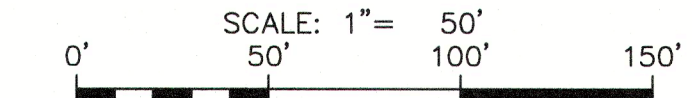


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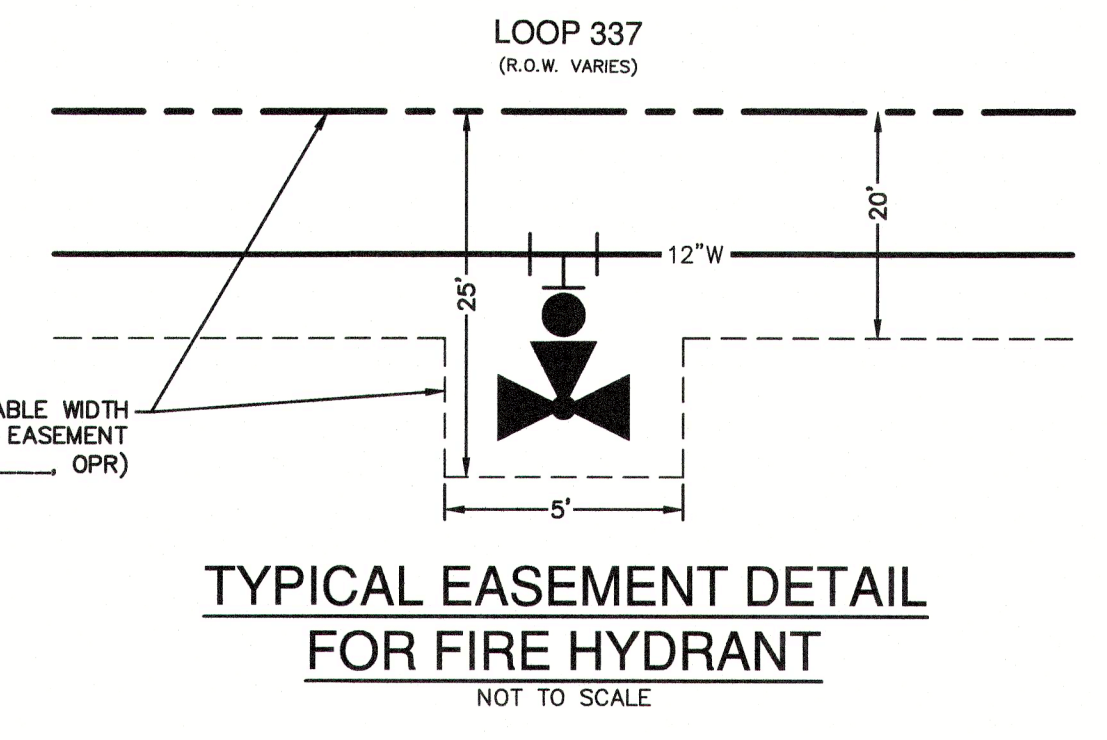
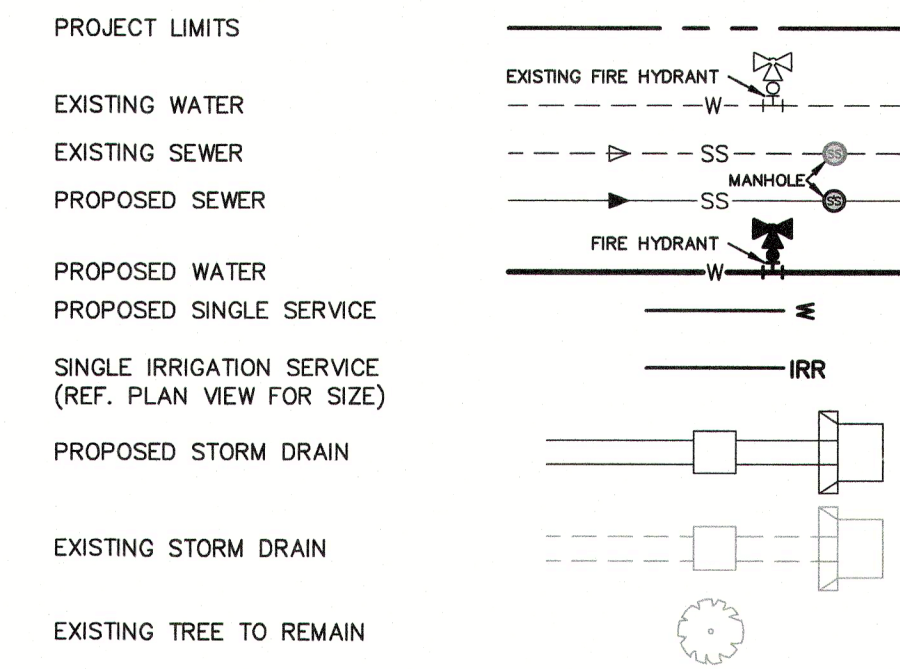
**NBU PRESSURE ZONE:**  
 PROPOSED WATER MAIN IS WITHIN NBU PRESSURE ZONE 4.

