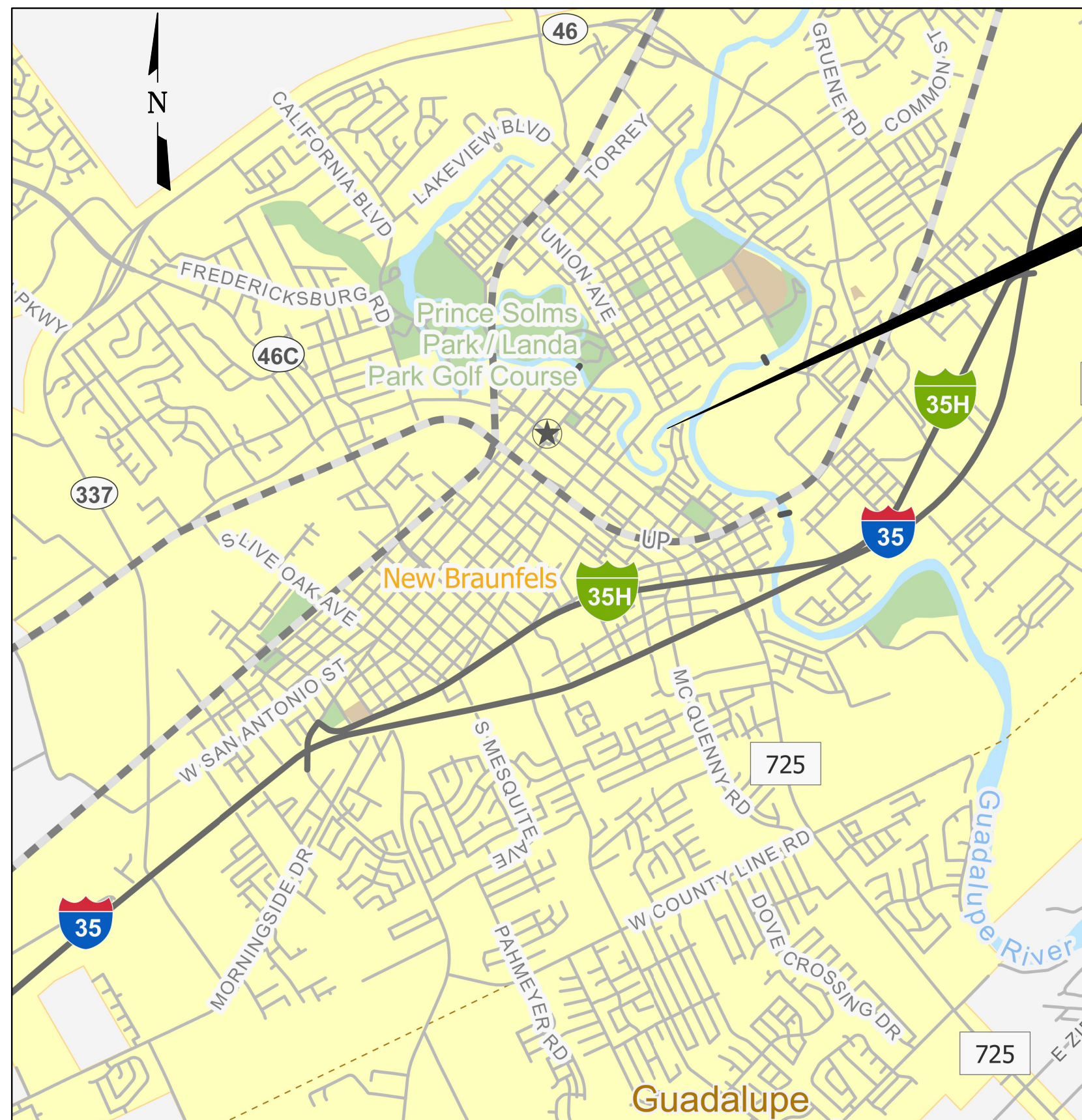
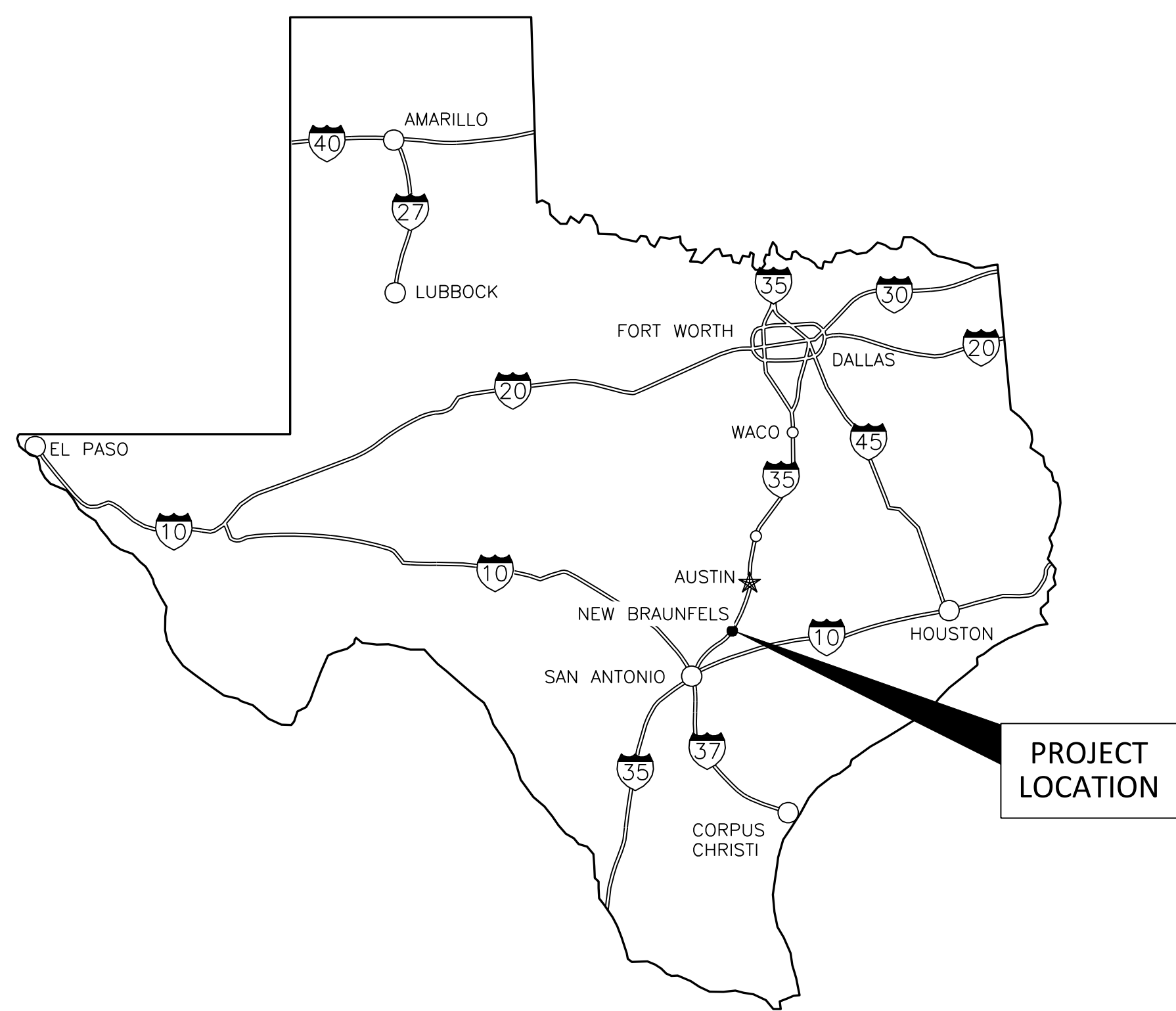


