EQUAL TO BACKFLOW PREVENTER SIZE TO CONNECT TO CITY WATER LINE.
 - 3" MIN. CLEARANCE FROM ALL WALLS OF METER.

REFERENCES
 DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements	DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY 3/4"-2"	STANDARD NO. 520S-19D-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 1 OF 2

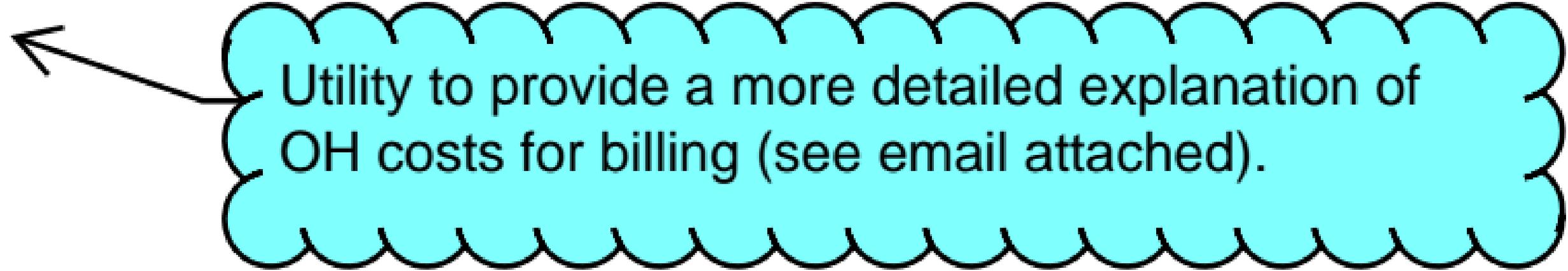
The City of San Marcos Engineering and Capital Improvements	DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY 3/4"-2"	STANDARD NO. 520S-19D-SM
RECORD COPY SIGNED BY LAURIE MOYER, P.E.	1/1/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. 2 OF 2



**IH 35 AT SH 123
 UTILITIES
 DETAILS**

SHEET 12 OF 12				
CONT	SECT	JOB	HIGHWAY	
0016	03	114	IH 35	
DIST	COUNTY		SHEET NO.	
AUS	HAYS		1096	

Description of Overhead includes Office Space rental, Water and Electricity bills, Information Technology costs, etc.



Utility to provide a more detailed explanation of OH costs for billing (see email attached).

Quiana Waters

From: Vij, Rohit <RVij@sanmarcostx.gov>
Sent: Monday, December 22, 2025 8:55 AM
To: Quiana Waters
Cc: Stefan Srnensky; Villalpando Jr, Michael; Condor, Shaun; Cathy Thane
Subject: RE: U_0284, IH-35, SH 123, City of San Marcos Water, Reimbursement
Attachments: U-15694_I-35_SH 123_COSM Water WW_03.29.21_executed.pdf; Amendment 1 CSJ 0016-03-114 07.16.21 Executed.pdf; SUPPLEMENTAL AGREEMENT TRANSMITTAL FOR UTILITY REVIEW.docx; U_0284_IH-35_SH 123_COSM Water_PYMT_Invoice Package_12.19.25.pdf; INV 8-26-20 AND PYMT REQ.pdf

This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thanks, Quinna. I will wait for the Supplemental Agreement (SUPP) and provide comments. Will the supplemental agreement be an amendment to the original AFA (attached)? I have completed the DocuSign routing form (attached). Please keep in mind that I have to take this supplemental agreement to the Council for approval and the City Manager's signature. It takes around 6-8 weeks for the Council Approval and the City Manager's signature.

I have included my responses in the **red** text below (for the invoice package):

utility to provide OH costs explanation at billing

One thing I noticed in the invoice package is that the external labor amount (for Byrn Surveying) was reduced from \$12,500.00 to \$0.00. Was there any particular reason for this change? Please see the attached package (with comments) and the actual invoice.

To approve this invoice, we need an executed Supplemental Agreement as explained above.

The City will work with TxDOT to execute the Supplemental Agreement.

- Additionally, we need a detailed explanation of the overhead costs, preferably on company letterhead; however, over email will suffice.
- **The City will provide a detailed explanation of the overhead costs, preferably on the COSM letterhead.**
- Please explain what is included in the 20.00% overhead and how it was calculated.
- **The City will provide a letter explaining the 20% overhead calculations.**
- The previous explanation submitted (see snip below) may be insufficient and these costs are subject to audit for determination of eligibility.

