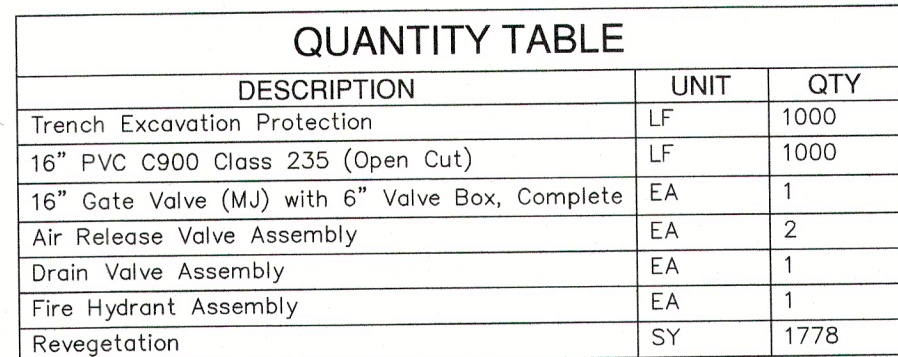


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PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5

1. CONTRACTOR SHALL PROVIDE CHLORINATION INJECTION FACILITY AS NOTED BELOW AND IN THE DETAILS HEREIN.
2. CONTRACTOR SHALL CHLORINATE NEW MAIN(S) WITH HTH IF THE WATER MAIN LENGTH IS 800 FEET OR LESS.
3. CHLORINATION INJECTION FACILITY
 - 2 - 1" CORP. STOP C.C. X I.P.
 - 2 - 1" COMP. 1 1/2" CPL. CURB STOP
 - 1 - 1" COPPER TUBING, CUT AS REQ'D

BRASS - FORD METER BOX



Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions	
Soil Type	CH
Safety Factor	1.5 to 1.0
Trench Type	5
Depth of Bury	5 FT
Test Pressure	150 PSI

16" Waterline	
Horizontal Bends	
11.25 Degrees	4
22.5 Degrees	7
45 Degrees	13
90 Degrees	32
Misc. Fittings	
12"x16" Reducer	37
16"x16" Tee	87
Valve	87
Vertical Bends	
11.25 Degrees	4

PROPERTY LINE

EXISTING WATER

EXISTING SEWER

PROPOSED WATER

EXISTING FENCE

20' WATER EASEMENT

EXISTING CONTOURS

GATE VALVE

DRIVEWAY

TREES TO REMAIN

TREES TO BE REMOVED

FIRE HYDRANT

W

SS

MANHOLE

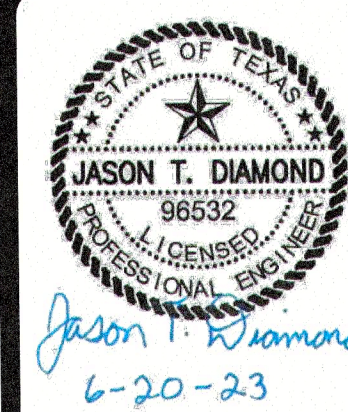
-1035

CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUND ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH THE LOCAL UTILITY PROVIDER.

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION CONTAINED HEREIN RELATES TO THE LOCATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE, AND FIBER OPTIC LINES, SITE LIGHTING, LANDSCAPE IRRIGATION FACILITIES, AND ELECTRICAL UTILITIES. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS AND CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION AND/OR REMOVAL OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND SHALL BE REQUIRED TO BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SOLE EXPENSE WHETHER THE DAMAGE IS SHOWN ON THESE PLANS OR NOT.

[illegible]

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED
EMPLOYEE OR STRUCTURAL DESIGN, GEOTECHNICAL SAFETY
EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AN
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AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS
AND SHIELDING CONTRACTOR'S TRENCH EXCAVATION SAFETY
DESIGNATED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT
TRENCH SAFETY PROGRAMS IN ACCORDANCE WITH OSHA STANDARDS
GOVERNING THE PRESENCE OF ACTIVITIES OF INDIVIDUALS WORKING
IN TRENCH EXCAVATION.

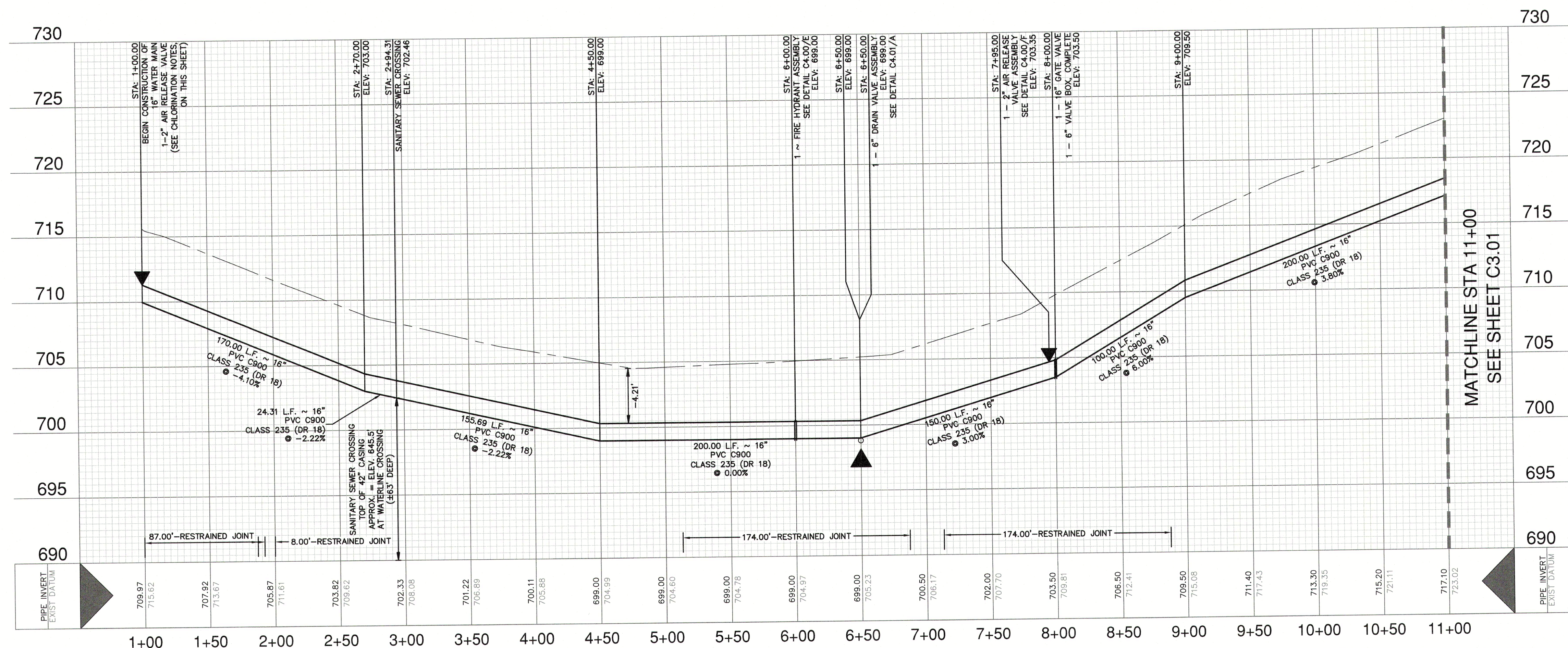
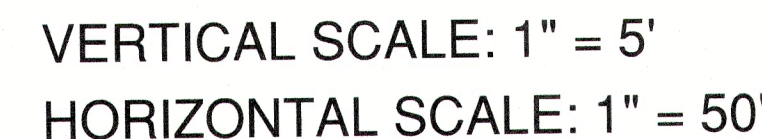


PAPE-DAWSON
ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
20000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028600