**NOTE:**  
 FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT.

- FOR CHLORINATION INJECTION  
 2 - 1" CORPORATION STOP, C.C.XLP  
 1 - 1" COPPER TUBING, CUT AS REQUIRED  
 2 - 1" COMP. 1/4" COUPLING, CORP. STOP  
 2 - 1/4" THD. SOLID CAPS, THR.
- 12" VALVE SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY NBU
- CONTRACTOR SHALL TIE PROPOSED 12" MAIN TO EXISTING 12" PVC C-900 DR 18 MAIN AND PROVIDE VERTICAL BENDS AS NEEDED AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY NBU
- 2" TEMPORARY BLOWOFF ASSEMBLY (SEE NBU STD DWG 253)



**WATER LEGEND**



**Pipe Restraint Length Calculations**  
 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: 4 ft, Test Pressure: 200 psi

Minimum Restraint Lengths in Feet

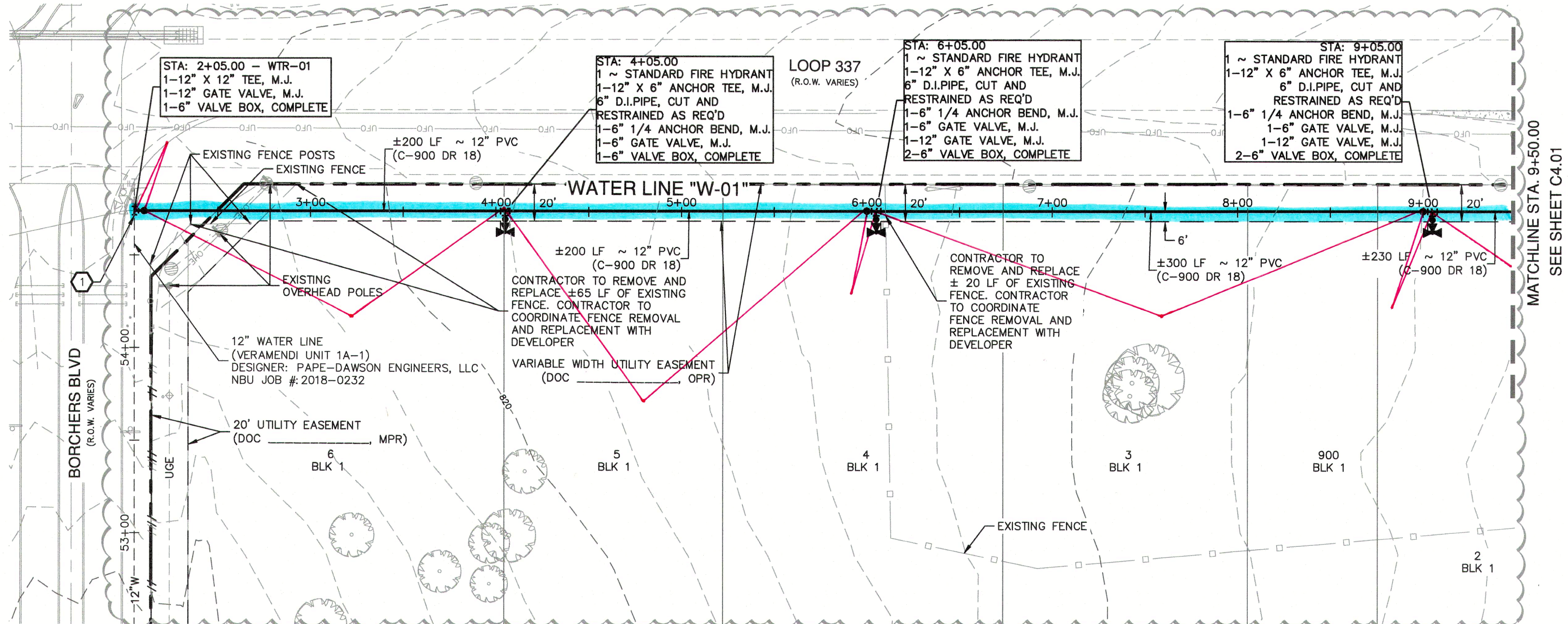
Horizontal Bends	12" Waterline	
	Main	Branch
11.25 Degrees		
22.5 Degrees		
45 Degrees	17	