Description of Overhead includes Office Space rental, Water and Electricity bills, Infor costs, etc.

- **The City will provide a letter explaining the 20% overhead calculations.**

Thirdly, there are two updates in the invoice package that I want to bring to the City's attention which are:

1. The external engineering costs were reduced by \$13,462.00 for the SUE test holes service provided by Halff because that amount was an estimate in the attached purchase order document (P0 190511-00).
2. **I agree with your assessment and checked Tyler. The actual invoice was in the amount of \$8,580.00**
 - a. The purchase order is not a receipt; however, the actual receipt for SUE test holes performed by Halff was provided in the amount of \$8,580.00. See invoice #22530 on pages 22-23 within the invoice package.
 - b. **Again, I agree with the assessment. Please move forward with your evaluation.**
3. The betterment ratio was reduced from 5.86% to 3.01% due to a re-evaluation of elective betterment because of the overall reduction in linear footage installed for the 6", 8" and 12" PVC water main pipes. This reduction in linear footage resulted in an increase to the net reimbursement to the City.

Attachment “B” Accounting Method

Not Applicable

Actual Cost Method of Accounting

The Utility accumulates cost under a work order accounting procedure prescribed by the Federal or State regulatory body and proposes to request reimbursement for actual direct and related indirect costs.

Lump Sum Method of Accounting

The Utility proposed to request reimbursement based on an agreed lump sum amount supported by a detailed cost analysis.

Initial Date
TxDOT

Initial Date
Utility

Attachment "C" Schedule of Work

Not Applicable

Estimated Start Date (mm/dd/yyyy): 09/15/2021, subject to physical work restrictions prior to the issuance of environmental clearance as required by the provisions of this agreement. (If construction will be joint bid and included in the highway contract, enter the project let date.)

Estimated Duration (number of days): 1,412

Estimated Completion Date (mm/dd/yyyy): 7/28/2025

Initial Date
TxDOT

Initial Date
Utility

Attachment “D” Statement Covering Contract Work

Not Applicable

Construction Contract: Complete form ROW-U-48 and ROW-U-48-1 if applicable.

- The Utility will use its own personnel (supporting documentation will be required at the time of billing, See ROW Utilities Manual, Chapter 11).
- The Utility will use third party contractors to perform the adjustment and complete the attached ROW-U-48 with ROW-U-48-1 (joint bid), if appropriate. (verification of continuing contract rate sheets or copy of bid tabulation will be required at the time of billing)

Engineering Contract:

- The Utility will use its own personnel (supporting documentation will be required at the time of billing, See ROW Utilities Manual, Chapter 11).
- The Utility will use a consultant contract (verification of fee schedule is required).
- TxDOT will procure a utility engineering consultant.

Initial Date
TxDOT

Initial Date
Utility



STATEMENT COVERING UTILITY CONSTRUCTION CONTRACT WORK (AS APPEARING IN ESTIMATE)

Form ROW-U-48
(Rev. 10/20)
Page 1 of 1

U-Number: 15694 Utility ID: U00000284
 ROW CSJ Number: 0016-03-115 District: Austin
 County: Hays Highway No.: IH 35
 Federal Project No.: NH2021(382)

I, Bert Lumbreras, a duly authorized and qualified representative of City of San Marcos, hereinafter referred to as **Owner**, am fully cognizant of the facts and make the following statements in respect to work which will or may be done on a contract basis as it appears in the estimate to which this statement is attached.

It is more economical and/or expedient for **Owner** to contract this adjustment, or **Owner** is not adequately staffed or equipped to perform the necessary work on this project with its own forces to the extent as indicated on the estimate.

Procedure to be Used in Contracting Work

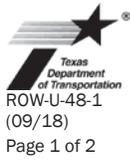
- A. Solicitation for bids is to be accomplished through open advertising and contract is to be awarded to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed. Associated bid tabulations will be provided to the **State**.
- B. Solicitation for bids is to be accomplished by circulating to a list of pre-qualified contractors or known qualified contractors and such contract is to be awarded to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed. Associated bid tabulations will be provided to the **State**. Such presently known contractors are listed below:
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
- C. The work is to be performed under an existing continuing contract under which certain work is regularly performed for **Owner** and under which the lowest available costs are developed. The existing continuing contract will be made available to the **State** for review at a location mutually acceptable to the **Owner** and the **State**. If only part of the contract work is to be done under an existing contract, give detailed information by attachment hereto.
- D. The utility proposes to contract outside the foregoing requirements and therefore evidence in support of its proposal is attached to the estimate in order to obtain the concurrence of the **State**, and the Federal Highway Administration Division Engineer where applicable, prior to taking action thereon (approval of the agreement shall be considered as approval of such proposal).
- E. The utility plans and specifications, with the consent of the **State**, will be included in the construction contract awarded by the **State**. In the best interest of both the **State** and the **Owner**, the **Owner** requests the **State** to include the plans and specifications for this work in the general contract for construction of Highway IH 35 in this area, so that the work can be coordinated with the other construction operations; and the construction contract is to be awarded by the **State** to the lowest qualified bidder who submits a proposal in conformity with the requirements and specifications for the work to be performed. If this option is chosen, attach form ROW-U-48-1, the terms of which are incorporated herein by reference.