VERAMENDI OFFSITE WATER LINE
NEW BRAUNFELS, TEXAS
WATER MAIN PLAN AND PROFILE
STA 4+00.00 TO STA 11+00.00

PLAT NO. _____
JOB NO. 30001-46
DATE JUNE 2023
DESIGNER CN
CHECKED MP DRAWN _____
SHEET C3.00



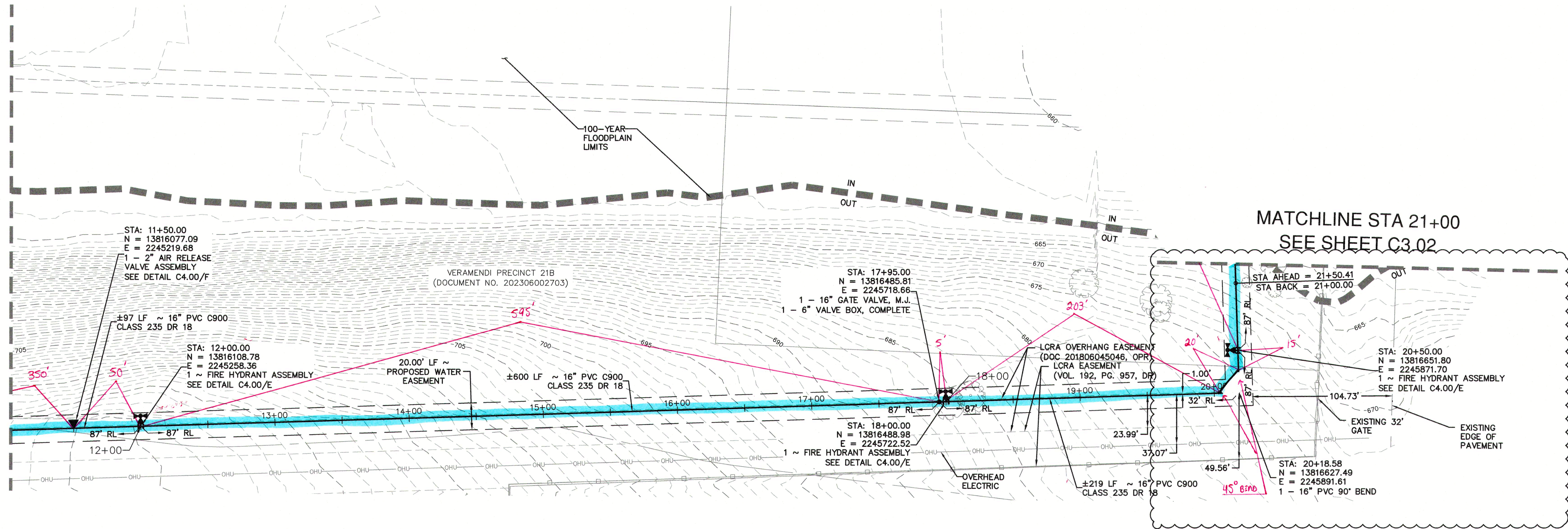
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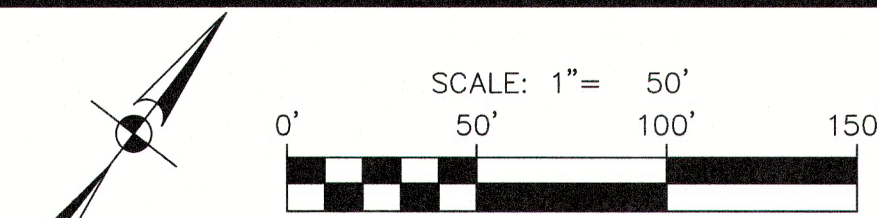
PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5

MATCHLINE STA 11+00
SEE SHEET C3.00



16" WATERMAIN
STA 11+00.00 TO STA 21+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



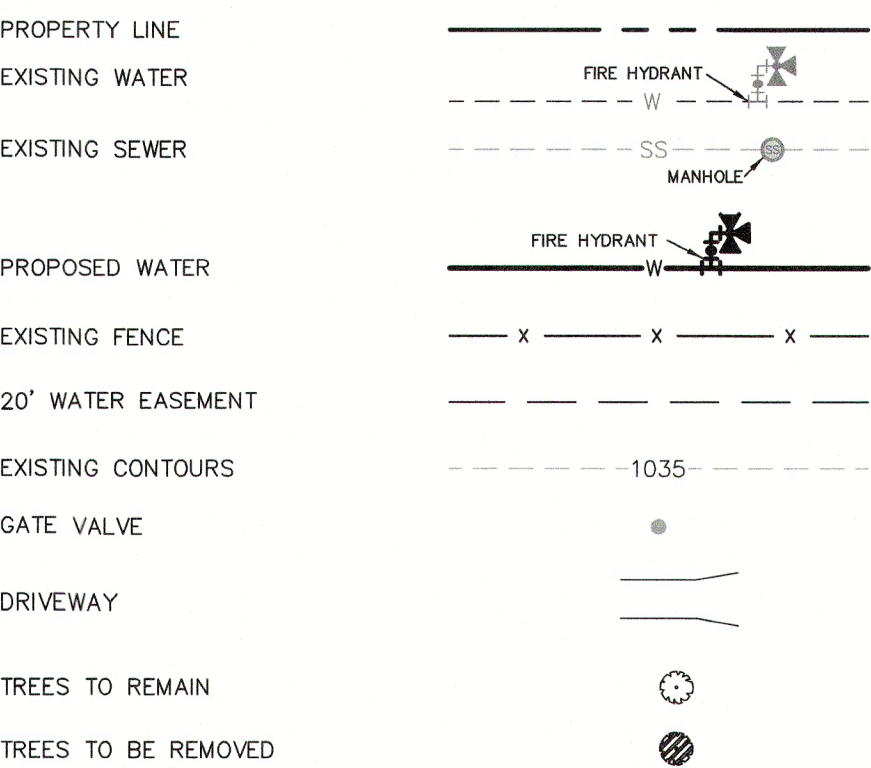
QUANTITY TABLE

DESCRIPTION	UNIT	QTY
Trench Excavation Protection	LF	1000
16" PVC C900 Class 235 (Open Cut)	LF	1000
16" Gate Valve (M.J.) with 6" Valve Box, Complete	EA	1
Air Release Valve Assembly	EA	2
Fire Hydrant Assembly	EA	3
Revegetation	SY	1778

Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions		16" Waterline	
Soil Type	CH	Horizontal Bends	
Safety Factor	1.5 to 1.0	11.25 Degrees	4
Trench Type	5	22.5 Degrees	7
Depth of Bury	5 FT	45 Degrees	13
Test Pressure	150 PSI	90 Degrees	32
		Misc. Fittings	
		12"x16" Reducer	37
		16"x16" Tee	87
		Valve	87
		Vertical Bends	
		11.25 Degrees	4

WATER LEGEND



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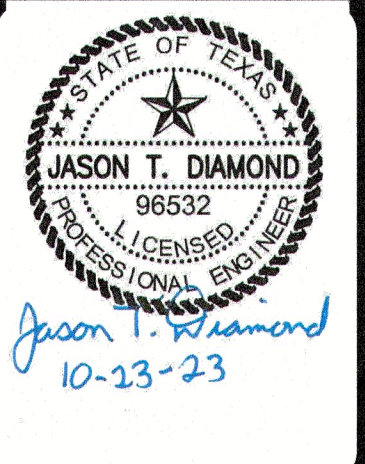
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- UTILITY TRENCH COMPACTION: ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORMLY NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTIONING EQUIPMENT AND TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

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NO.	REVISION	DATE
1	ALIGNMENT REVISIONS	10/23/2023