# CITY OF NEW BRAUNFELS, TEXAS

CONSTRUCTION PLANS FOR

## LAST TUBER'S EXIT UTILITY IMPROVEMENTS



PROJECT LOCATION  
LAT:29.704053  
LONG:-98.115781

APRIL 2024

ISSUED FOR BID



10431 Morado Circle, Suite 300  
Austin, Texas 78759  
Phone - (512) 617-3100  
Web - [www.freese.com](http://www.freese.com)

Freese and Nichols, Inc.  
Texas Registered Engineering Firm F-2144

NEB 23370



*Anthony J. Maldonado* 04/01/2024



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SHEET INDEX

SHEET #    DESCRIPTION

COVER

GENERAL

G-1 - SHEET INDEX AND LEGEND  
G-2 - GENERAL NOTES  
G-3 - TCEQ NOTES

CIVIL

W-1 - SURVEY CONTROL AND DEMOLITION PLAN  
SURVEY CONTROL AND DEMOLITION PLAN

EROSION AND SEDIMENTATION CONTROL

E&S-1 - NOTES AND DETAILS

DETAILS

DT-1 - STANDARD DETAILS I  
DT-2 - STANDARD DETAILS II  
DT-3 - TXDOT DETAILS II  
DT-4 - TXDOT DETAILS III  
DT-5 - TXDOT DETAILS IV

EXISTING SYMBOL LEGEND

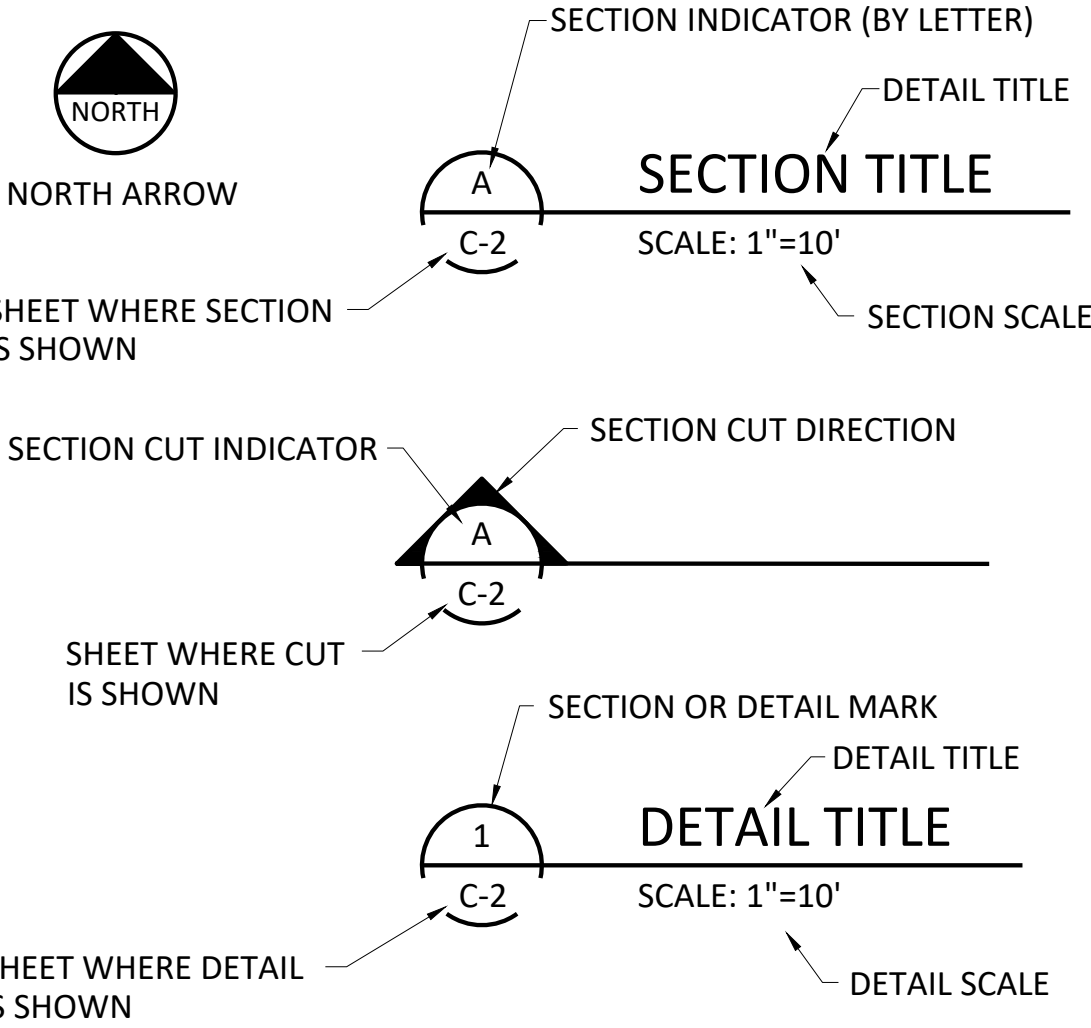
	CONTROL POINT SET		OVERHEAD UTILITY LINE
	1/2 INCH IRON ROD FOUND		CABLE FENCE
	SANITARY SEWER MANHOLE		PIPE FENCE
	CLEAN OUT		APPARENT RIGHT-OF-WAY/BOUNDARY
	STORM SEWER MANHOLE		WASTEWATER LINE
	TELEPHONE MANHOLE		STORM LINE
	VENT PIPE		WATER LINE
	POWER POLE		WATER LINE [PER GIS]
	GUY WIRE		UNDERGROUND TELEPHONE LINE
	WATER METER		UNDERGROUND FIBER OPTIC LINE
	WATER VALVE		GAS LINE
	FIRE HYDRANT		UNDERGROUND ELECTRIC
	TELEPHONE PEDESTAL		UNDERGROUND ELECTRIC (PER GIS)
	ELECTRIC JUNCTION BOX		APPROXIMATE FLOOD LINE
	ELECTRIC METER		
	ELECTRICAL CONDUIT		
	TRAFFIC SIGNAL LIGHT POLE		
	TREE		
	LANDSCAPE BUSH		
	LANDSCAPE LIGHT		
	SIGN		
	BOLLARD		
	MAIL BOX		
	FLAG POLE		
	SPIGOT		
	SPRINKLER HEAD		
	METAL POST		
	FIRE HYDRANT		
	FIRE DEPARTMENT CONNECTION		

ABBREVIATIONS

PROP.	PROPOSED
EXIST.	EXISTING
TOC	PROP. TOP OF CONCRETE ELEVATION
FF	PROP. BUILDING FINISH FLOOR ELEVATION
FL	PROP. FLOW LINE ELEVATION
CL	CENTER LINE
R.O.W.	RIGHT OF WAY
TBM	TEMPORARY BENCH MARK
WL	WATER LINE
WWL	WASTEWATER LINE
SS	SANITARY SEWER
DI	DUCTILE IRON
MJ	MECHANICAL JOINT
CAV	COMBINATION AIR/VACUUM VALVE
ARV	AIR RELEASE VALVE
SAN.	SANITARY
T.O.P.	TOP OF PIPE ELEVATION
T.O.S.	TOP OF SLAB ELEVATION
TP1594.50	PROP. TOP OF PAVEMENT ELEVATION
NG	NATURAL GROUND
MH	MANHOLE
V.C.	VITRIFIED CLAY
A.C.	ASBESTOS CEMENT
BFV	BUTTERFLY VALVE
NSPI	NO SEPARATE PAY ITEM
NOI	NOTICE OF INTENT
NOT	NOTICE OF TERMINATION
TPT	TRAVERSE POINT