DocuSigned by:

Bert Lumbreras
 Signature

3/31/2021
 Date

City Manager
 Title



**Statement Covering Utility Construction Contract Work – In the State’s
Highway Construction Contract
(As Referenced in Form ROW-U-48, Option E)**

Work Responsibilities

- A. The **Utility** shall provide the following services under this contract:
- i. Responsible for engaging the services of a Texas Registered Professional Engineer to prepare drawings and technical specifications for relocations and adjustments along IH 35
 - ii. Provide the plans and specifications to the State to include in the current planning specifications and estimate package being prepared by representatives of the Texas Department of Transportation’s AUS South Travis Area Office.
 - iii. Secure all necessary permitting as may be required for the installation of the Water & Wastewater line.
 - iv. Arrange and coordinate with the contractor, through the State, materials and equipment testing, rejection of all work not conforming to minimum requirements of the construction contract documents, maintenance of the proposed work area during construction, and the relocation of and connection of services to customers.
 - v. Advise the State of work that Utility determines should be corrected or rejected.
 - vi. Arrange, observe, and inspect all acceptance testing and notify the State of the results of these activities.
 - vii. Provide inspection services for the construction, notify the State of defects and deficiencies in the work, and observe actions of the contractor to correct such defects and deficiencies.
 - viii. Assume all responsibility for the maintenance of the existing water and WW lines during and upon completion of the construction contract.
 - ix. Ensure all Texas Commission on Environmental Quality and all other regulatory rules, regulations and laws are strictly adhered to.
 - x. Prepare and submit both a certificate of substantial completion and a list of observed items requiring completion or correction for the relocations and adjustments to the Project Engineer for concurrence.
 - xi. Coordinate all construction activities performed by Utility’s staff for the relocations and adjustments through the Project Engineer.

- B. The State** shall provide the following services under this contract:
- i. Combine the water and wastewater relocation and adjustment plans with the plans being prepared for the Project.
 - ii. Review and approve the final construction plans prior to any construction-related activities. In order to ensure federal and/or state funding eligibility, projects must be authorized by the State prior to advertising for construction.
 - iii. Advertise for construction bids, issue bid proposals, receive and tabulate the bids, and award and administer the contract for construction of the Project.
 - iv. Negotiate and administer all field changes and change orders required for the Project. All change orders increasing construction costs for Utility's Project shall be submitted to Utility for review and approval together with an evaluation. Utility agrees to review and either approve or disapprove all change orders within five (5) business days after receipt of such order unless Utility Board's approval is necessary in which case Utility shall bring the item to Utility Board as soon as reasonably possible.
 - v. Provide overall project management to supervise the day-to-day activities of the construction and monitor the activities of the contractor to promote the timely and efficient completion of the Project in accordance with the approved Plans and Specifications and construction schedule.
 - vi. Conduct field observations and coordinate with Utility's inspectors and the contractor to cure defects and deficiencies in the construction prior to final acceptance.
 - vii. Make timely payment to the contractor for work performed in connection with the Project.
 - viii. Ensure access and permit Utility's inspectors and other authorized representatives to inspect the waterline construction at all times.
 - ix. Conduct and coordinate final inspection of the Project in the presence of Utility's Engineer and Inspector, transmit final list of items to be completed or repaired and observe contractor correction of same.
 - x. Maintain job file.