Misc. Fittings

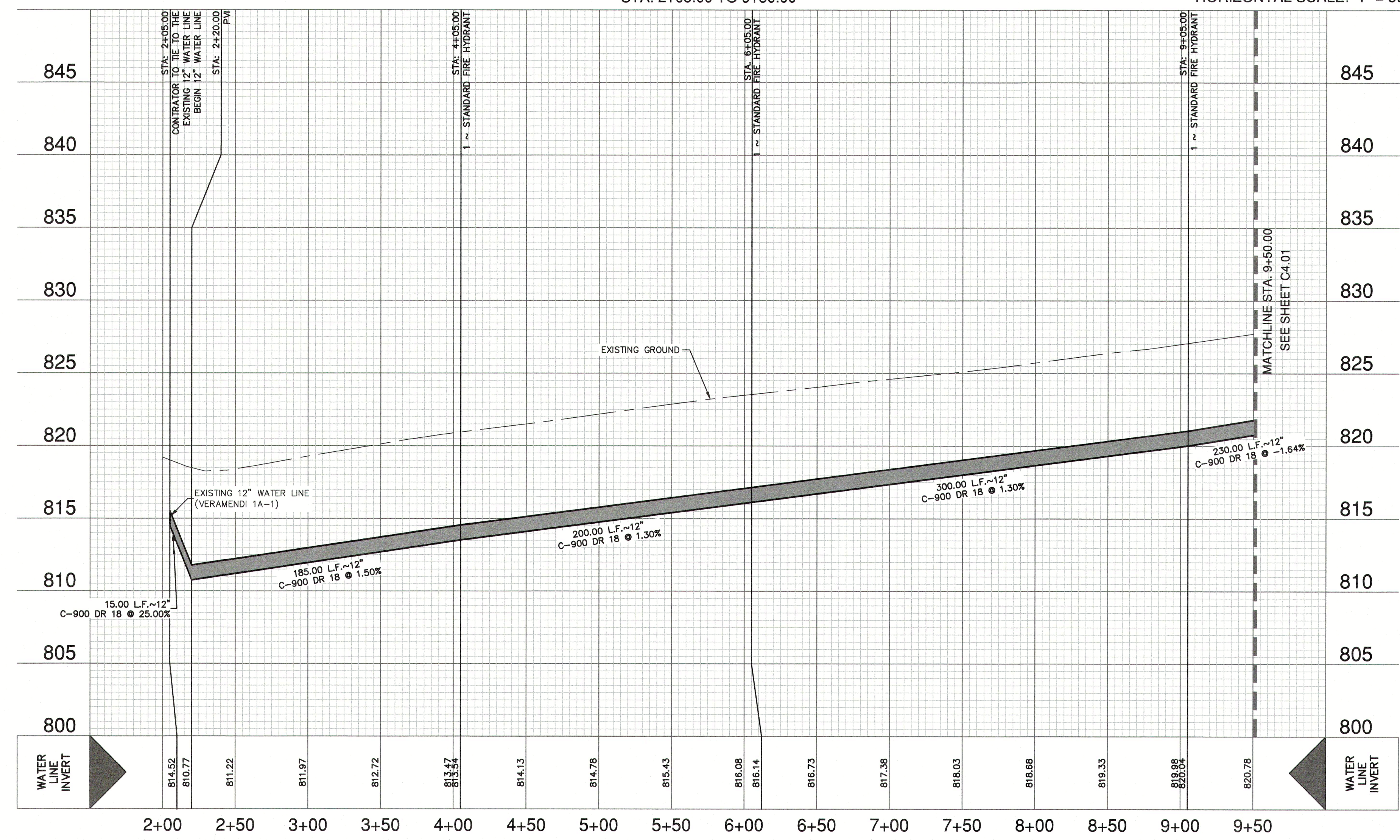
8"x6" Tee	
8"x8" Tee	
12"x6" Tee	59 (6" Branch)
12"x8" Tee	
Dead End/ Gate Valve	110
16"x12" Cross	
16"x12" Reducer	