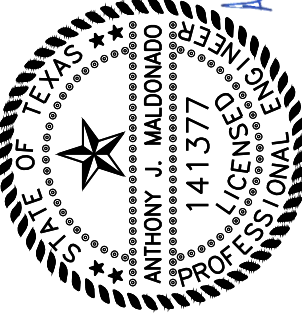
PROPOSED LEGEND

	PERMANENT OR TEMPORARY EASEMENT
	PROP. WATER LINE
	UTILITY TO BE ABANDONED OR REMOVED
	PROP. SILT FENCE
	ASPHALT PAVEMENT REPAIR
	ASPHALT PAVEMENT MILL AND OVERLAY REPAIR
	CONCRETE PAVEMENT REPAIR
	GRASS RESTORATION
	CONTROL POINT
	FIRE HYDRANT
	FLOW ARROW



ISSUED FOR BID

Freeze and Nichols, Inc.  
Texas Registered Engineering Firm F-2144



04/01/2024



9601 McAllister Freeway, Suite 1008  
San Antonio, Texas 78216  
Phone - (210) 298-3800  
Web - www.freezeandnichols.com

NEW BRAUNFELS UTILITIES  
LAST TUBER'S EXIT UTILITY  
IMPROVEMENTS

GENERAL

SHEET INDEX AND LEGEND

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SHEET

G-1

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**CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:**

SPECTRUM	866-874-2389
AT&T	800-288-2020
CENTERPOINT GAS	888-200-3788
TEXAS ONE CALL	811 OR 800-3

GENERAL CONSTRUCTION NOTES: (MODIFIED)

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT "NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICY".
2. CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-608-8971 WITH AT LEAST TWO (2) WORKING DAYS (48 HOURS) NOTICE. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED FROM NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
3. ~~THE DEVELOPER DEDICATES THE WATER / WASTEWATER MAINS UPON COMPLETION BY THE CONTRACTOR AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEM. NBU WILL OWN AND MAINTAIN SAID WATER / WASTEWATER MAINS WHICH ARE LOCATED WITHIN PLATTED UTILITY EASEMENTS OR PUBLIC ROW OF PROPOSED DEVELOPMENTS. (AS APPLICABLE).~~
4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS, OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.
5. CONTRACTOR TO CONTACT THE ENGINEER-OF-RECORD (EOR) FOR ANY FIELD CHANGES. ANY REVISIONS OR CHANGES TO THE APPROVED CONSTRUCTION PLANS WILL REQUIRE ADDITIONAL APPROVAL BY NBU IN WRITING.
6. 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.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATIONS, IF ANY, SHALL BE AT THE CONTRACTOR'S ENTIRE EXPENSE.
8. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION.
9. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
10. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
11. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
12. THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ 31 TAC 313.4 AND 31 TAC 313.9.
13. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.
14. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.
15. THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.
16. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT HAVE TO WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.
17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. CONTRACTORS SHALL CALL THE ONE CALL SYSTEM FOR WATER/WASTEWATER LOCATION.
18. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192 (8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
19. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF THE TRAFFIC IN ONE DIRECTION AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS AT THE END OF EACH WORKDAY.
20. PRIOR TO ORDERING MATERIALS TO BE USED IN CONSTRUCTION, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH FOUR (4) COPIES OF THE SOURCE, TYPE, GRADATION, MATERIAL SPECIFICATION DATA AND / OR SHOP DRAWINGS, AS APPLICABLE, TO SATISFY THE REQUIREMENTS OF THE FOLLOWING ITEMS AND ALL MATERIAL ITEMS REFERRED TO IN THESE LISTED ITEMS:
  - a. WATER MAINS AND SERVICES
  - b. WASTEWATER MAINS AND SERVICES
21. THRUST BLOCKS WILL NOT BE ALLOWED ON THE SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.
22. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. WASTEWATER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO NBU CONNECTION AND CONSTRUCTION POLICY MANUAL.
23. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN WASTEWATER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF WASTEWATER LINES SHALL BE IN STRICT ACCORDANCE WITH 30 TAC 217.
24. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.
25. UTILITY TRENCH COMPACTION WITHIN STREET R.O.W.
  - a. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEO-TECHNICAL ENGINEER.
  - b. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE.
  - c. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E.
  - d. THE NUMBER AND LOCATION OF REQUIRED TESTS WILL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.
  - e. UPON COMPLETION OF TESTING THE GEO-TECHNICAL 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.

## GROUNDWATER

- ## RECORD DRAWINGS

- ### CONSTRUCTION NOTE

- ### DRAINAGE NOTE

- ## FINISHED FLOOR ELEVATIONS

- ## SOILS TESTING

- ITEM 340

- ## UTILITY TRENCH COMPACTION

- ## CONSTRUCTION STABILIZED ENTRANCE

- ## SIGNING AND PAVEMENT MARKING PLAN NOTES

- ## SEEDING AND ESTABLISHMENT OF VEGETATION WITHIN EARTHEN CHANNELS, STORMWATER BASINS AND DISTURBED AREAS

- GENERAL NOTES:

- Freese and Nichols, Inc.  
Texas Registered Engineering Firm E-2144



9601 McAllister Freeway, Suite 1008

Web - [www.freese.com](http://www.freese.com)

## GENERAL

## GENERAL NOTES

NO.	ISSUE	BY	DATE	PERSON JOB NO.
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
WATER DISTRIBUTION SYSTEM

GENERAL CONSTRUCTION NOTES:

1.

THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2.

ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].
3.

PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].
4.

NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].
5.

ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].
6.

WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].
7.

THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].
8.

THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].
9.

THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].
10.

WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].
11.

PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.
12.

THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

WHERE:

- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,

▪ L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,

▪ D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND

▪ P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).
- Q

=

$\frac{LD\sqrt{P}}{148,000}$

13.

THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

WHERE:

- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,

▪ S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,

▪ D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND

▪ P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).
- L

=

$\frac{SD\sqrt{P}}{148,000}$

14.

THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).
15.

THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].
16.

FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].
17.

SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
18.

WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
19.

THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [§290.44(F)(3)].
20.

DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

NEW BRAUNFELS UTILITIES WATER NOTES (MODIFIED):

1.

ALL WATER MAINS SHALL BE AWWA C900 (CLASS 150 OR GREATER).
2.

WATER SERVICES SHALL BE SINGLE 1" COPPER TUBING.
3.

WATER LINE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
4.

WATER MAIN SHALL HAVE A MINIMUM OF 42 INCHES OF COVER, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.
5.

EACH UNIT IN A DUPLEX, TRIPLEX, FOURPLEX, OR CONDOMINIUM SHALL BE PROVIDED WITH AN INDIVIDUAL WATER METER. A MASTER METER CAN BE CONSIDERED FOR SEPARATE BUILDINGS, HOWEVER, THOSE BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION.
6.

CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
7.

INITIAL BACKFILL OF WATER LINES SHALL BE MANUFACTURED SAND OR PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
8.

SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES HAVING ANY DIMENSION LARGER THAN 6" INCHES AT THE LARGEST DIMENSION.
9.

HYDROSTATIC TESTING IS DONE FROM VALVE TO VALVE.
10.

NO METER BOXES TO BE SET IN DRIVEWAYS OR SIDEWALKS. ANY METER BOXES SET IN DRIVEWAYS OR SIDEWALKS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
11.

METER BOXES MUST BE SET AT THE PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
12.

