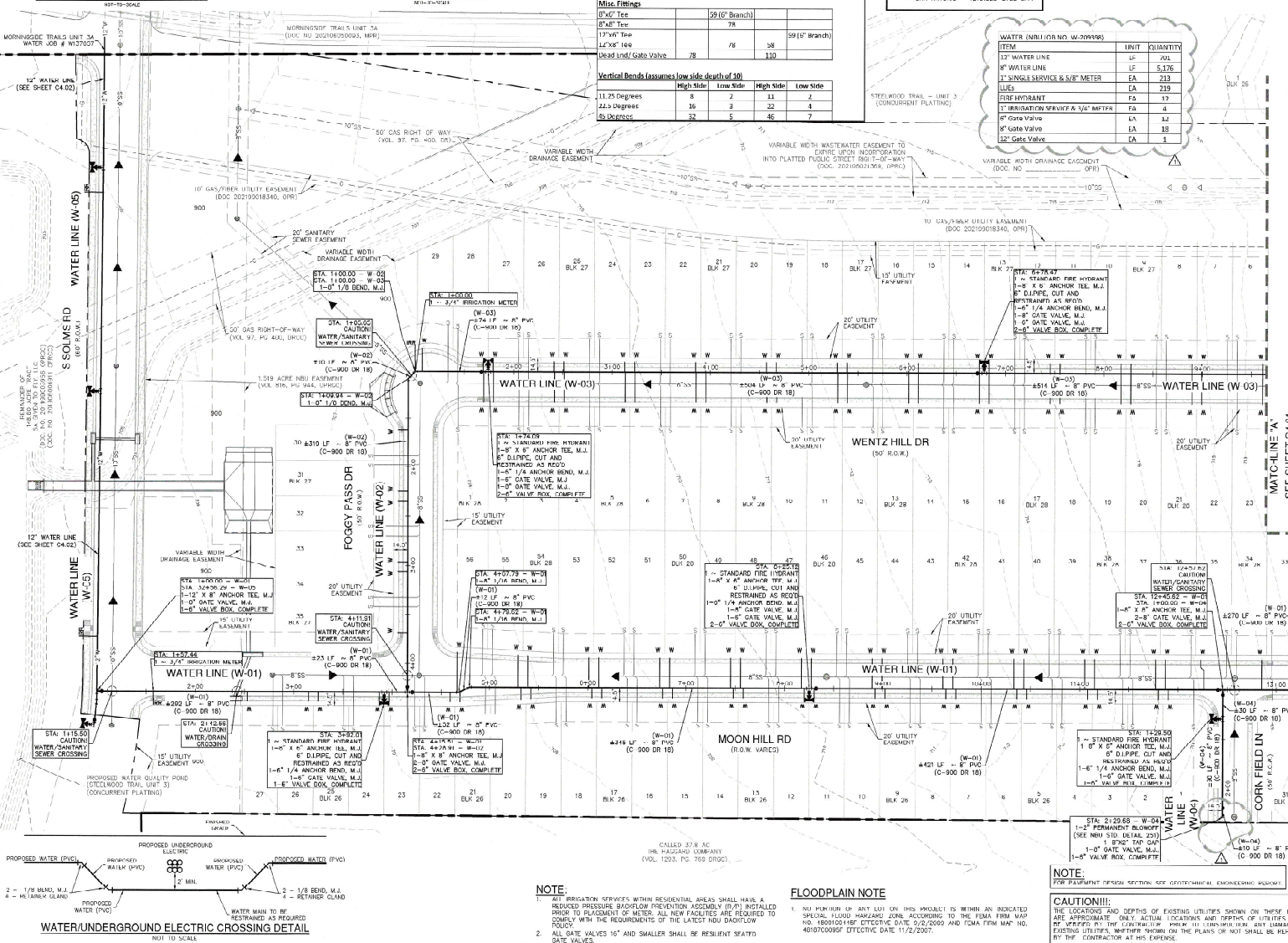
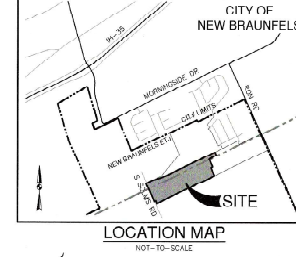
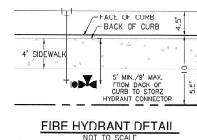