Vertical Bends (assumes low side depth of 10)

	High Side	Low Side
11.25 Degrees	11	2
22.5 Degrees	22	4
45 Degrees	46	7



12 INCH WATER LINE "W-01"  
 STA. 2+05.00 TO 9+50.00  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



WATER (NBU JOB NO. W-245133)

ITEM	UNIT	QUANTITY
12" WATER LINE	LF	1480
LUES	EA	48
FIRE HYDRANT	EA	1
6" GATE VALVE	EA	1
12" GATE VALVE	EA	4
2" SERVICE LINE WITH 1.5" METER	EA	2
2" SERVICE LINE WITH 2" METER	EA	1

**JOINT RESTRAINT NOTE:**  
 CONTRACTOR SHALL INSTALL RETAINER CLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSSES 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. CONTRACTOR SHALL USE PIPE RESTRAINT LENGTH TABLE PROVIDED ON THIS SHEET. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS WITH THE DEVELOPER'S ENGINEER IF CHANGES OCCUR.

- NOTE:**
- ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS SHALL HAVE A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (R/P) INSTALLED PRIOR TO PLACEMENT OF METER. ALL NEW FACILITIES ARE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE LATEST NBU BACKFLOW POLICY.
  - ALL GATE VALVES 16" AND SMALLER SHALL BE RESILIENT SEATED GATE VALVES.

**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 INSTALLATIONS 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.
- 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 UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") THICK. 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 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.

**CAUTION!!**  
 CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF 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.

**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.

DATE: 06/25/25  
 NO. REVISION: 1  
 LOT LINES CHANGED

6-25-2025

STATE OF TEXAS  
 JOCELYN PEREZ  
 98367  
 LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS  
 1072 INDEPENDENCE DR. STE 102 | NEW BRAUNFELS, TX 78102 | 800.682.5683  
 TEXAS ENGINEERING FIRM #470 1 TEXAS SURVEYING FIRM #1020890

VERAMENDI PRECINCT 11A  
 NEW BRAUNFELS, TEXAS

12 INCH WATER LINE W-01 - PLAN & PROFILE  
 STA. 2+05.00 TO 9+50.00

PLAT NO. 30001-81  
 JOB NO. 30001-81  
 DATE: JUNE 2025  
 DESIGNER: CP  
 CHECKED: MM, DRAWN: CP  
 SHEET: C4.00

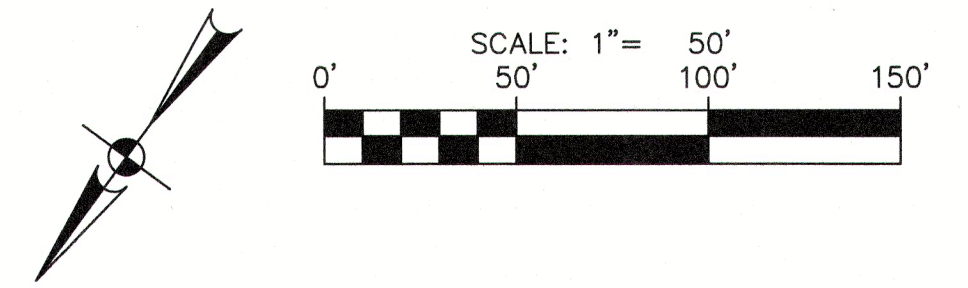
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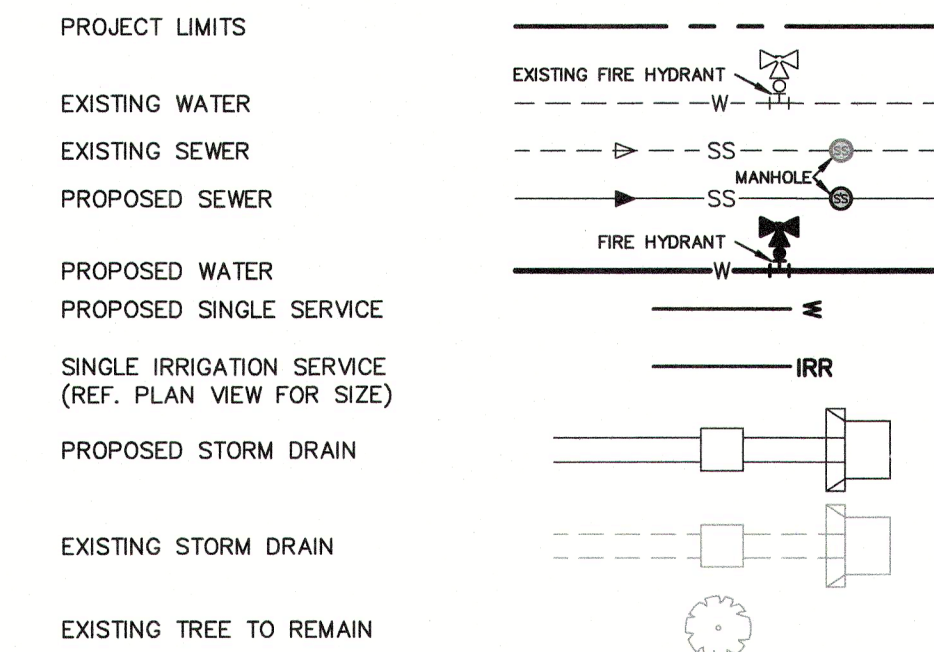
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**NBU PRESSURE ZONE:**  
 PROPOSED WATER MAIN IS WITHIN NBU PRESSURE ZONE 4.