ACCEPTABLE METER BOXES ARE D13-BAMR AND D15-BAMR. NEW RESIDENTIAL LOTS ARE REQUIRED TO USE THE D15-BAMR METER BOXES (DOUBLE AMR). COMMERCIAL LOTS SHOULD CHOOSE WHICH BOX APPLIES TO THE DOMESTIC AND/OR IRRIGATION METER LAYOUT.
13.

THRUST BLOCKS WILL NOT BE ALLOWED ON THE SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.
14.

CONTRACTOR SHALL PLACE TRACER WIRE ON TOP OF THE WATER MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT THE VALVE BOX. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE LEFT WITHIN VALVE BOXES TO BE PLACED WITHIN LID OF COVER.

TEMPORARY WATER SERVICE NOTES:

1.

CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES.
2.

CONTRACTOR IS RESPONSIBLE FOR CONTACTING NBU AT LEAST 48 HRS. PRIOR TO EXCAVATING.
3.

CONTRACTOR SHALL SUBMIT BYPASS PIPING PLAN TO NBU FOR REVIEW PRIOR TO CONSTRUCTION. BYPASS PLAN WILL INCLUDE LOCATIONS OF ALL UTILIZED FIRE HYDRANTS, BYPASS PIPING AND TEMPORARY SERVICES AS NEEDED TO COMPLETE INSTALLATION OF LINE A WITH MINIMAL SHUTDOWNS (2 HOURS MAXIMUM) TO EXISTING CUSTOMERS.
4.

TEMPORARY BYPASS WATER LINE SHALL BE 12-INCH AWWA C900 DR11 HDPE PIPE, NSF-61 CERTIFIED.
5.

TEMPORARY WATER LINE SHALL BE TESTED IN ACCORDANCE WITH ASTM F216 AND AWWA C600 TO A PRESSURE OF 150 PSI.
6.

TEMPORARY WATER LINE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA 651.
7.

TEMPORARY WATER LINE SHALL BE FULLY RESTRAINED.
8.

DISINFECTION AND TESTING OF TEMPORARY WATER LINE SHALL BE WITNESSED BY NBU PRIOR TO PLACING TEMPORARY LINE IN SERVICE.
9.

CONTRACTOR SHALL NOT ALLOW HEAVY EQUIPMENT OR MATERIALS TO CROSS OR BE PLACED OVER EXISTING OR TEMPORARY UTILITIES.
10.

RESTORE LANDSCAPING TO EXISTING CONDITIONS AFTER TEMPORARY WATER LINE IS REMOVED.

EROSION AND SEDIMENTATION CONTROL NOTES:

1.

CONTRACTOR SHALL REVEGETATE DISTURBED AREAS IN A TIMELY MANNER UPON COMPLETION OF WORK. REVEGETATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
2.

RESTORATION OF THE SITE SHALL OCCUR PRIOR TO FINAL COMPLETION AND SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
3.

CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMPs) AS REQUIRED FOR EROSION AND SEDIMENT CONTROL WHETHER SHOWN ON THESE PLANS OR NOT. NO SEPARATE PAY ITEM.
4.

SILT FENCING SHALL BE INSTALLED AROUND ALL DIRT STOCK PILES.
5.

THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
6.

THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN PROVIDED BY THE CONTRACTOR.
7.

ANY SIGNIFICANT VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER.
8.

THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT INLET DEVICES SHOULD BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES. SILT ACCUMULATION AT INLET DEVICES SHOULD BE REMOVED WHEN THE DEPTH REACHES TWO (2) INCHES.
9.

FIELD REVISIONS TO THE EROSION/SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE CITY'S REPRESENTATIVE DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES. ANY REVISIONS TO THE PERMITTED PLAN MUST BE APPROVED BY THE ENGINEER.
10.

PERMANENT EROSION/SEDIMENTATION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED IN ACCORDANCE WITH THESE PLANS AND THE SPECIFICATIONS.

NOTE:

1.

THE INDICATED REQUIREMENTS ARE THE MINIMUM REQUIREMENTS AS REQUIRED BY TCEQ. IF CONFLICTS EXIST BETWEEN THESE NOTES AND AS SPECIFIED IN THE PLANS AND SPECIFICATIONS THE MOST STRINGENT REQUIREMENT SHALL SUPERCEDE AS DETERMINED BY THE ENGINEER.
2.

PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.

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04/01/2024



NEW BRAUNFELS UTILITIES  
LAST TUBER'S EXIT UTILITY  
IMPROVEMENTS

GENERAL

TCEQ NOTES

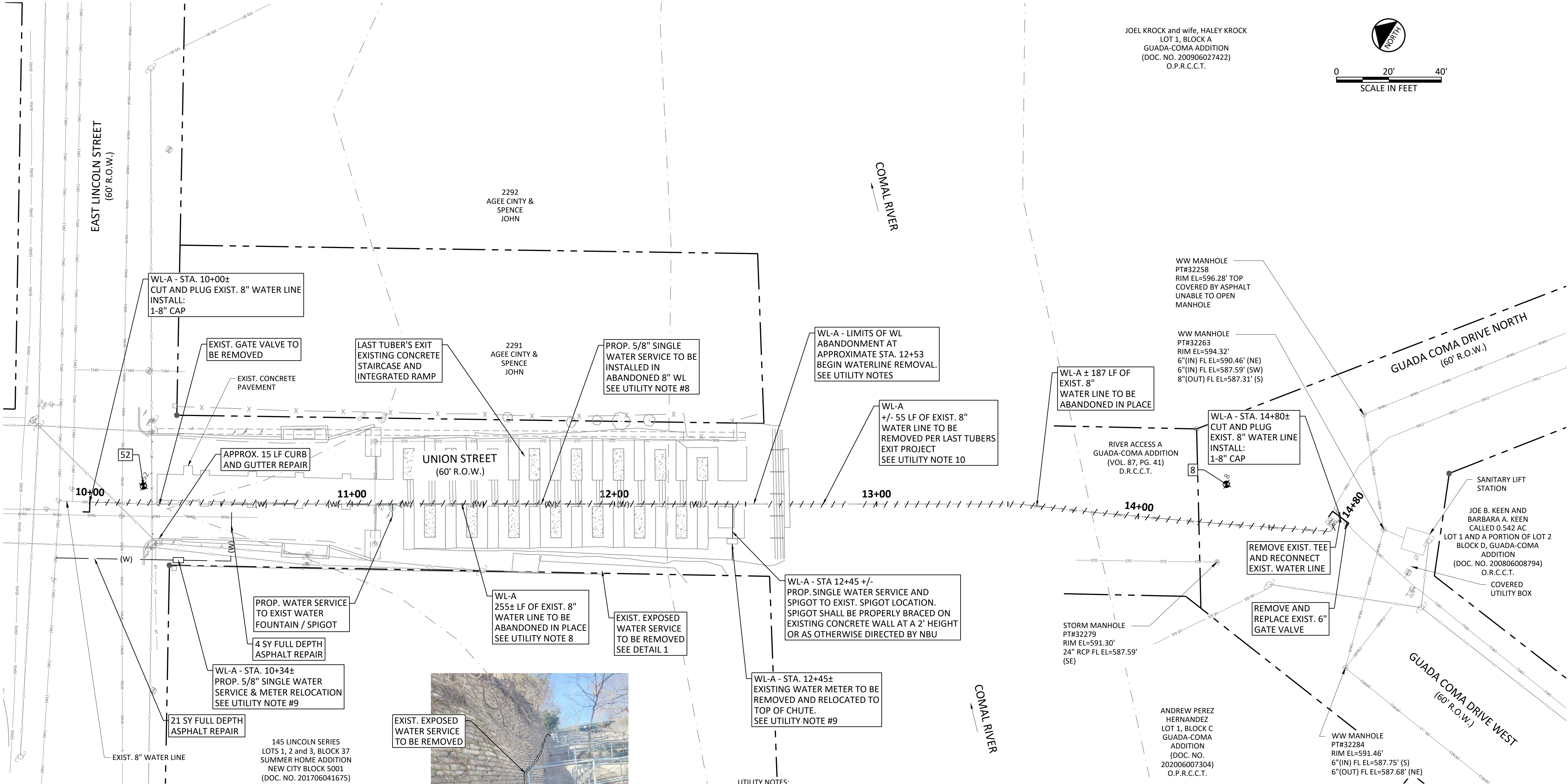
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SHEET													

G-3

SEQ.