**PAPE-DAWSON
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

VERAMENDI OFFSITE WATER LINE
NEW BRAUNFELS, TEXAS

WATER MAIN PLAN AND PROFILE
STA 11+00.00 TO STA 21+00.00

PLAT NO.	
JOB NO.	30001-46
DATE	OCTOBER 2023
DESIGNER	CN
CHECKED	MP DRAWN RJ
SHEET	C3.01

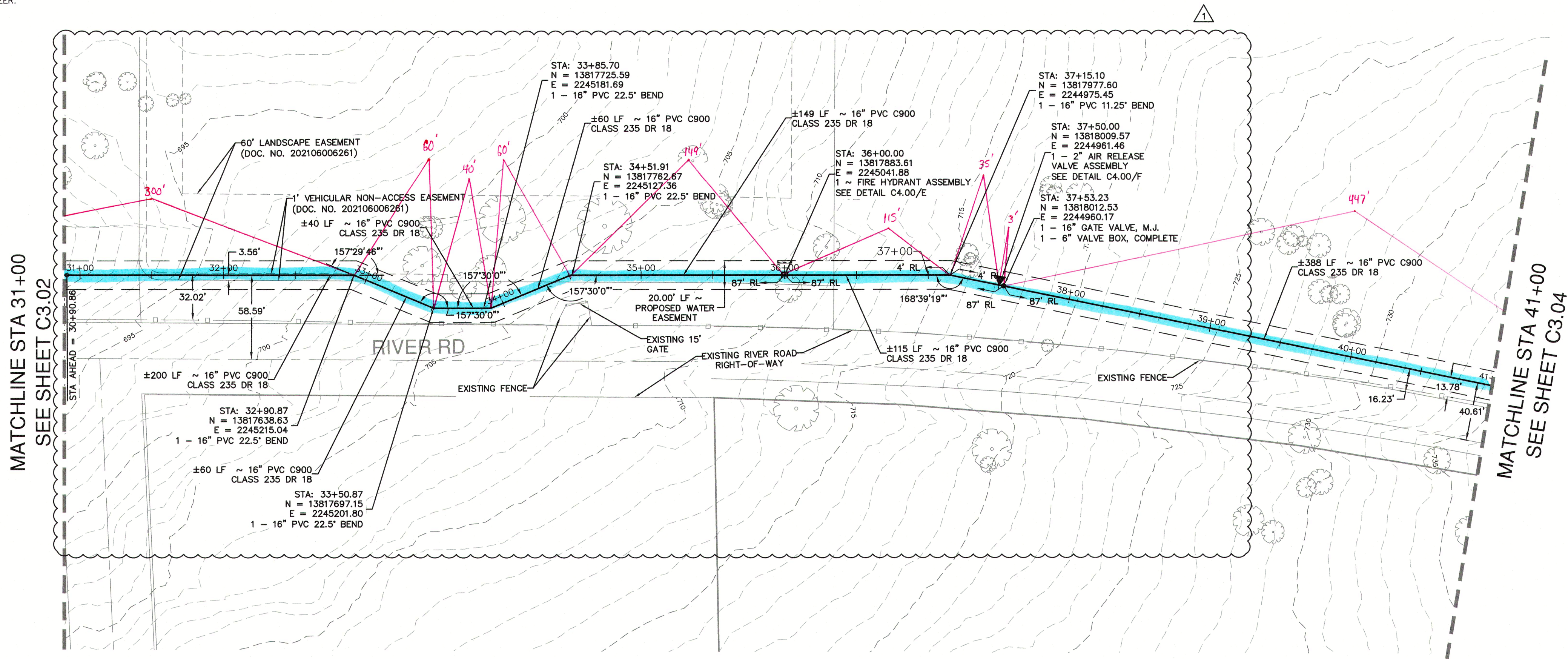
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NBU PRESSURE ZONE:

PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5



QUANTITY TABLE

DESCRIPTION	UNIT	QTY
Trench Excavation Protection	LF	1000
16" PVC C900 Class 235 (Open Cut)	LF	1000
16" Gate Valve (M.J. with 6" Valve Box, Complete)	EA	1
Air Release Valve Assembly	EA	1
Fire Hydrant Assembly	EA	1
Revegetation	SY	1778

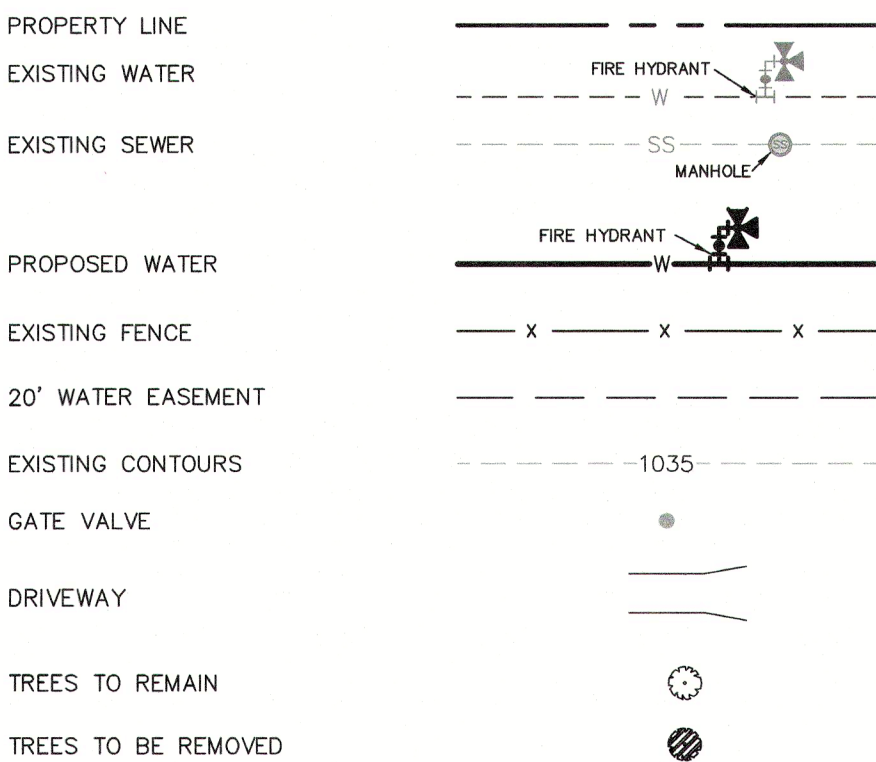
Pipe Restraint Length Calculator

Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions	
Soil Type	CH
Safety Factor	1.5 to 1.0
Trench Type	5
Depth of Bury	5 FT
Test Pressure	150 PSI

16" Waterline	
Horizontal Bends	
11.25 Degrees	4
22.5 Degrees	7
45 Degrees	13
90 Degrees	32
Misc. Fittings	
12"X16" Reducer	37
16"X16" Tee	87
Valve	57
Vertical Bends	
11.25 Degrees	4

WATER LEGEND



CAUTION OVERHEAD UTILITIES

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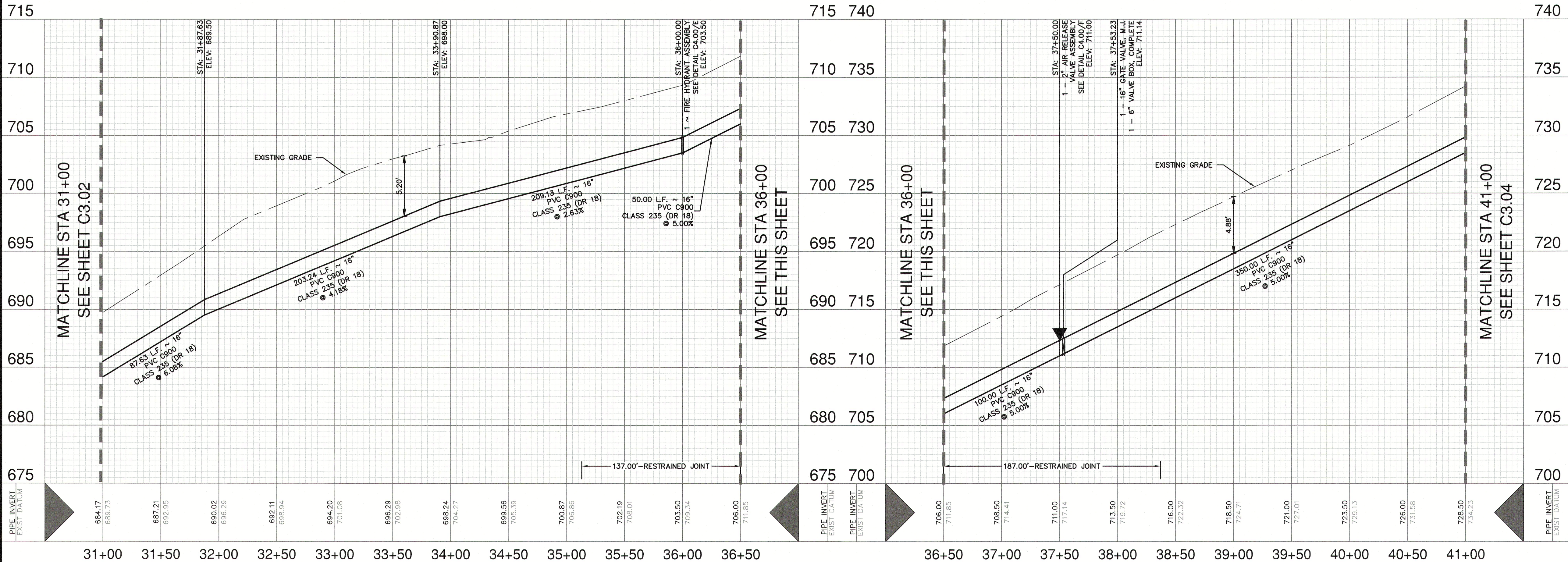
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16" WATERMAIN
STA 31+00.00 TO STA 41+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