Rebar Restraint Length Calculations					
Source: EBCA Iron, Restraint Length Calculator V.1.1.2					
Assumptions					
lot type	safety factor	bar type	depth of bury	Test pressure	
C-H	1.5 to 1.0	5	4ft	300 psi	
Minimum Restraint Length in feet					
12" Waterline		12" Waterline			
Main	Branch	Main	Branch		
Horizontal Bends					
11.25 Degrees	3	4			
22.5 Degrees	0	8			
45 Degrees	17	17			
Misc. Fittings					
90° Tee	59 (6" Branch)				
45° Tee	78				
17" x 10" Tee				59 (6" Branch)	
4" x 1/2" Tee		78	58		
Dead end/ Gate Valve	78		110		

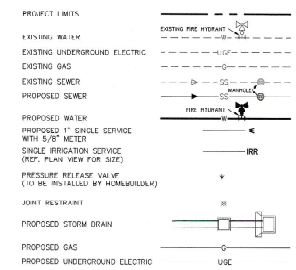
WARNING !!!
HIGH PRESSURE PIPELINE EVACUATION AND/OR CONSTRUCTION PROHIBITED WITHOUT WRITTEN PERMISSION FROM ENTERPRISE.

ADDITIONAL CONSTRUCTION NOTES:

1. PRIOR TO SITE MOBILIZATION, CONTRACTOR SHALL OBTAIN A FINAL EXCAVED COPY OF THE "50" ENTERPRISE TEXAS PIPELINE (111-77) AND MAINTAIN ADEQUATELY
2. AS PER "MONITORING AGREEMENT" CONTRACTOR SHALL MAINTAIN 72 HOUR WRITTEN NOTICE PRIOR TO CROSSING OR WORKING WITHIN THE 50' ENTERPRISE PIPELINE EASEMENT.
3. LOCAL ENTERPRISE CONTACTS INCLUDE:
 - CHRISTOPHER R. HARRIS (210)244-1151 MGR.
 - JAMES L. THOMAS (210)828-7201 MGR.
 - SARA WILSON (210)629-7202 DEP.



WATER LEGEND



JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTHS SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT. OF PIPE WITH JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINING GLANDS SHALL BE FURNISHED BY DEVELOPER. CRITICAL. IT IS CONTRACTOR'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS WITH THE DEVELOPER'S ENGINEER.

CITY OF NEW BRAUNFELS NOTES

- [illegible]

CAUTION!!

UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE, GAS, FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINE. 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:

ON STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT
IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL
INFORMATION AND ADVISE THE CONTRACTOR OF ANY DEFICIENCIES AND
PROPOSED WORK AREA IN ORDER TO IMPLEMENT THE CONTRACTOR'S TRENCH
EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR
PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS.
THE CONSULTANT'S REVIEW OF THE CONTRACTOR'S SYSTEMS, PROGRAMS,
AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE PROTECTION OF THE
SAFETY OF PERSONNEL THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS
FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR
CONSULTANT SHALL INDEPENDENTLY RETAINED EMPLOYER OR SAFETY
CONSULTANT SHALL SUBMIT A WRITTEN SAFETY PROGRAM TO THE
CONSULTANT WITH OSHA STANDARDS GOVERNING THE PRESENCE AND

**PAPE-DAWSON
ENGINEERS**

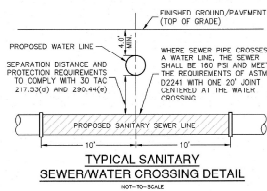
STEELWOOD TRAIL UNIT 4
NEW BRAUNFELS, TEXAS

OVERALL WATER DISTRIBUTION PLAN

OVERALL WATER DISTRIBUTION PLAN

PLAN NO. _____
 JOB NO. 30034-07
 DATE MAY 2022
 DESIGNER HF
 CHECKED **HF** DRAWN _____
 SHEET C4.00

FOR PERMIT



- FOR THE FORMATION INJECTION:
- 1" CORPORATION STOP, C.C.K.P.
 - 1" CORPORATION TUBING, CUT AS REQUIRED
 - 1" COMP. 1/4 COUPLING, CORP. STOP
 - 1" 1/4" THD. SOLID CAPS, THR.
- 8" VALVE SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY NEU. CONTRACTOR SHALL TIE PROPOSED 8" MAIN TO EXISTING 8" PVC C-900 DR 18 MAIN AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY NEU.
- 2" TEMPORARY BLOWOFF ASSEMBLY FOR CHLORINATION INJECTION:
- 1" CORPORATION STOP, C.C.K.P.
 - 1" CORPORATION TUBING, CUT AS REQUIRED
 - 1" COMP. 1/4 COUPLING, CORP. STOP
 - 1" 1/4" THD. SOLID CAPS, THR.
- 12" VALVE SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY NEU.
- CONTRACTOR SHALL TIE PROPOSED 8" MAIN TO EXISTING 8" PVC C-900 DR 18 MAIN AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY NEU.
- 2" TEMPORARY BLOWOFF ASSEMBLY:
- 1" CORPORATION STOP, C.C.K.P.
 - 1" CORPORATION TUBING, CUT AS REQUIRED
 - 1" COMP. 1/4 COUPLING, CORP. STOP
 - 1" 1/4" THD. SOLID CAPS, THR.