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Filename: n:\W\U\NB\U22825 Guada Coma\Drawings\LTE PLANSET\GN-LTE GUADACOMA-SITE-01.dwg  
Last Saved: 3/28/2024 5:37 PM. Saved By: 08690



**NOTES:**  
ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED UPON THE TEXAS COORDINATE SYSTEM, NAD83 (NA2011), SOUTH-CENTRAL ZONE. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. COORDINATES WERE ADJUSTED FROM STATE PLANE GRID TO SURFACE USING A SCALED ADJUSTMENT FACTOR OF 1.000142311068558 (RECIPROCAL = 0.999857709181)

ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID 12B.

APPARENT BOUNDARY LINES SHOWN HERON ARE BASED ON FOUND MONUMENTATION. THIS IS NOT A BOUNDARY SURVEY.

THIS MAP WAS PREPARED FROM FIELD DATA OBTAINED FROM NOVEMBER 6 TO DECEMBER 9, OF 2023.

SOME FEATURES SHOWN ON THIS SURVEY MAY BE OUT OF SCALE FOR CLARITY.

THIS TOPOGRAPHIC MAP WAS CREATED FOR DESIGN PURPOSES ONLY.

THIS MAP WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT.

CONTROL POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
8	13806393.34	2249631.85	591.42	CP MAG NAIL SET - LEVELED
52	13806742.91	2249412.12	616.12	CP MAG NAIL W/ UE WASHER FOUND - LEVELED



1  
W-1  
EXIST. WATER SERVICE REMOVAL  
N.T.S.

- UTILITY NOTES:
- LOCATIONS OF UNDERGROUND UTILITIES/STRUCTURES MAY VARY FROM LOCATIONS HEREON. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/STRUCTURES. BEFORE EXCAVATION, CONTACT THE APPROPRIATE AGENCIES FOR VERIFICATION OF UTILITY TYPE AND FOR FIELD LOCATION.
  - CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
  - CONTRACTOR TO COORDINATE WATER SERVICE INTERRUPTION WITH NBU.
  - ALL UTILITIES TO BE CONSTRUCTED PRIOR TO LAST TUBER'S EXIT IMPROVEMENTS PROJECT
  - NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
  - ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS 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 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.
  - CONTRACTOR TO PROVIDE TRAFFIC CONTROL PLAN IN ACCORDANCE WITH SHEETS DT-4 AND DT-5.
  - EXISTING 8" WATER LINE FROM STA 10+00± TO STA 12+53 IS TO BE ABANDONED IN PLACE.
  - REMOVE AND RELOCATE EXISTING WATER METER TO APPROXIMATE STA 10+34. EXISTING 8" WATER LINE, TO BE ABANDONED, IS TO BE UTILIZED AS CONDUIT FOR PROPOSED LAST TUBERS EXIT WATER SERVICE.
  - REMOVE EXISTING 8" WATER LINE, START STA 12+53, SUCH THAT MINIMUM 2 FOOT OF COVER IS ACHIEVED FROM COMAL RIVER FLOOR. REMAINING WATER LINE SHALL BE ABANDONED IN PLACE. REFER TO CITY OF NEW BRAUNFELS - LAST TUBER'S EXIT IMPROVEMENTS PROJECT - SHEET C-3
  - EXISTING 8" WATER LINE FROM APPROX. STA 12+93 TO STA 14+67 IS TO BE ABANDONED IN PLACE.
  - WATER SERVICES WHICH ARE EXPOSED SHALL BE RIGIDLY INSTALLED AND OF STEEL MATERIAL.

FLOOD NOTE:  
BY GRAPHIC PLOTTING ONLY, THESE AREAS ARE IN ZONE "X", DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, ZONE "X" OTHER FLOOD AREAS OF 0.2% ANNUAL CHANCE FLOOD, ZONE "AE", BASE FLOOD ELEVATIONS DETERMINED AND A FLOODWAY AREA IN ZONE "AE", DEFINED BY F.E.M.A. FLOOD INSURANCE RATE MAP, NUMBER 48091C0435 F, CITY OF NEW BRAUNFELS, TEXAS, WHICH BEARS AN EFFECTIVE DATE OF SEPT. 2, 2009 AND IS PARTIALLY IN A SPECIAL FLOOD HAZARD AREA.