PAPE-DAWSON
ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028600

VERAMENDI OFFSITE WATER LINE

NEW BRAUNFELS, TEXAS

WATER MAIN PLAN AND PROFILE
STA 31+00.00 TO STA 41+00.00

PLAT NO. _____
JOB NO. 30001-46
DATE OCTOBER 2023
DESIGNER CN
CHECKED MP, DRAWN RJ
SHEET C3.03

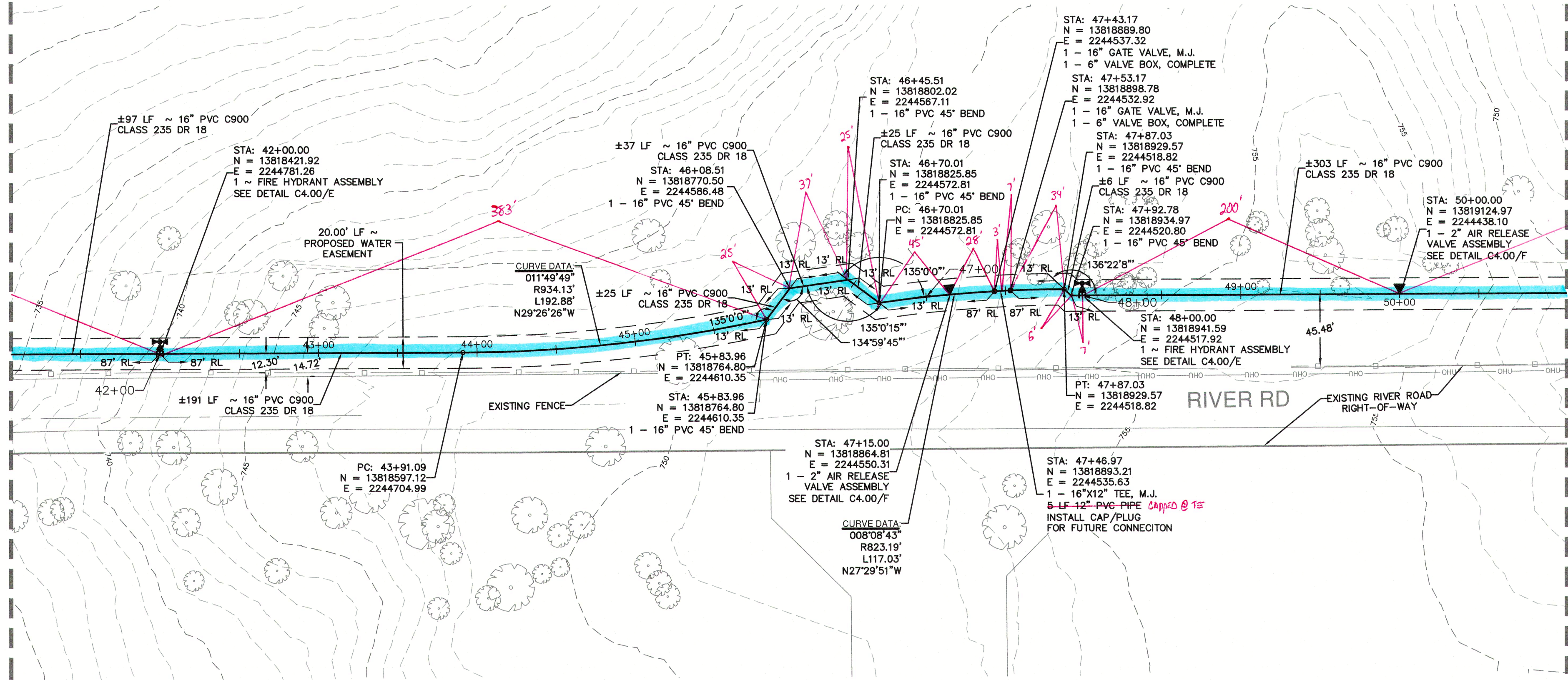
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NBU PRESSURE ZONE:
PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5

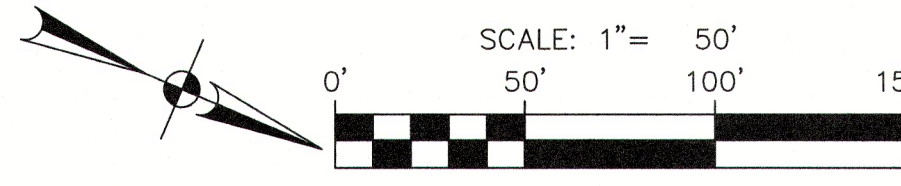
MATCHLINE STA 41+00
SEE SHEET C3.03



MATCHLINE STA 51+00
SEE SHEET C3.05

16" WATERMAIN
STA 41+00.00 TO STA 51+00.00

VERTICAL SCALE: 1" = 5'
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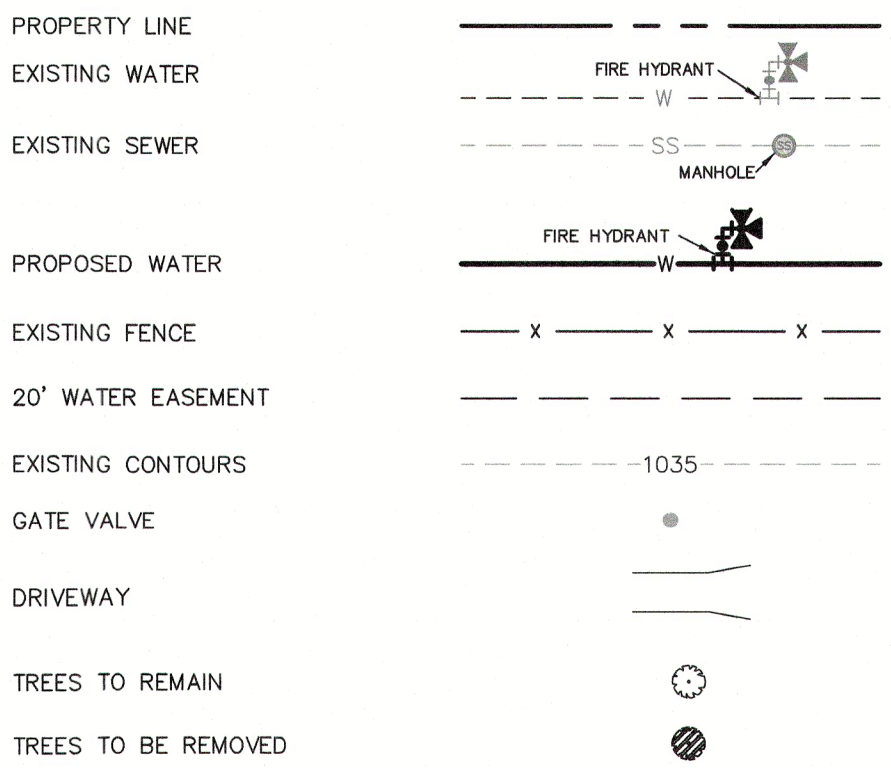


QUANTITY TABLE		
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Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions		16" Waterline	
Soil Type	CH	Horizontal Bends	
Safety Factor	1.5 to 1.0	11.25 Degrees	4
Trench Type	5	22.5 Degrees	7
Depth of Bury	5 FT	45 Degrees	13
Test Pressure	150 PSI	90 Degrees	32
		Misc. Fittings	
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		Valve	87
		Vertical Bends	
		11.25 Degrees	4

WATER LEGEND



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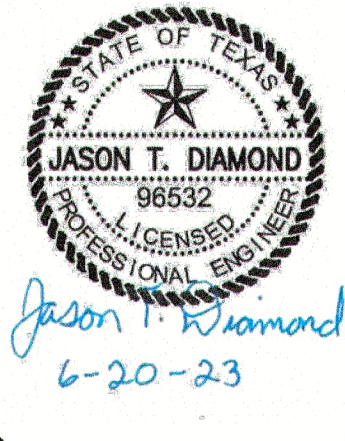
CITY OF NEW BRAUNFELS NOTES:

- NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
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- THIS PROJECT INCLUDES UTILITY INSTALLATION GREATER THAN 5'-FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
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TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/ EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATION. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