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

Assumptions:

Soil Type	Safety Factor	Trench Type	Depth of Bury	Test Pressure
CH	1.5 to 1.0	5	4 ft	200 psi

Minimum Restraint Lengths in Feet

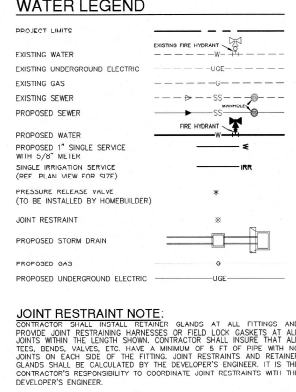
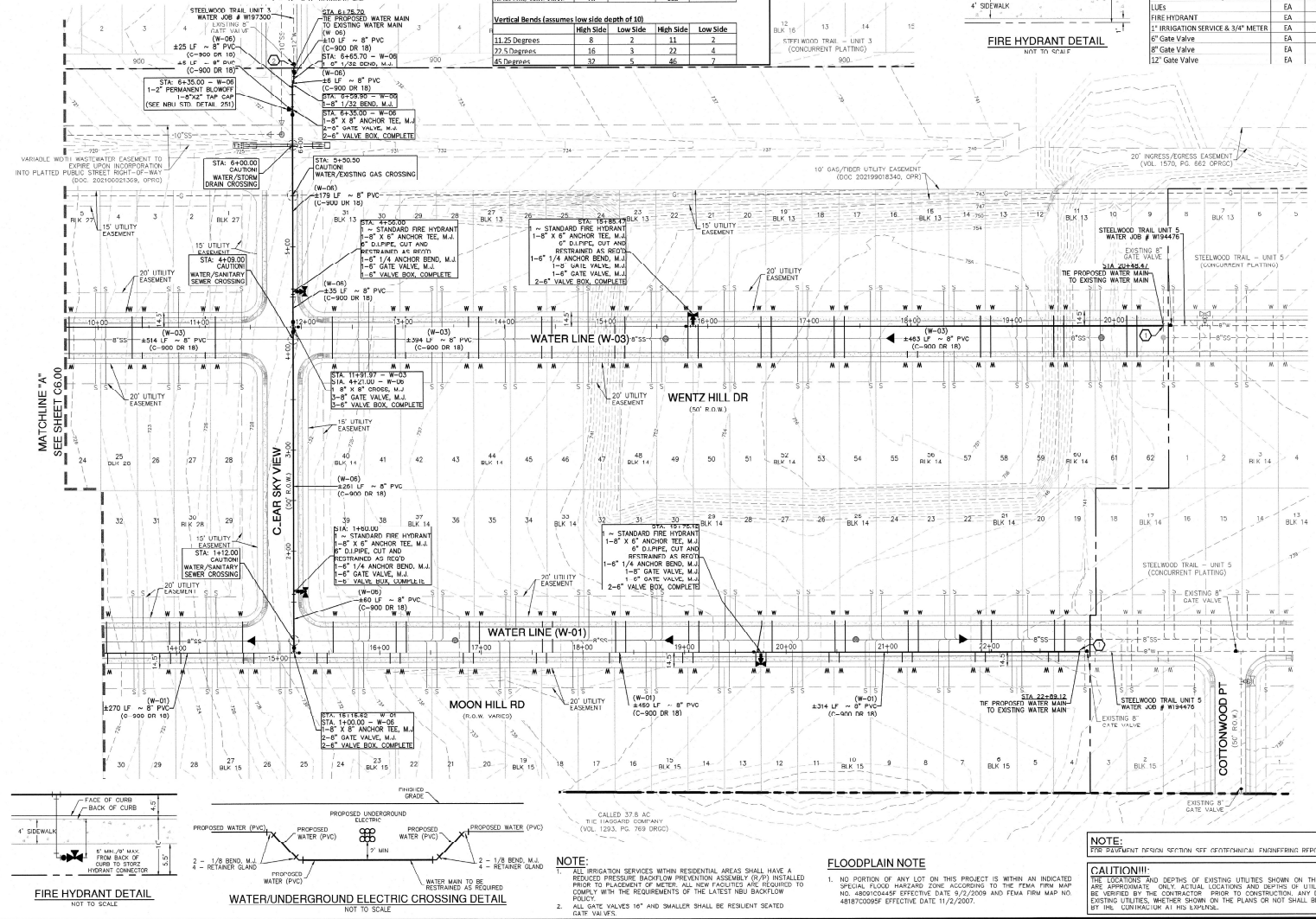
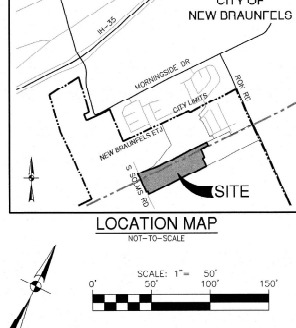
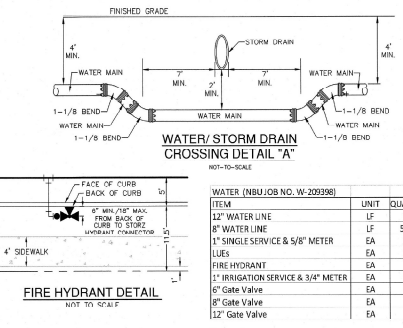
	8" Waterline		12" Waterline	
	Main	Branch	Main	Branch
Horizontal Bends				
11.25 Degrees	3	4		
22.5 Degrees	8	8		
45 Degrees	12	17		
Male Fittings				
8" x 8" Tee	59 (6" Branch)			
8" x 8" Tee	78			
12" x 8" Tee			59 (6" Branch)	
12" x 8" Tee			78	
Dead End/Gate Valve	78		110	
Vertical Bends (assumes low side depth of 10')				
11.25 Degrees	16	3	22	4
22.5 Degrees	32	5	46	7
45 Degrees	48	8	69	11