**NOTE:**  
 FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT.



**WATER LEGEND**



12" VALVE SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY NBU  
 2" PERMANENT BLOWOFF ASSEMBLY (SEE NBU STD. DETAIL 251)  
 1-12" GATE VALVE, M.J.  
 1-6" VALVE BOX, COMPLETE

**Pipe Restraint Length Calculations**  
 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: 4 ft Test Pressure: 200 psi

Minimum Restraint Lengths in Feet

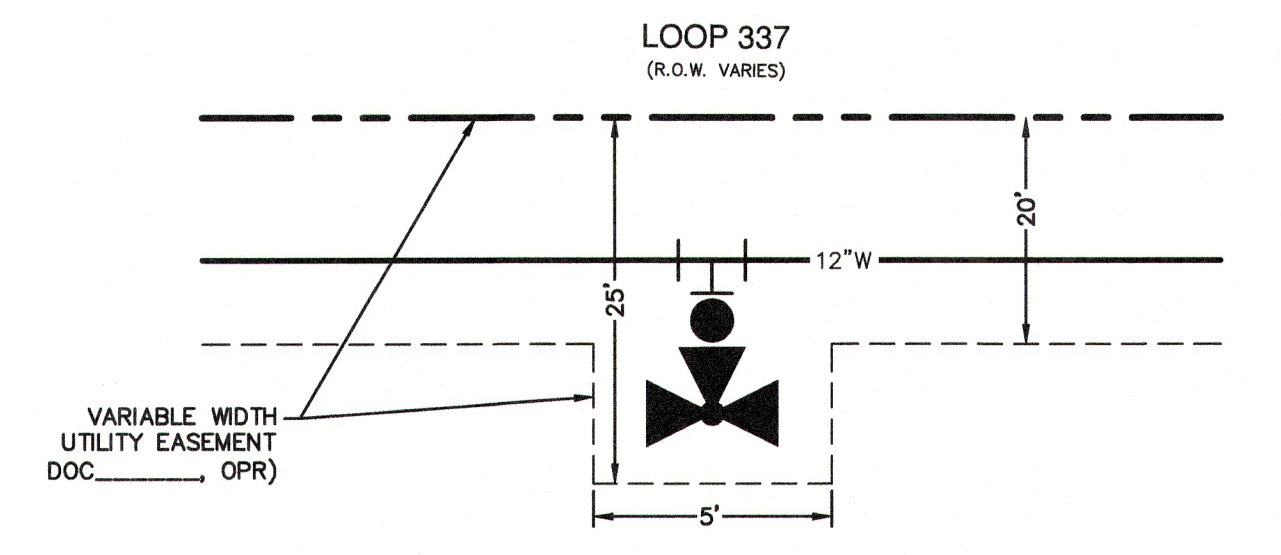
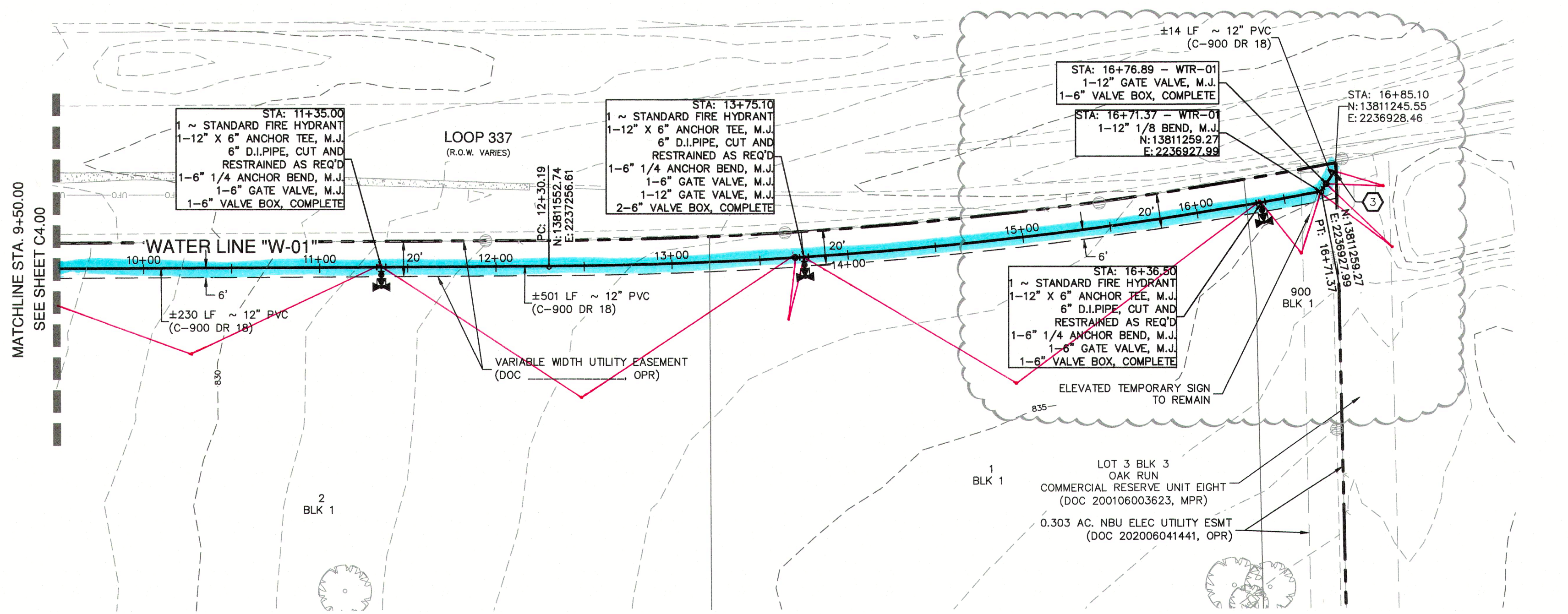
12" Waterline	
Main	Branch
11.25 Degrees	
22.5 Degrees	17
45 Degrees	

Misc. Fittings

8"x6" Tee	
8"x8" Tee	
12"x6" Tee	59 (6" Branch)
12"x8" Tee	
Dead End/ Gate Valve	110
16"x12" Cross	
16"x12" Reducer	

Vertical Bends (assumes low side depth of 10')