DATE	
NO.	
REVISION	



**PAPE-DAWSON
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #0028600

VERAMENDI OFFSITE WATER LINE
NEW BRAUNFELS, TEXAS

WATER MAIN PLAN AND PROFILE
STA 41+00.00 TO STA 51+00.00

PLAT NO.	
JOB NO.	30001-46
DATE	JUNE 2023
DESIGNER	CN
CHECKED	MP DRAWN RJ
SHEET	C3.04

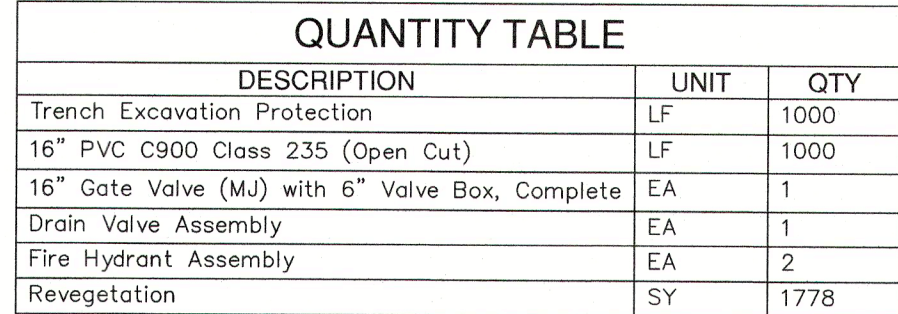
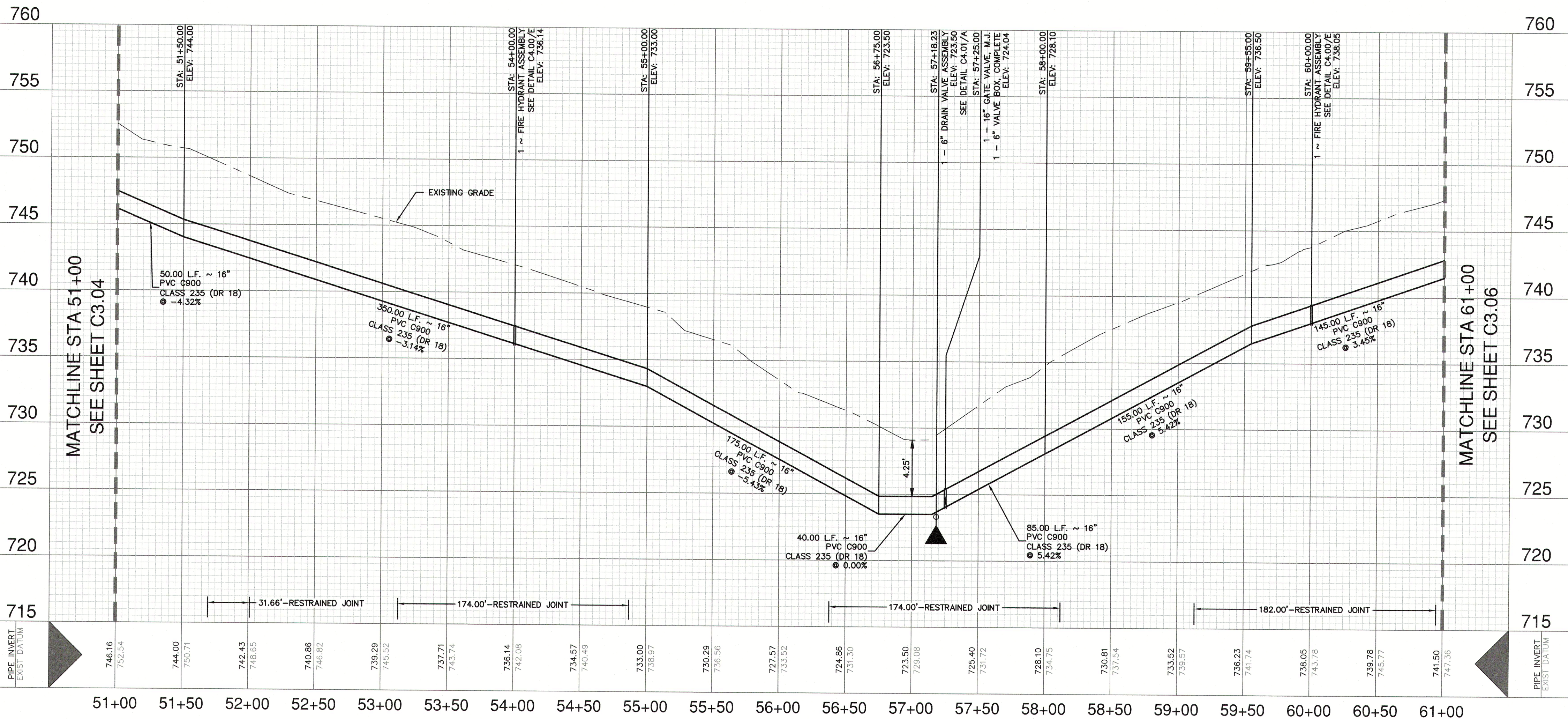
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PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5



VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

<table><tr><th colspan="2">Assumptions</th></tr><tr><td>Soil Type</td><td>CH</td></tr><tr><td>Safety Factor</td><td>1.5 to 1.0</td></tr><tr><td>Trench Type</td><td>5</td></tr><tr><td>Depth of Bury</td><td>5 FT</td></tr><tr><td>Test Pressure</td><td>150 PSI</td></tr></table>		Assumptions		Soil Type	CH	Safety Factor	1.5 to 1.0	Trench Type	5	Depth of Bury	5 FT	Test Pressure	150 PSI	16" Waterline	
		Assumptions													
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		Valve	87												
		Vertical Bends													
		11.25 Degrees	4												

PROPERTY LINE

EXISTING WATER

EXISTING SEWER

PROPOSED WATER

EXISTING FENCE

20' WATER EASEMENT

EXISTING CONTOURS

GATE VALVE

DRIVEWAY

TREES TO REMAIN

TREES TO BE REMOVED

FIRE HYDRANT

MANHOLE

1035

CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUND ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH THE LOCAL UTILITY PROVIDER.

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE THE CONTRACTOR HAS ANY DOUBT AS TO THE LOCATION OF ANY UTILITY, HE SHALL NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE, AND GAS LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL PRIMARY ELECTRICAL, DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. THE CONTRACTOR MUST CONTACT 1-800-DIG-TESS TO LOCATE THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION AND/OR PART OF ANY EXCAVATION. THE CONTRACTOR REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE OWNER SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE UTILITY. THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

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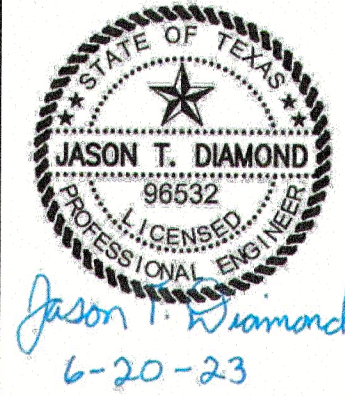
2. ALL UTILITY TRENCHES PRIOR TO STREETS TO BE CONSTRUCTED THIS PROJECT INCLUDES UTILITY INSTALLATION GREATER THAN 18" FEET IN DEPTH, DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHANGING. THE UTILITY TRENCHES SHALL BE COMPACTION MAY NOT BE ACHIEVABLE, A UTILITY COMPACTION PLAN WILL BE REQUIRED. THERE MUST BE SUBMITTED FOR APPROVAL TO THE CITY PRIOR TO UTILITY INSTALLATION.

3. UTILITY TRENCH COMPACTION—ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE PERFORMED TO THE FOLLOWING SCHEDULE:

4. FILL MATERIAL SHALL BE PLACED IN UNFORMLY NOT TO EXCEED TWELVE INCHES (12") DEPTH. DETERMINE THE MAXIMUM FILL DEPTH BASED ON THE TYPE OF MATERIAL AND THE TYPE OF EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% OF THE REQUIRED DENSITY. THE REQUIRED DENSITY SHALL BE DETERMINED WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE CITY ENGINEER. THE CITY ENGINEER SHALL PROVIDE THE NEW BRAUNFELS STREET INSPECTOR, AT A MINIMUM, TESTS EACH LANE EVERY 200' FOR EACH LANE AND EVERY OTHER LANE SERVICE LANE. THE CITY ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH THE TESTS DOCUMENTATION AND A CERTIFICATION STATING THAT THE ACCEPTANCE CRITERIA HAVE BEEN FULLY COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.