CERTIFICATION FOR CONTINUING CONTRACT RATE SHEET OR FEE SCHEDULE REVIEW

U-Number: **15694** Utility ID: **U00000284**

District: Austin
Federal Project No.: ROW 16-3-115
ROW CSJ: 0016-03-115
Highway Project Letting Date: 4/2021
Utility Name: City of San Marcos
Date Reviewed: 4/1/2025

County: Hays
Highway: IH-35
From: South of SH 80
To: North of RM 12
Utility Representative Name: Rohit Vij

Select Type of Contract:

- ENGINEERING CONTRACT**
 CONSTRUCTION CONTRACT

The District and/or representative has reviewed the Utility's continuing contract rate sheet or fee schedule procured for the above-mentioned project.

Upon careful review and to the best of our knowledge, we hereby certify that the estimated hours and rates are reasonable and is acceptable for such consultant engineering services/construction contractor to be performed for the **Utility**.

REVIEWED BY CONSULTANT

Name of Firm

By: _____
Signature

Print or Type Name

Title: _____

Date: Click or tap to enter a date.

REVIEWED BY TxDOT:

Austin District
Name of District

By: _____
Signature

Quiana Waters
Print or Type Name

Title: Utility Specialist

Date: 1/9/2026

Attachment “E” Utility Joint Use Agreement – (ROW-U-JUA) and/or RULIS Permit

Not Applicable

- Utility Joint Use Agreement (ROW–U–JUA)
 - Plans with joint use area highlighted are included.
- RULIS Permit Number:
The utility should obtain an approved permit before the start of construction inside of the highway right of way.
- Quitclaim will be submitted at the Final Billing

Initial Date
TxDOT

Initial Date
Utility

Attachment “F” Eligibility Ratio

Not Applicable

Eligibility Ratio established: _____ %

- Non-interstate Highway (Calculations attached)
- Interstate Highway
- Toll Road (Minimum of 50%)
- SP2125 Approved Application (100%)
Minute Order #: _____
- Master Utility Agreement

Initial Date
TxDOT

Initial Date
Utility

Attachment “G” Betterment Calculation and Estimate

Not Applicable

- Elective Betterment Ratio established: 3.01 %
 - Calculation is attached and the justification is included below
 - A betterment and an in-kind estimate are included

- Forced Betterment
 - To comply with regulated industry standards, laws, and regulations. (Supporting documentation required)
 - To comply with published current design practice followed by the utility in its own work. (Supporting documentation required)
 - Due to proposed roadway design. (Provide explanation below)

- Not Applicable

A statement explaining Elective and/or Forced Betterment:

Elective Betterment: Extending water lines (WL) to support the City's overall planning for the future. Extend 8" WL# 01 by 389.5', extend 12" WL# 04 by 180' and extend 6" WL# 03 by 24'.

Forced Betterment: The City of San Marcos will be up-sizing WL# 01 from a 2" to an 8" to satisfy current City specifications (see attached table).

Initial Date
TxDOT

Initial Date
Utility

1.5 Determination of Pipe Size and Material

The following nominal pipe sizes will be the only sizes allowed for use in the distribution system:

Table 2: Pipe Size & Material

Use	Pipe Material	¹Pipe Sizes	²SPL
Service lines	Copper Tubing	1"	WW-613
Service lines	Polyethylene Tubing	1"	WW-65
Service lines	PVC	2"	WW-587
Service lines	PVC	4", 6", 8", 12"	WW-308
Fire Hydrant Lead	DI	6"	WW-27
³ Distribution lines	PVC	8" or 12"	WW-308 or WW-308A
³ Distribution lines	DI	8" or 12"	WW-27 or WW-27F
Transmission lines	PVC	16" or 24"	WW-308C
Transmission lines	DI	16" or 24"	WW-27 or WW-27F
<u>Note 1</u> <i>If the required pipe size is not listed; then install the next larger size listed and reduce to the needed size at the meter per the COSM details. See COSM details for more information.</i>			
<u>Note 2</u> <i>The COSM Standard Products List (SPL) can be found on the engineering webpage.</i>			
<u>Note 3</u> <i>The minimum distribution system line size is eight (8) inches, with the exception of short Cul-de-Sacs as indicated in Section 1.8.6 Cul de Sacs</i>			

Utility Adjustment for TxDOT Project

TxDOT STANDARD
SUA ESTIMATE

Comparative Estimate

City of San Marcos (Water & Wastewater)
IH-35, from South of SH80 to North of RM 12

RCSJ: RCSJ 0016-03-115
Utility ID#: U00000284
UNUMBER: U-15694

ESTIMATE INCLUDING BETTERMENT
ACTUAL COST
SUPPLEMENTAL ESTIMATE

The cost estimate items must be sufficiently detailed to provide TxDOT with a reasonable basis for analysis. Items should include appropriate units and unit price for each (See Utility Manual, Chapter 6 Section 2). Applies to All "EA" or "LS" items