ISSUED FOR BID

Freeze and Nichols, Inc.  
Texas Registered Engineering Firm F-2144

ANTHONY J. MALDONADO  
14137  
CIVIL ENGINEER  
PROFESSIONAL

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NEW BRAUNFELS UTILITIES  
LAST TUBER'S EXIT UTILITY  
IMPROVEMENTS

CIVIL  
COMAL RIVER CROSSING  
SURVEY CONTROL AND DEMOLITION PLAN

FILE NO.	DATE	BY	ISSUE
GN-LTE GUADACOMA-SITE-01.dwg	4/1/2024		

DESIGNED: AJM  
DRAWN: EWL  
REVISED:  
CHECKED:  
ECM

FILE NAME:  
GN-LTE GUADACOMA-SITE-01.dwg

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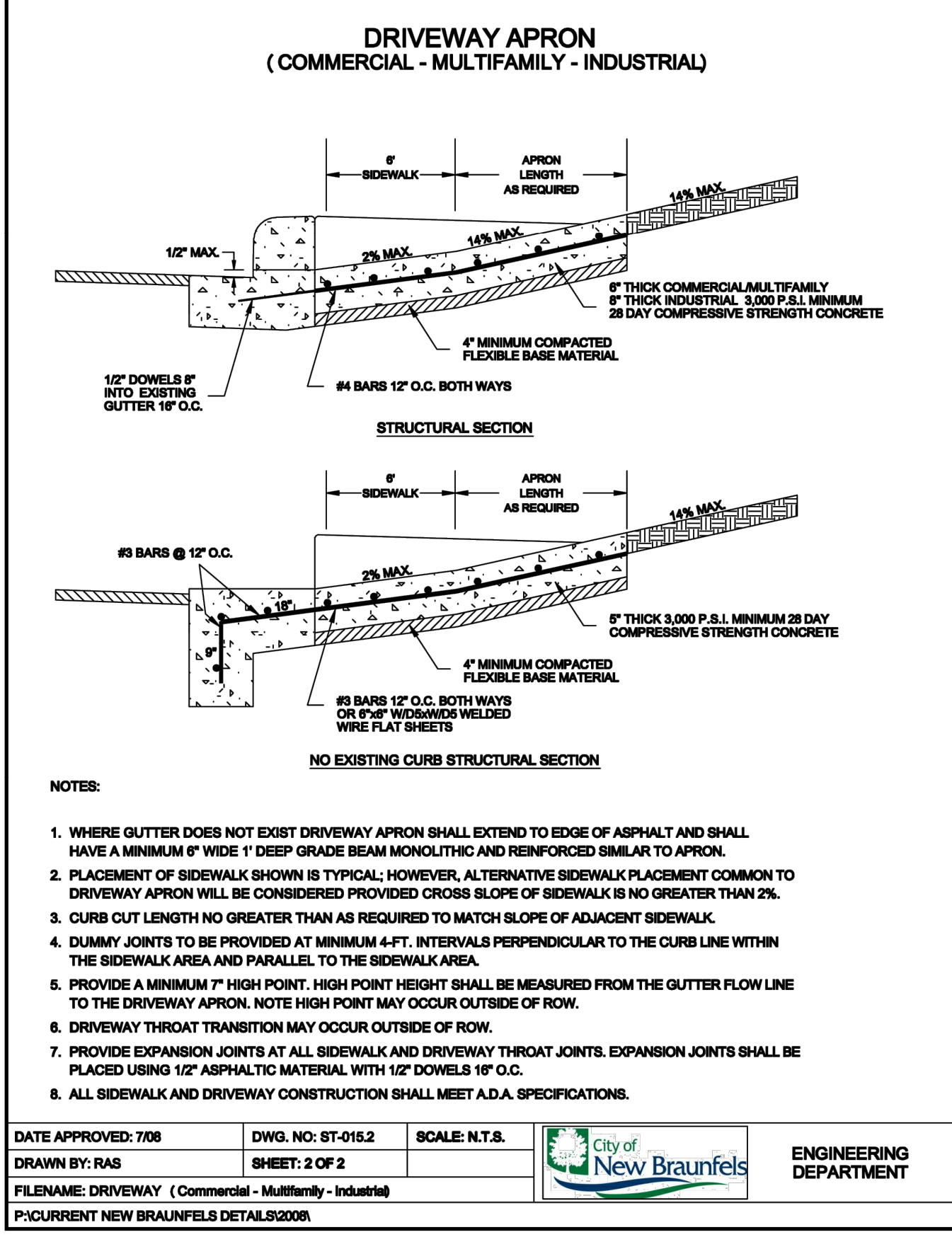
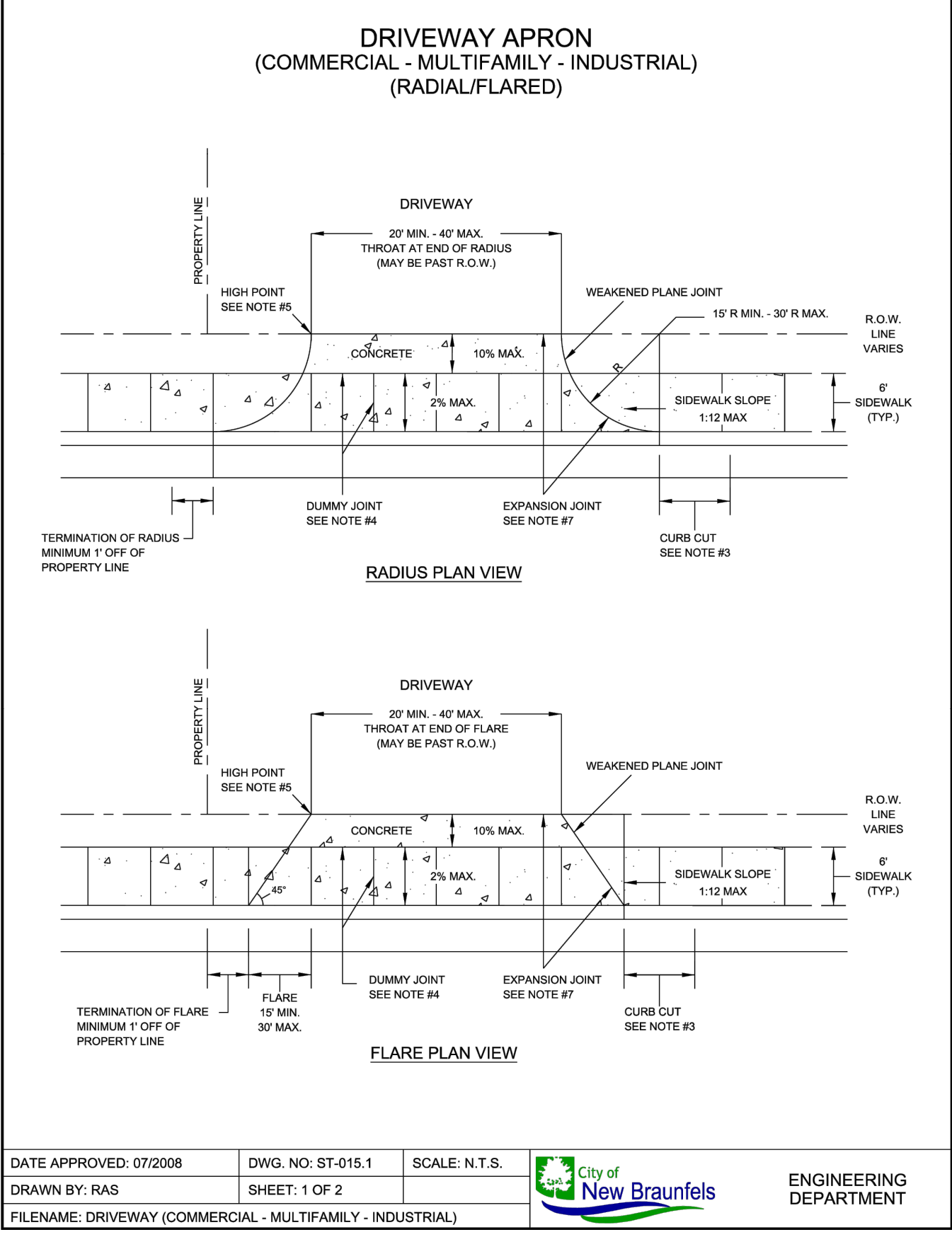
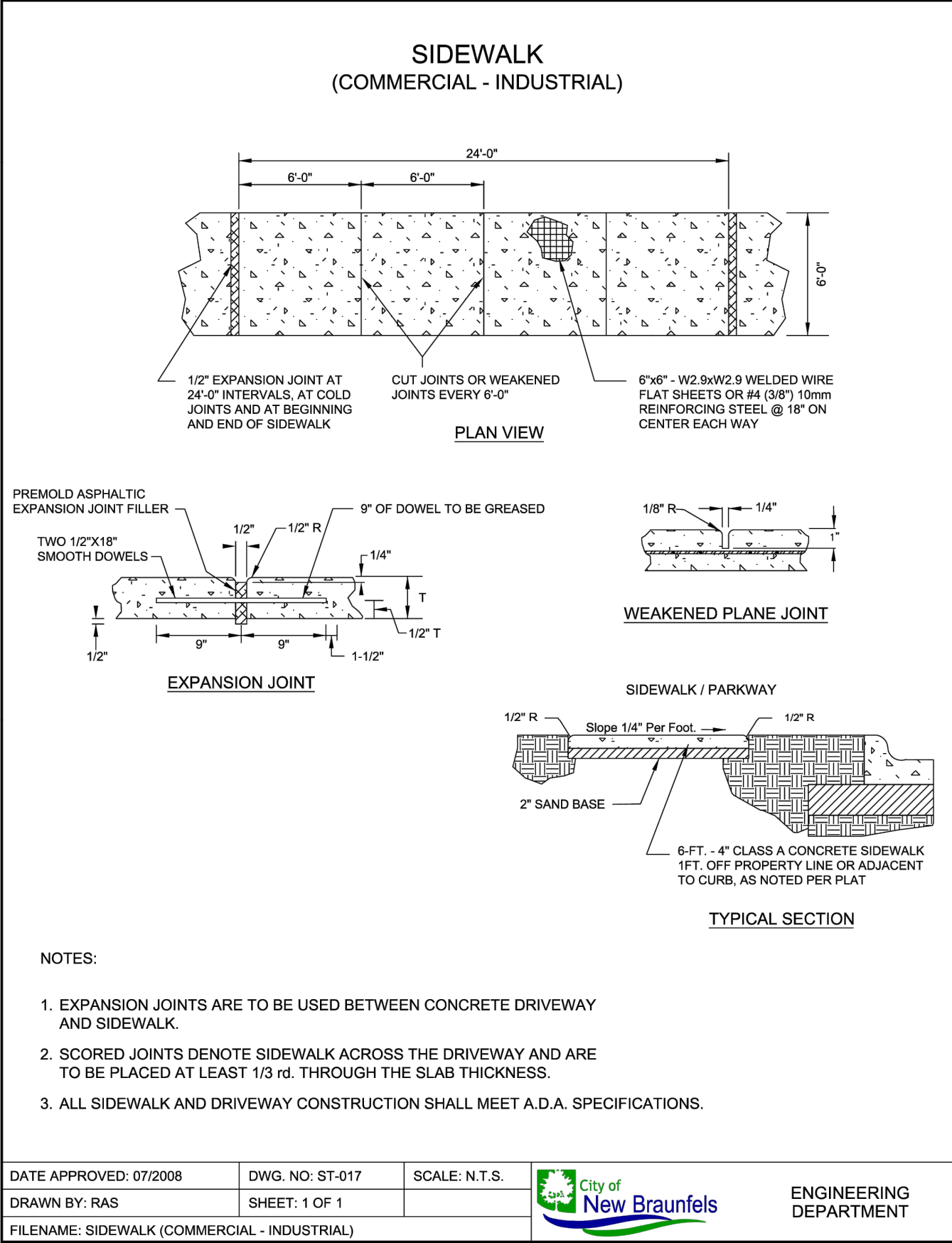
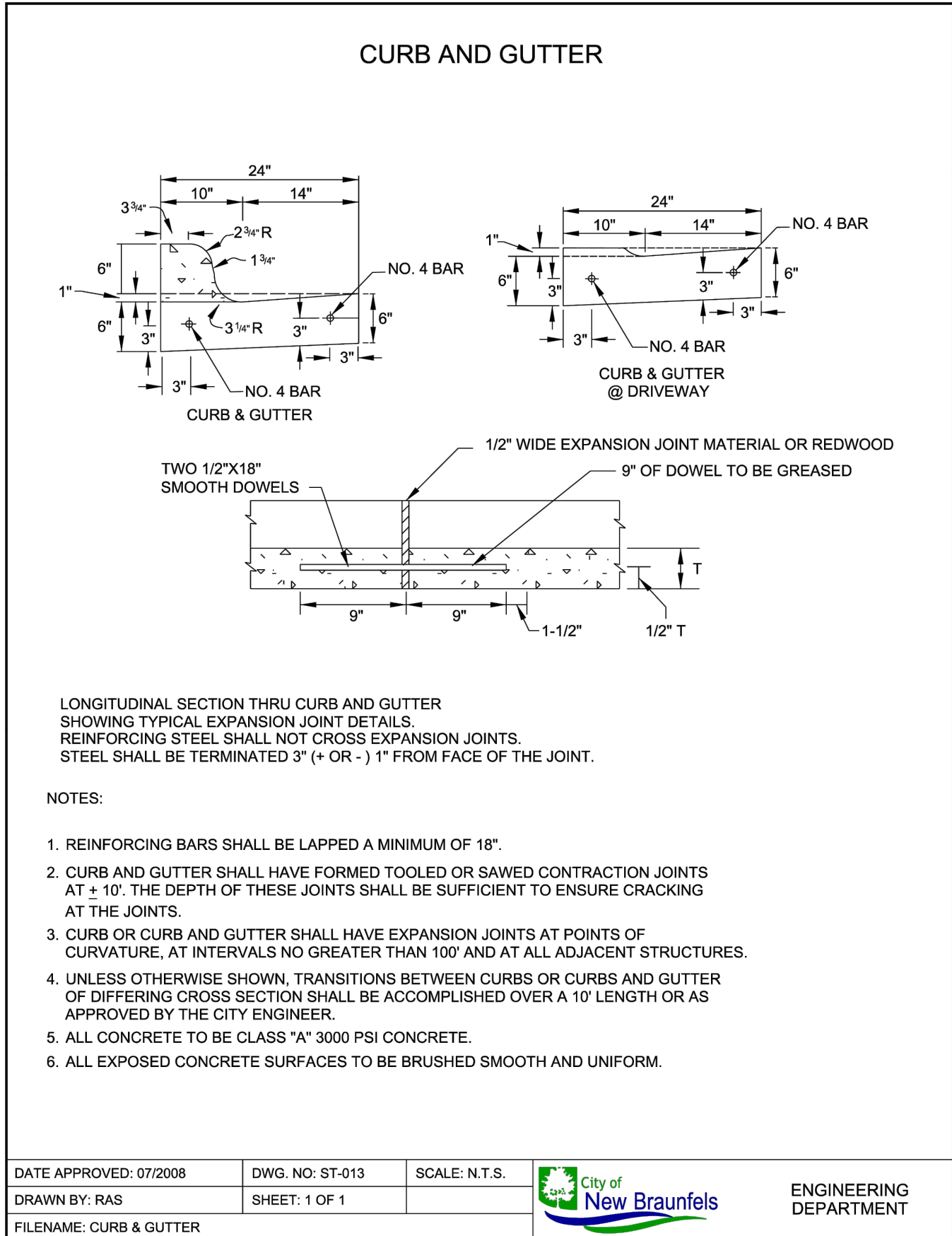
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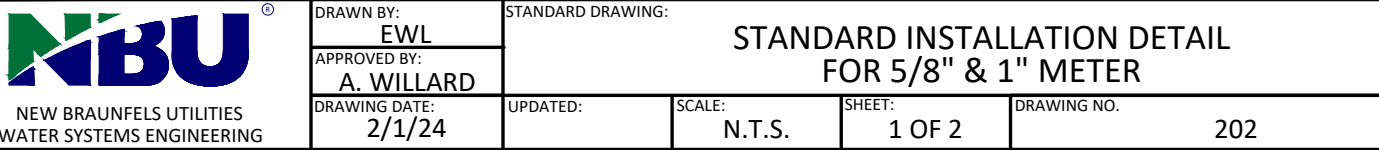