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XXXXXXXXXXXX

[illegible]

**PAPE-DAWSON
ENGINEERS**

VERAMENDI OFFSITE WATER LINE
NEW BRAUNFELS, TEXAS

WATER MAIN PLAN AND PROFILE
STA 51+00.00 TO STA 61+00.00

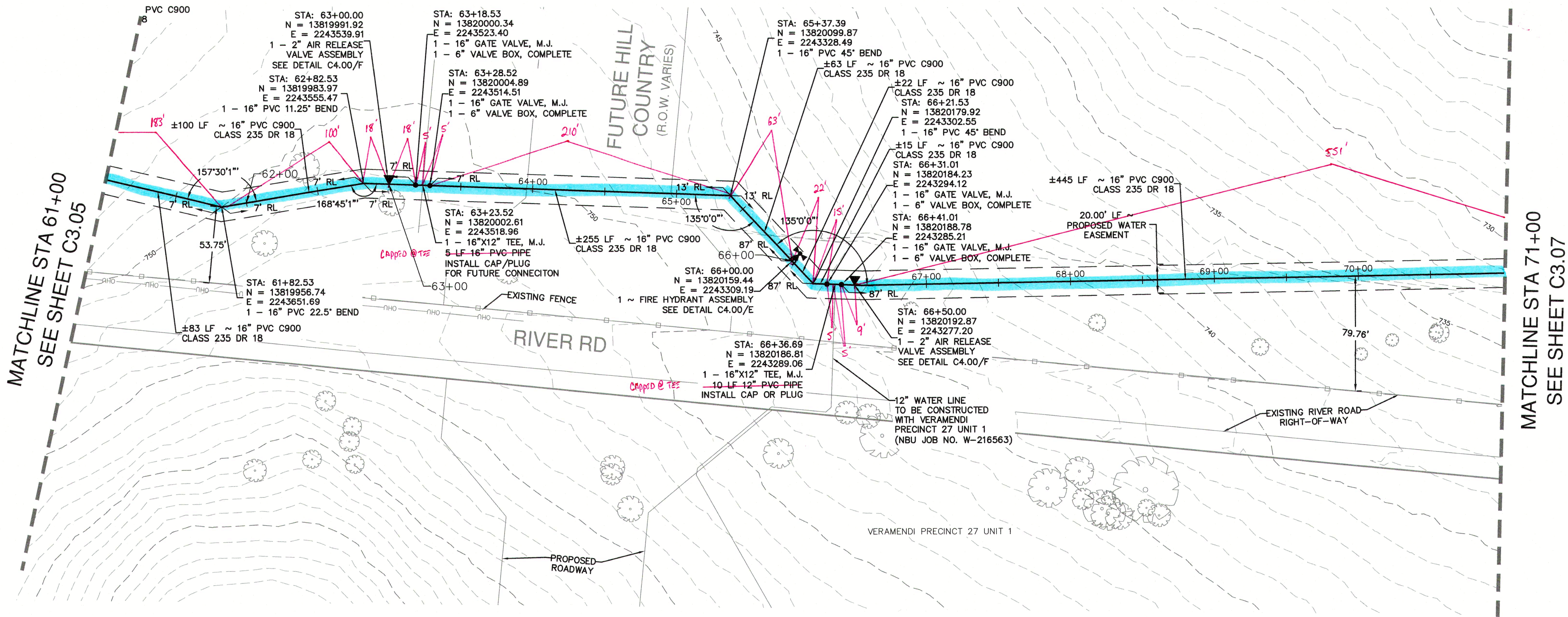
PLAT NO. _____
 JOB NO. 30001-46
 DATE JUNE 2023
 DESIGNER CN
 CHECKED MP DRAWN RJ
 SHEET C3.05

JOINT RESTRAINT NOTE

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NBU PRESSURE ZONE:

PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5



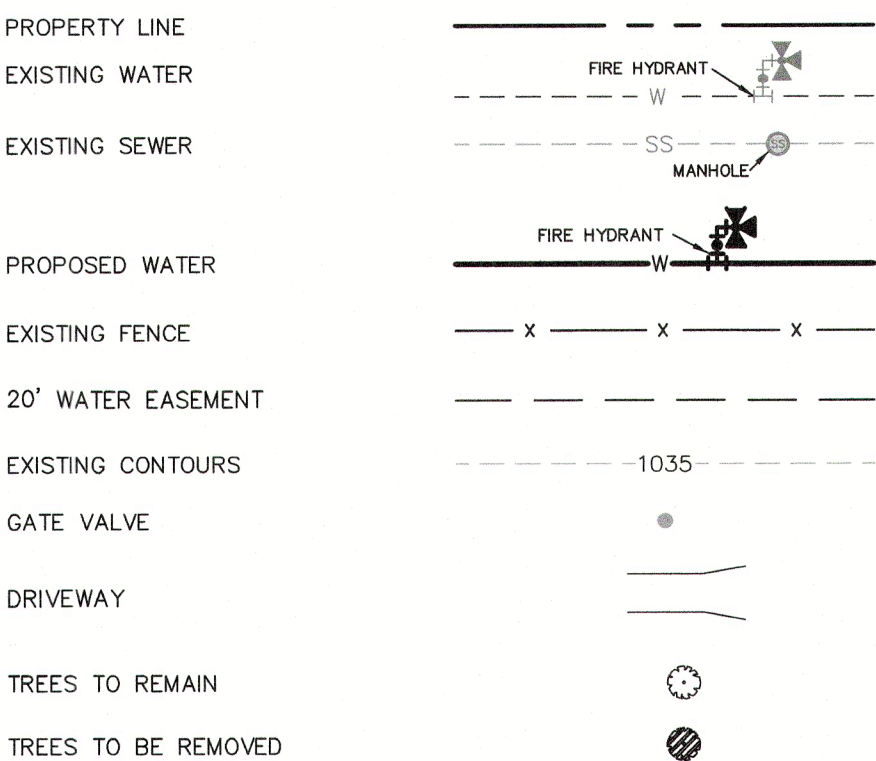
QUANTITY TABLE

DESCRIPTION	UNIT	QTY
Trench Excavation Protection	LF	1000
16" PVC C900 Class 235 (Open Cut)	LF	1000
16" Gate Valve (M.J.) with 6" Valve Box, Complete	EA	4
Air Release Valve Assembly	EA	2
Fire Hydrant Assembly	EA	1
Revegetation	SY	1778

Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

16" Waterline	
Horizontal Bends	
11.25 Degrees	4
22.5 Degrees	7
45 Degrees	13
90 Degrees	32
Misc. Fittings	
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16"x16" Tee	87
Valve	87
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WATER LEGEND



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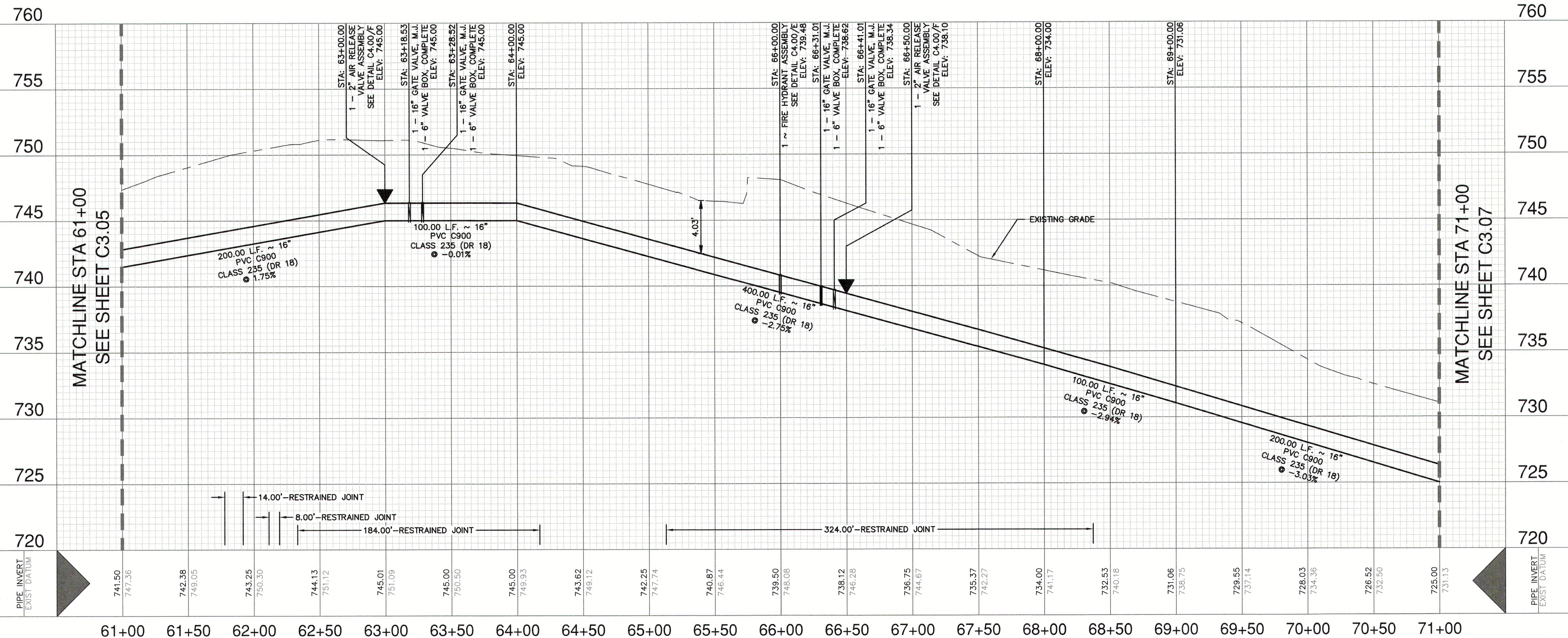
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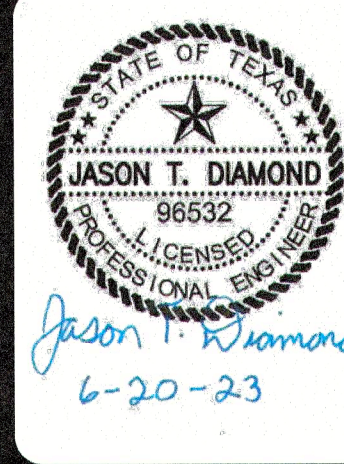
16" WATERMAIN
STA 61+00.00 TO STA 71+00.00
VERTICAL SCALE: 1" = 5'
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DATE	
NO.	
REVISION	