Percent of Difference 3%

Materials & Labor to be included in TxDOT Roadway Contract- JOINT BID (IN-KIND Estimate)				
Line Item / Item Description	Unit	Quantity	\$/Unit	Total
Ductile Iron fittings	EA	16.5	\$ 2,278.00	\$ 120,087.00
6" Gate valve	EA	12	\$ 1,662.90	\$ 19,954.80
8" Gate valve	EA	4	\$ 2,217.70	\$ 8,870.80
12" RESLNT WDG gate valve w box	EA	1	\$ 3,325.70	\$ 3,325.70
12" Gate valve	EA	14	\$ 3,325.70	\$ 46,559.80
16" Gate valve	EA	3	\$ 6,097.00	\$ 18,291.00
WM PVC 6"	LF	152	\$ 58.00	\$ 8,816.00
WM PVC 8"	LF	440	\$ 34.89	\$ 15,351.60
WM PVC 12"	LF	1254	\$ 88.09	\$ 110,464.86
WM DI 12"	LF	151	\$ 80.00	\$ 12,080.00
WM DI 16"	LF	1892	\$ 305.40	\$ 577,816.80
WM HDPE 18"	LF	1032	\$ 120.00	\$ 123,840.00
Steel Pipe 30"	LF	544	\$ 265.00	\$ 144,160.00
Connect to Exist 8"	EA	5	\$ 8,500.00	\$ 42,500.00
Connect to Exist 12"	EA	2	\$ 10,000.00	\$ 20,000.00
Air Release Valve	EA	1	\$ 5,653.00	\$ 5,653.00
Cut and Plug 8" WM	EA	4	\$ 644.63	\$ 2,578.52
Cut and Plug 12" WM	EA	7	\$ 992.39	\$ 6,946.73
Fire Hydrant	EA	10	\$ 4,076.82	\$ 40,768.20
Rem Exist 2"	LF	400	\$ 65.00	\$ 26,000.00
Rem Exist 8"	LF	1315	\$ 70.00	\$ 92,050.00
Rem Exist 12"	LF	1871	\$ 85.00	\$ 159,035.00
Water Service	EA	6	\$ 1,662.90	\$ 9,977.40
Relo Exist meter	EA	5	\$ 3,725.00	\$ 18,625.00
Trench, Embed & Backfill	LF	2867	\$ 1.00	\$ 2,867.00
Jack Bore or Tunnel WM 16"	LF	100	\$ 125.00	\$ 12,500.00
Jack Bore or Tunnel WM 18" STL	LF	1032	\$ 130.00	\$ 134,160.00
Abandon 8"	LF	632	\$ 35.00	\$ 22,120.00
Abandon 12"	LF	951	\$ 45.00	\$ 42,795.00
WW Pipe DI 8"	LF	376	\$ 110.00	\$ 41,360.00
WW 30" DI	LF	1410	\$ 312.00	\$ 439,920.00
WW MH 48"	EA	2	\$ 6,500.00	\$ 13,000.00
Rem WW 8"	LF	200	\$ 8.00	\$ 1,600.00
Rem WW 30"	LF	1339	\$ 25.00	\$ 33,475.00
Cut and Plug 8" WM	EA	3	\$ 750.00	\$ 2,250.00
Cut and Plug 30" WM	EA	1	\$ 1,500.00	\$ 1,500.00
Trench, Embed & Backfill WW	LF	1900	\$ 1.00	\$ 1,900.00
WW 6" PVC	LF	93	\$ 72.00	\$ 6,696.00
Rem WW MH	EA	3	\$ 1,000.00	\$ 3,000.00
WW Structure 72"	EA	5	\$ 16,000.00	\$ 80,000.00
Bore or Jack Pipe Steel 24"	EA	33	\$ 310.00	\$ 10,230.00
SUBTOTAL				\$ 2,483,125.21

MATERIALS SUBTOTAL \$ 2,483,125.21

Indicated items are being tracked for BUY AMERICA COMPLIANCE and will be documented using Form 1818 and all supporting documentation prior to installation.