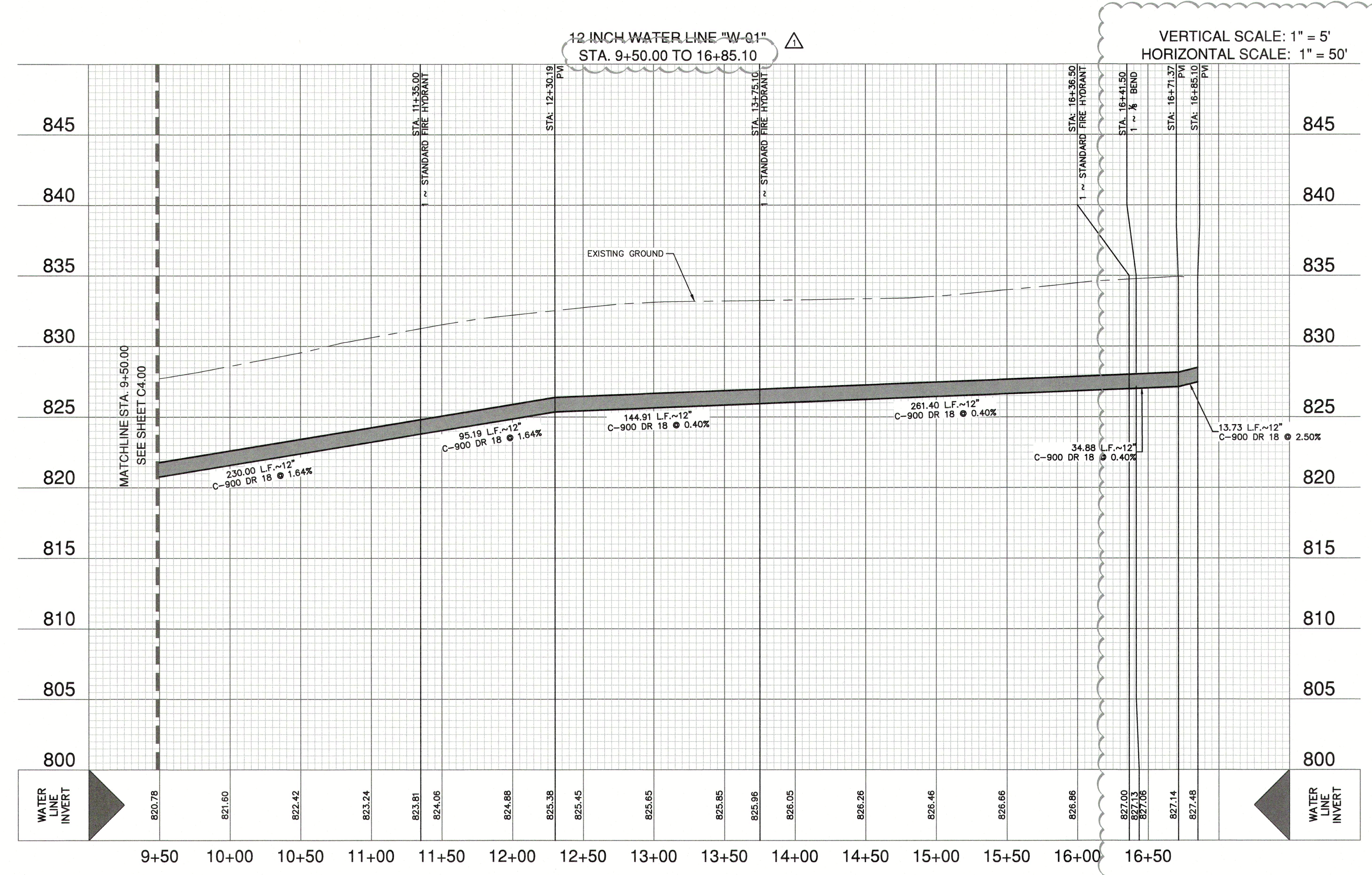
	High Side	Low Side
11.25 Degrees	11	2
22.5 Degrees	22	4
45 Degrees	46	7



**TYPICAL EASEMENT DETAIL FOR FIRE HYDRANT**  
 NOT TO SCALE

WATER (NBU JOB NO. W-245133)

ITEM	UNIT	QUANTITY
12" WATER LINE	LF	1480
ELVES	EA	48
FIRE HYDRANT	EA	1
6" GATE VALVE	EA	1
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2" SERVICE LINE WITH 1.5" METER	EA	2
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DATE	REVISION
06/25/25 <td>WATER LINE EXTENDED</td>	WATER LINE EXTENDED
1	

**PAPE-DAWSON ENGINEERS**  
 1672 INDEPENDENCE DR. STE 102 | NEW BRAUNFELS, TX 78132 | 800.652.5583  
 TEXAS ENGINEERING FIRM #476 | TEXAS SURVEYING FIRM # 0068860

**VERAMENDI PRECINCT 11A**  
 NEW BRAUNFELS, TEXAS  
 12 INCH WATER LINE W-01 - PLAN & PROFILE  
 STA. 9+50.00 TO 16+85.10

PLAT NO.	
JOB NO.	30001-81
DATE	JUNE 2025
DESIGNER	CP
CHECKED	MM
DRAWN	CP
SHEET	C4.01

Plot: March 13, 2024, 12:13 PM - User: ID: acschroter  
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