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.975.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028900

VERAMENDI OFFSITE WATER LINE
NEW BRAUNFELS, TEXAS
WATER MAIN PLAN AND PROFILE
STA 61+00.00 TO STA 71+00.00

PLAT NO.	
JOB NO.	30001-46
DATE	JUNE 2023
DESIGNER	CN
CHECKED	MP, DRAWN, RJ
SHEET	C3.06

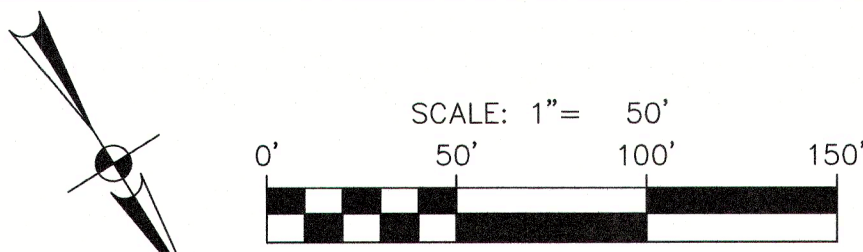
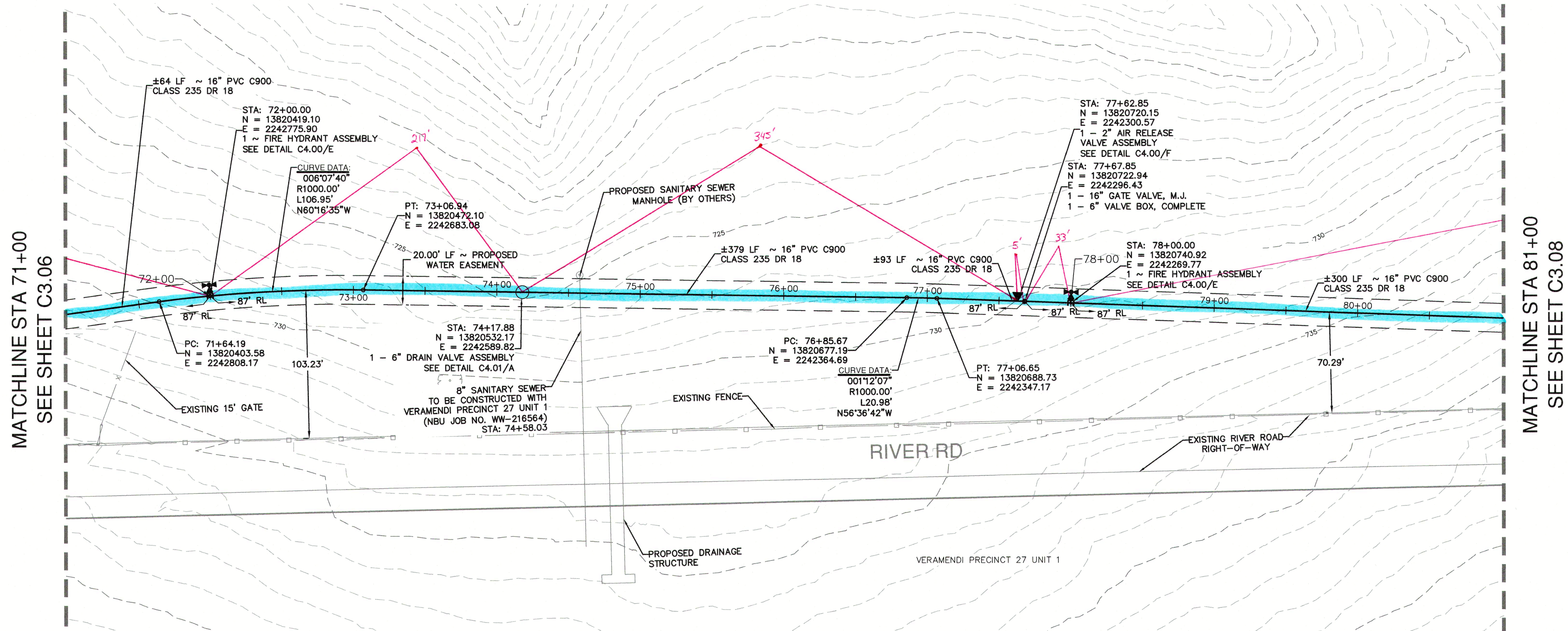
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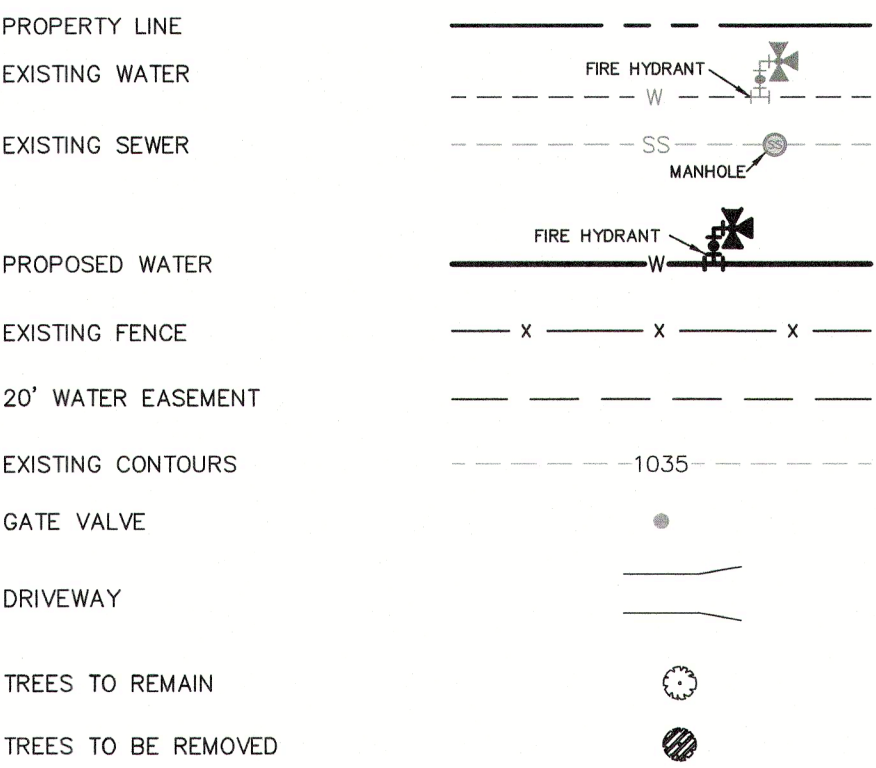


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DESCRIPTION	UNIT	QTY
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Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 1.1.2

Assumptions		16" Waterline	
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Safety Factor	1.5 to 1.0	11.25 Degrees	4
Trench Type	5	22.5 Degrees	7
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Test Pressure	150 PSI	90 Degrees	32
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WATER LEGEND