Indicated items are IRON or STEEL, but will not be tracked for BUY AMERICA COMPLIANCE due to falling under the DE MINIMUS of \$2,500, or .1% of the project total cost, whichever is greater. Sum of De Minimus Items \$0.00

Internal Labor Costs - documented with Certified Ledger at payment.				
Line Item / Item Description	Unit	Quantity	\$/Unit	Total
Utility Inspection	HR	456	\$ 85.00	\$ 38,760.00
SUBTOTAL				\$ 38,760.00
OVERHEAD (%) Enter % if applicable			15.00%	\$ 5,814.00
SUBTOTAL				\$ 44,574.00
LABOR SUBTOTAL				\$ 44,574.00

Engineering Procured by TxDOT - 100% eligibility required				
Line Item / Item Description	Unit	Quantity	\$/Unit	Total
Sr Engineer	HR	195	\$ 186.46	\$ 36,359.70
Design Engineer	HR	285	\$ 134.83	\$ 38,426.55
Sr Engineer Tech	HR	178.6	\$ 109.01	\$ 19,469.19
## Above was paid by TxDOT to Volk for utility design				\$ -
SUBTOTAL				\$ 94,255.44

Internal Engineering - Costs Documented with Certified Ledger at payment.				
Line Item / Item Description	Unit	Quantity	\$/Unit	Total
Sr Program Mngr - Original Contract	HR	70	\$ 168.00	\$ 11,760.00
Sr Program Mngr - Supplemental Contract	HR	148	\$ 170.00	\$ 25,160.00
Project Eng 1 - Original	HR	92	\$ 133.00	\$ 12,236.00
Project Eng 1 - Supplemental	HR	204	\$ 135.00	\$ 27,540.00
Tech 1 - Original	HR	60	\$ 95.00	\$ 5,700.00
Tech 2 - Supplemental	HR	125	\$ 110.00	\$ 13,750.00
SUBTOTAL				\$ 96,146.00
OVERHEAD (%) Enter % if applicable			0.00%	\$ -
SUBTOTAL				\$ 96,146.00

External Engineering - Cost documented with INVOICES and / or CHECKS				
Line Item / Item Description	Unit	Quantity	\$/Unit	Total
RABA				
Technician Time	HR	6.5	\$ 53.00	\$ 344.50
Concrete Cylinder	EA	4	\$ 20.00	\$ 80.00
Vehicle Travel	Trip	2	\$ 72.00	\$ 144.00
HALFF				
Sr. Engineer/PE	HR	132.16	\$ 195.00	\$ 25,771.20
Sr. Project Engineer	HR	1.5	\$ 180.00	\$ 270.00
Sr. PE	HR	4	\$ 163.20	\$ 652.80
Project Engineer	HR	265.64	\$ 150.00	\$ 39,846.00
Jr. Engineer	HR	415.08	\$ 130.00	\$ 53,960.40
Mid PE	HR	5	\$ 125.70	\$ 628.50
EIT	HR	233.78	\$ 110.00	\$ 25,715.80
EIT	HR	18.72	\$ 93.20	\$ 1,744.70
Sr. Project Manager	HR	37	\$ 250.00	\$ 9,250.00
Project Manager	HR	10	\$ 210.00	\$ 2,100.00
SUE Manager	HR	7.46	\$ 155.00	\$ 1,156.30
SUE QL-A Fee	EA	6	\$ 1,430.00	\$ 8,580.00
CADD/GIS	HR	7.75	\$ 90.00	\$ 697.50
Contract Admin	HR	2.5	\$ 85.00	\$ 212.50
Contract Admin Specialist	HR	2	\$ 65.00	\$ 130.00
Clerical	HR	0.5	\$ 64.00	\$ 32.00
Clerical	HR	0.5	\$ 72.00	\$ 36.00