WARNING!!!
HIGH PRESSURE PIPELINE EVALUATION AND/OR CONSTRUCTION PROHIBITED WITHOUT WRITTEN PERMISSION FROM ENTERPRISE.

ADDITIONAL SAFETY PRECAUTIONS:
PRIOR TO SITE INVESTIGATION, CONTRACTOR SHALL OBTAIN A FINAL EXECUTED COPY OF THE ENTERPRISE TEXAS PIPELINE (L.C.-ENFORCEMENT AGREEMENT).

2. AS PER "ENFORCEMENT AGREEMENT," CONTRACTOR SHALL PROVIDE 72-HOUR WRITTEN NOTICE PRIOR TO CROSSING OR WORKING WITHIN THE 20' UNPAVED PIPELINE EASEMENT.

3. LOCAL ENTERPRISE CONTACTS INCLUDE:
- CHESTER BLAIR (210)340-1157 MOB.
- JUSTIN THOMAS (210)827-7201 MOB.
- SAN ANTONIO (210)228-2782 OFF.



JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOOK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 4' 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.

CITY OF NEW BRAUNFELS NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5'-FEET IN DEPTH. DEEP TRENCHES POSE COMPLEXITY TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND CONSTRUCTION MAY NOT BE ACHIEVABLE. A UTILITY CONSTRUCTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
4. UTILITY TRENCH CONSTRUCTION - ALL UTILITY TRENCH CONSTRUCTION WITHIN THE STREET PAVEMENT/SIDEWALK SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. ALL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") THICK. OBTAINING THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE CONTRACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM DRY DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-133-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 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 LIFT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLAN. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

SAFETY!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES. SITE LISTING ELECTRIC, GEOTECHNICAL, AND 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 ONE" 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 EMPLOYEES OF STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE AUTOPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPROVE CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND FOR PROXIMITY TO THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH A MINIMUM, USHA STANDARDS FOR TRENCH EXCAVATIONS. CONTRACTOR, AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEES, OR SAFETY CONSULTANT SHALL BE IMMEDIATELY IN CONTACT WITH THE CITY OF NEW BRAUNFELS IN ACCORDANCE WITH GSIA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTE:
PRELIMINARY DESIGN SECTION SET CONTAINING PLANNING REPORT

CAUTION!!!
THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. ONLY ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.



STEELWOOD TRAIL UNIT 4
NEW BRAUNFELS, TEXAS
OVERALL WATER DISTRIBUTION PLAN

PLAN NO. 2024-01
SHEET NO. 1
DATE: MAY 2024
DESIGNER: HF
CHECKED: C4.01
SHEET

FOR PERMIT