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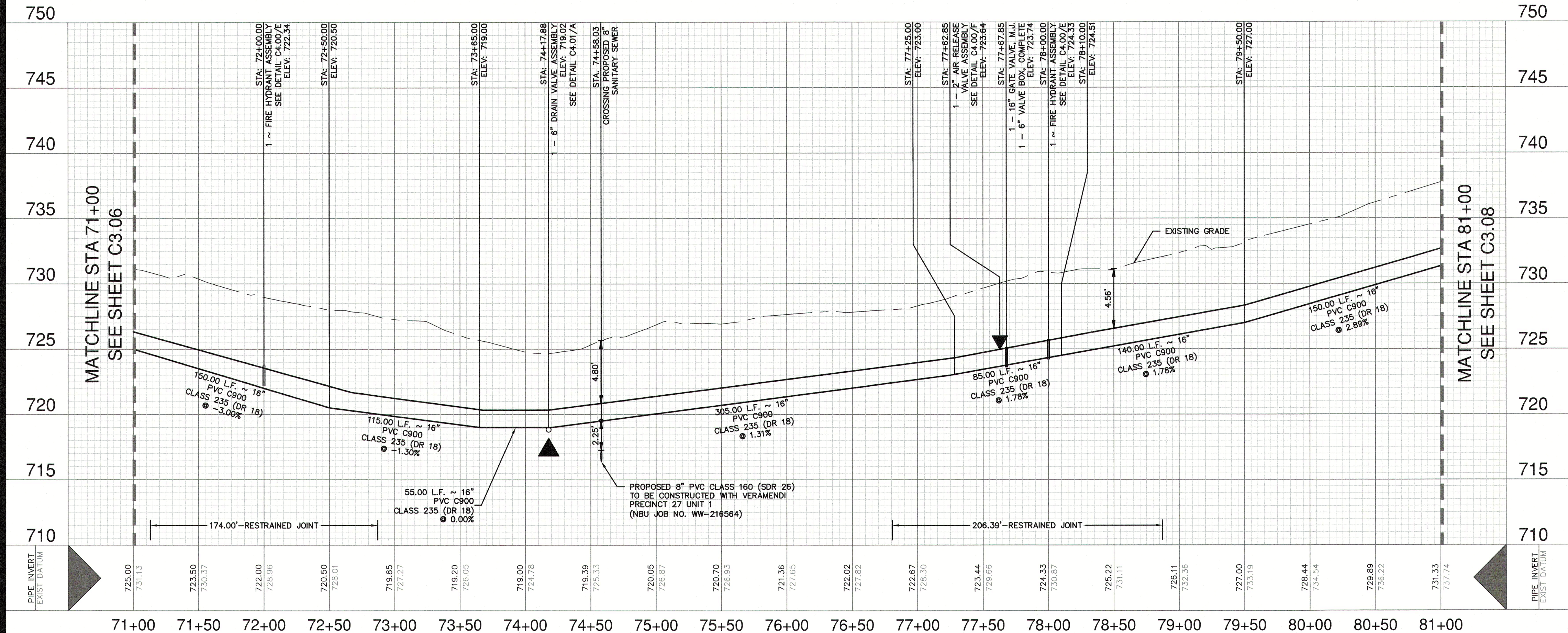
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- UTILITY TRENCH COMPACTION - ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORMLY NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 85% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/ EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

16" WATERMAIN
STA 71+00.00 TO STA 81+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



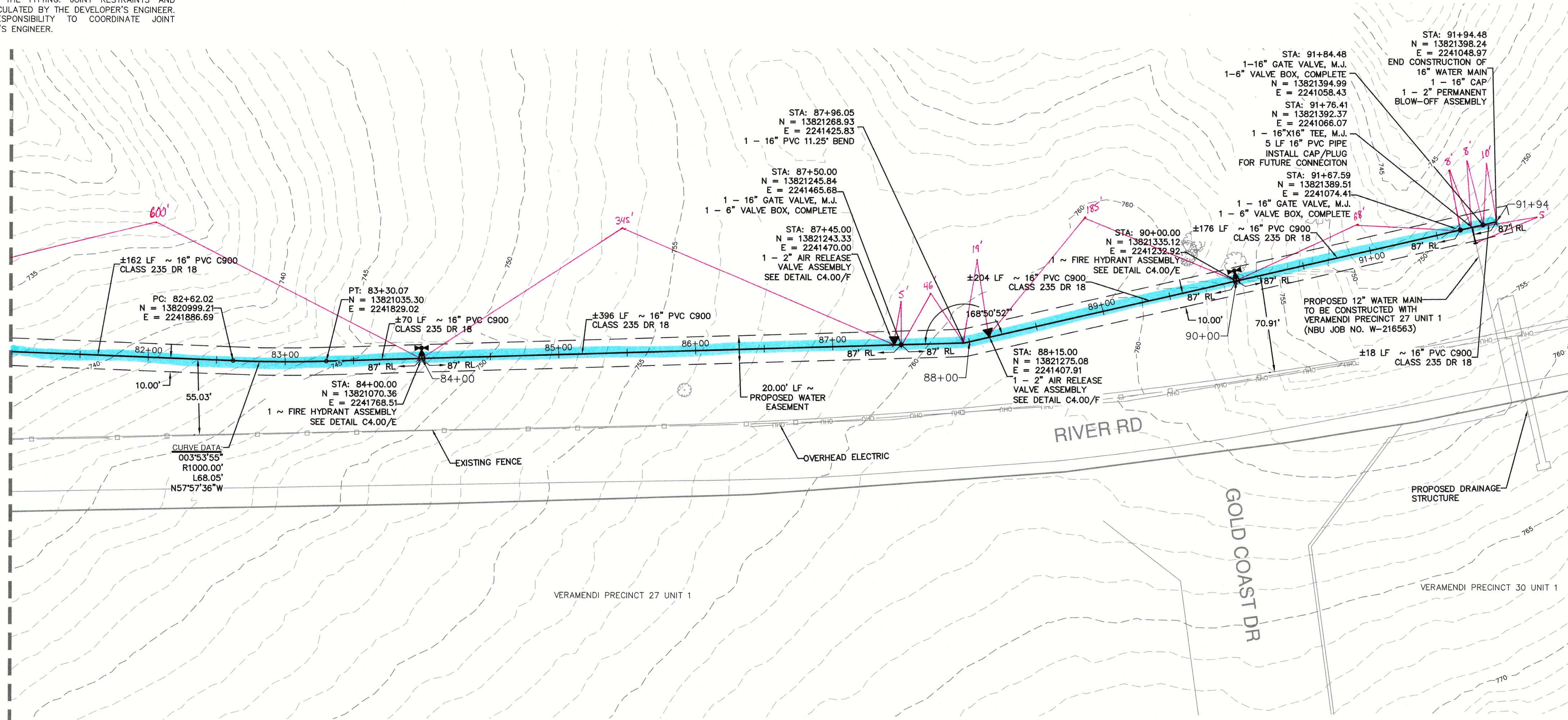
JOINT RESTRAINT NOTE

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED BY THE DEVELOPER'S ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS WITH THE DEVELOPER'S ENGINEER.

NBU PRESSURE ZONE:

PROPOSED WATER MAIN IS WITHIN PRESSURE ZONE 5

MATCHLINE STA 81+00
SEE SHEET C3.07



16" WATERMAIN
STA 81+00.00 TO STA 91+66.90

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'

QUANTITY TABLE

DESCRIPTION	UNIT	QTY
Trench Excavation Protection	LF	1095
16" PVC C900 Class 235 (Open Cut)	LF	1095
16" Gate Valve (M) with 6" Valve Box, Complete	EA	3
Air Release Valve Assembly	EA	2
Fire Hydrant Assembly	EA	2
2" Permanent Blow-Off Assembly	EA	1
Revegetation	SY	1947

Pipe Restraint Length Calculator
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions		16" Waterline	
Soil Type	CH	Horizontal Bends	
Safety Factor	1.5 to 1.0	11.25 Degrees	4
Trench Type	5	22.5 Degrees	7
Depth of Bury	5 FT	45 Degrees	13
Test Pressure	150 PSI	90 Degrees	32
		Misc. Fittings	
		12"x16" Reducer	37
		16"x16" Tee	87
		Valve	87
		Vertical Bends	
		11.25 Degrees	4

WATER LEGEND

PROPERTY LINE	---
EXISTING WATER	---
EXISTING SEWER	---
PROPOSED WATER	---
EXISTING FENCE	---
20' WATER EASEMENT	---
EXISTING CONTOURS	---
GATE VALVE	---
DRIVEWAY	---
TREES TO REMAIN	---
TREES TO BE REMOVED	---

CAUTION OVERHEAD UTILITIES

CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUND ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH THE LOCAL UTILITY PROVIDER.

CAUTION UNDERGROUND UTILITIES

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE, AND FIBER OPTIC LINES, SITE LIGHTING, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. THE CONTRACTOR MUST CONTACT 1-800-DIG-TESS AND CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION AND/OR START OF CONSTRUCTION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS, ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

CITY OF NEW BRAUNFELS NOTES:

- NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
- ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
- THIS PROJECT INCLUDES UTILITY INSTALLATION GREATER THAN 5- FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
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VERAMENDI OFFSITE WATER LINE
NEW BRAUNFELS, TEXAS

WATER MAIN PLAN AND PROFILE
STA 81+00.00 TO STA 91+66.90

PLAT NO.
JOB NO. 30001-46
DATE JUNE 2023
DESIGNER CN
CHECKED MP, DRAWN RJ
SHEET C3.08

STATE OF TEXAS
JASON T. DIAMOND
PROFESSIONAL ENGINEER
6-20-23

PAPE-DAWSON
ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1028600

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