Materials & Labor to be included in TxDOT Roadway Contract- JOINT BID (w/ BETTERMENT Estimate)					
Line Item / Item Description	Unit	Quantity	\$/Unit	Total	Difference
Ductile Iron fittings	TON	18.595	\$ 7,278.00	\$ 135,334.41	\$ 15,247.41
6" Gate valve	EA	12	\$ 1,662.90	\$ 19,954.80	\$ -
8" Gate valve	EA	9	\$ 2,217.70	\$ 19,959.30	\$ 11,088.50
12" RESLNT WDG gate valve w box	EA	0	\$ 3,325.70	\$ -	\$ (3,325.70)
12" Gate valve	EA	15	\$ 3,325.70	\$ 49,885.50	\$ 3,325.70
16" Gate valve	EA	3	\$ 6,097.00	\$ 18,291.00	\$ -
WM PVC 6"	LF	176	\$ 58.00	\$ 10,208.00	\$ 1,392.00
WM PVC 8"	LF	829.5	\$ 34.89	\$ 28,941.26	\$ 13,589.66
WM PVC 12"	LF	1434	\$ 88.09	\$ 126,321.06	\$ 15,856.20
WM DI 12"	LF	151	\$ 80.00	\$ 12,080.00	\$ -
WM DI 16"	LF	1907.5	\$ 305.40	\$ 582,550.50	\$ 4,733.70
WM HDPE 18"	LF	1126	\$ 120.00	\$ 135,120.00	\$ 11,280.00
Steel Pipe 30"	LF	544	\$ 265.00	\$ 144,160.00	\$ -
Connect to Exist 8"	EA	6	\$ 8,500.00	\$ 51,000.00	\$ 8,500.00
Connect to Exist 12"	EA	2	\$ 10,000.00	\$ 20,000.00	\$ -
Air Release Valve	EA	1	\$ 5,653.00	\$ 5,653.00	\$ -
Cut and Plug 8" WM	EA	4	\$ 644.63	\$ 2,578.52	\$ -
Cut and Plug 12" WM	EA	8	\$ 992.39	\$ 7,939.12	\$ 992.39
Fire Hydrant	EA	13	\$ 4,076.82	\$ 52,998.66	\$ 12,230.46
Rem Exist 2"	LF	685	\$ 65.00	\$ 44,525.00	\$ 18,525.00
Rem Exist 8"	LF	1315	\$ 70.00	\$ 92,050.00	\$ -
Rem Exist 12"	LF	1871	\$ 85.00	\$ 159,035.00	\$ -
Water Service	EA	11	\$ 1,662.90	\$ 18,291.90	\$ 8,314.50
Relo Exist meter	EA	5	\$ 3,725.00	\$ 18,625.00	\$ -
Trench, Embed & Backfill	LF	3213	\$ 1.00	\$ 3,213.00	\$ 346.00
Jack Bore or Tunnel WM 16"	LF	100	\$ 125.00	\$ 12,500.00	\$ -
Jack Bore or Tunnel WM 18" STL	LF	1126	\$ 130.00	\$ 146,380.00	\$ 12,220.00
Abandon 8"	LF	632	\$ 35.00	\$ 22,120.00	\$ -
Abandon 12"	LF	951	\$ 45.00	\$ 42,795.00	\$ -
WW Pipe DI 8"	LF	376	\$ 110.00	\$ 41,360.00	\$ -
WW 30" DI	LF	1410	\$ 312.00	\$ 439,920.00	\$ -
WW MH 48"	EA	4	\$ 6,500.00	\$ 26,000.00	\$ 13,000.00
Rem WW 8"	LF	200	\$ 8.00	\$ 1,600.00	\$ -
Rem WW 30"	LF	1339	\$ 25.00	\$ 33,475.00	\$ -
Cut and Plug 8" WM	EA	3	\$ 750.00	\$ 2,250.00	\$ -
Cut and Plug 30" WM	EA	1	\$ 1,500.00	\$ 1,500.00	\$ -
Trench, Embed & Backfill WW	LF	1900	\$ 1.00	\$ 1,900.00	\$ -
WW 6" PVC	LF	93	\$ 72.00	\$ 6,696.00	\$ -
Rem WW MH	EA	3	\$ 1,000.00	\$ 3,000.00	\$ -
WW Structure 72"	EA	6	\$ 16,000.00	\$ 96,000.00	\$ 16,000.00
Bore or Jack Pipe Steel 24"	EA	33	\$ 310.00	\$ 10,230.00	\$ -
SUBTOTAL				\$ 2,646,441.03	\$ 163,315.82

MATERIALS SUBTOTAL \$ 2,646,441.03

Indicated items are being tracked for BUY AMERICA COMPLIANCE and will be documented using Form 1818 and all supporting documentation prior to installation.

Indicated items are IRON or STEEL, but will not be tracked for BUY AMERICA COMPLIANCE due to falling under the DE MINIMUS of \$2,500, or .1% of the project total cost, whichever is greater. Sum of De Minimus Items \$0.00

Internal Labor Costs - documented with Certified Ledger at payment.					
Line Item / Item Description	Unit	Quantity	\$/Unit	Total	Difference
Utility Inspection	HR	624	\$ 47.00	\$ 29,328.00	\$ (9,432.00)
SUBTOTAL				\$ 29,328.00	\$ (9,432.00)
OVERHEAD (%) Enter % if applicable			20.00%	\$ 5,865.60	\$ 51.60
SUBTOTAL				\$ 35,193.60	\$ (9,380.40)
LABOR SUBTOTAL				\$ 35,193.60	\$ (9,380.40)