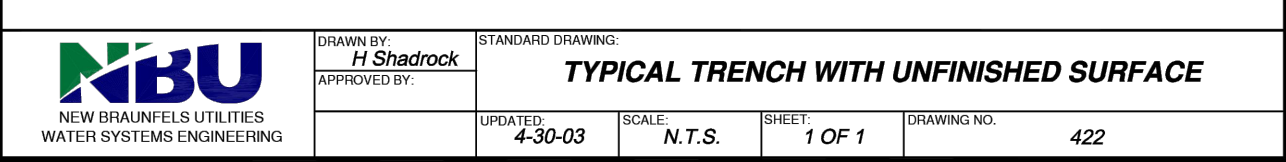
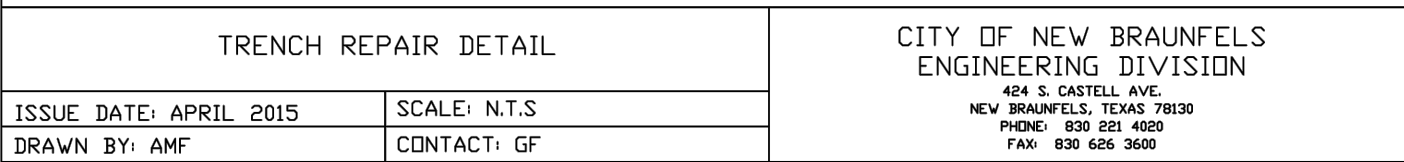
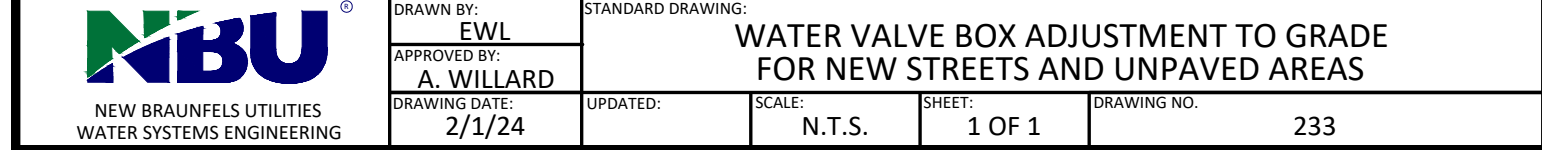