Engineering Procured by TxDOT - 100% eligibility required					
Line Item / Item Description	Unit	Quantity	\$/Unit	Total	Difference
Sr Engineer	HR	195	\$ 186.46	\$ 36,359.70	\$ -
Design Engineer	HR	300	\$ 134.83	\$ 40,449.00	\$ 2,022.45
Sr Engineer Tech	HR	188	\$ 109.01	\$ 20,493.88	\$ 1,024.69
## Above was paid by TxDOT to Volk for utility design				\$ -	\$ -
SUBTOTAL				\$ 97,302.58	\$ 3,047.14

Internal Engineering - Costs Documented with Certified Ledger at payment.					
Line Item / Item Description	Unit	Quantity	\$/Unit	Total	Difference
				\$ -	\$ (11,760.00)
				\$ -	\$ (25,160.00)
				\$ -	\$ (12,236.00)
				\$ -	\$ (27,540.00)
				\$ -	\$ (5,700.00)
				\$ -	\$ (13,750.00)
Sr. Engineer	HR	312	\$ 87.00	\$ 27,144.00	\$ 27,144.00
SUBTOTAL				\$ 27,144.00	\$ (69,002.00)
OVERHEAD (%) Enter % if applicable			20.00%	\$ 5,428.80	\$ 5,428.80
SUBTOTAL				\$ 32,572.80	\$ (63,573.20)

External Engineering - Cost documented with INVOICES and / or CHECKS					
Line Item / Item Description	Unit	Quantity	\$/Unit	Total	Difference
RABA					
Technician Time	HR	6.5	\$ 53.00	\$ 344.50	\$ -
Concrete Cylinder	EA	4	\$ 20.00	\$ 80.00	\$ -
Vehicle Travel	Trip	2	\$ 72.00	\$ 144.00	\$ -
HALFF					
Sr. Engineer/PE	HR	132.16	\$ 195.00	\$ 25,771.20	\$ -
Sr. Project Engineer	HR	1.5	\$ 180.00	\$ 270.00	\$ -
Sr. PE	HR	4	\$ 163.20	\$ 652.80	\$ -
Project Engineer	HR	265.64	\$ 150.00	\$ 39,846.00	\$ -
Jr. Engineer	HR	415.08	\$ 130.00	\$ 53,960.40	\$ -
Mid PE	HR	5	\$ 125.70	\$ 628.50	\$ -
EIT	HR	233.78	\$ 110.00	\$ 25,715.80	\$ -
EIT	HR	18.72	\$ 93.20	\$ 1,744.70	\$ -
Sr. Project Manager	HR	37	\$ 250.00	\$ 9,250.00	\$ -
Project Manager	HR	10	\$ 210.00	\$ 2,100.00	\$ -
SUE Manager	HR	7.46	\$ 155.00	\$ 1,156.30	\$ -
SUE QL-A Fee	EA	6	\$ 1,430.00	\$ 8,580.00	\$ -
CADD/GIS	HR	7.75	\$ 90.00	\$ 697.50	\$ -
Contract Admin	HR	2.5	\$ 85.00	\$ 212.50	\$ -
Contract Admin Specialist	HR	2	\$ 65.00	\$ 130.00	\$ -
Clerical	HR	0.5	\$ 64.00	\$ 32.00	\$ -
Clerical	HR	0.5	\$ 72.00	\$ 36.00	\$ -

BETTERMENT RATIO CALCULATOR

Two estimates are required to calculate betterment. One with, and one without betterment.
Please attach both estimates.

The total estimated cost of the project **INCLUDING BETTERMENT**

The total estimated cost of the project **NOT** including **BETTERMENT**

THE AMOUNT OF BETTERMENT

The **BETTERMENT RATIO** IS:

Attachment “H” Proof of Property Interest

Not Applicable

Supporting documentation of compensable property interest that establishes reimbursement eligibility as referenced in Texas Transportation Code §203.092.

Property interest is documented through applicable affidavits and required attachments.

ROW-U-Affidavit (See ROW Utilities Manual, Chapter 9, Section 3)

The roadway improvement project is designated as an Interstate Highway project; therefore, no supporting documentation for compensable interest is required. Supporting documentation for existing easements is required for easement replacement.

Toll Road (Supporting documentation of compensable property interest required if more than 50% eligibility ratio is applied)

SP2125

Master Utility Agreement

Initial Date
TxDOT

Initial Date
Utility