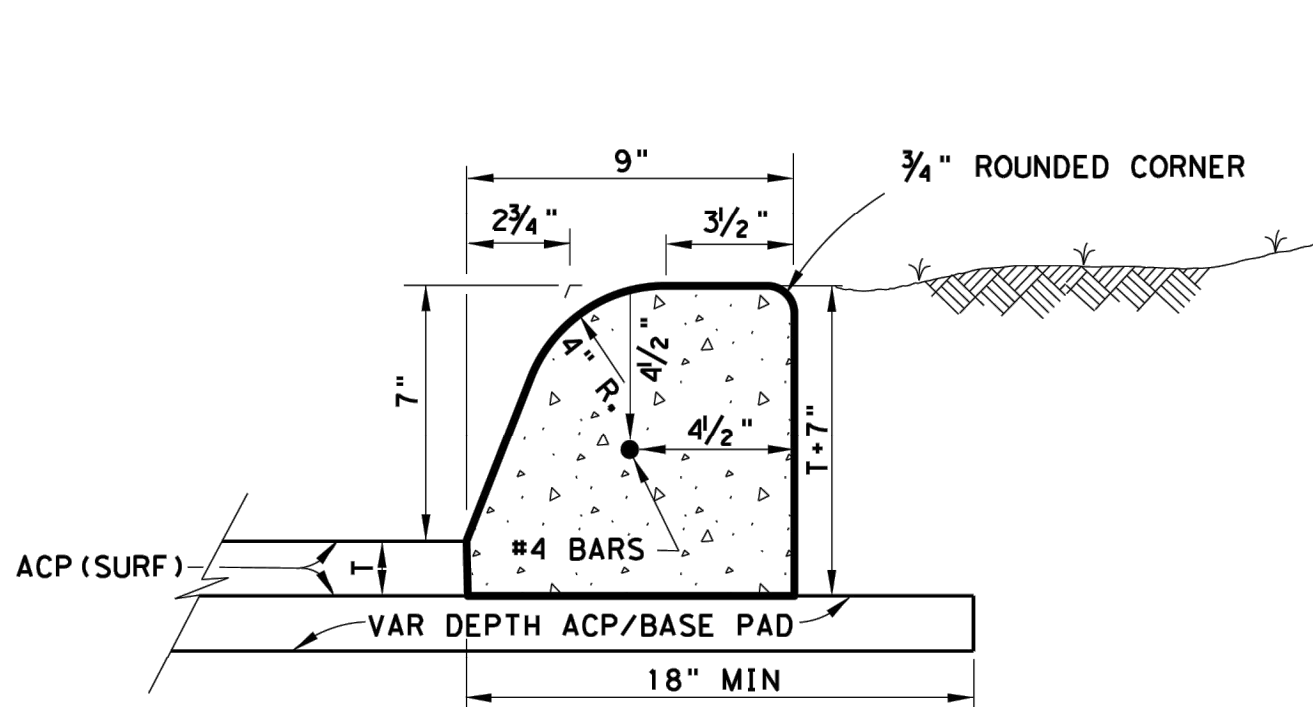


- |  |              |   |          |        |        |
|--|--------------|---|----------|--------|--------|
| <br><b>NBU</b><br>NEW BRAUNFELS UTILITIES<br>WATER SYSTEMS ENGINEERING | DRAWN BY:    | STANDARD DRAWING:                                   |          |        |        |
|  | APPROVED BY: | STANDARD INSTALLATION DETAIL<br>FOR 5/8" & 1" METER |          |        |        |
|  | A. WILLARD   | DRAWING DATE:                                       | UPDATED: | SCALE: | SHEET: |
|  | 2/1/24       |   | N.T.S.   | 2 OF 2 | 202    |

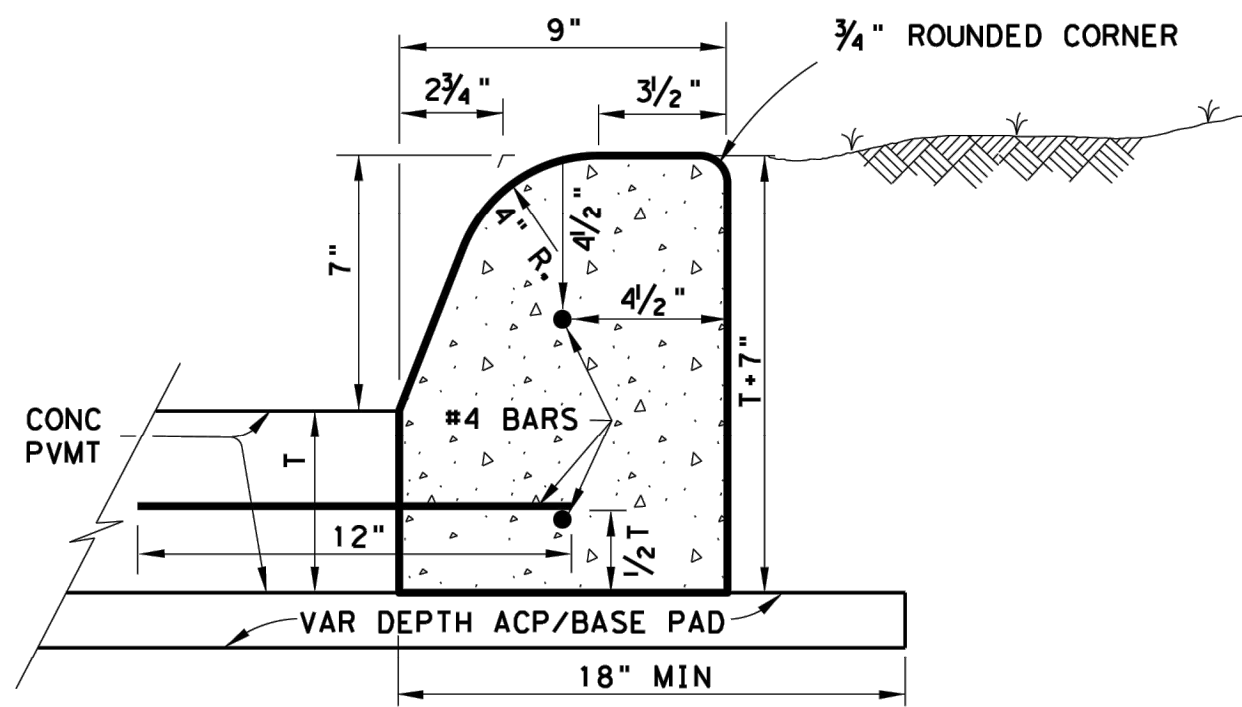




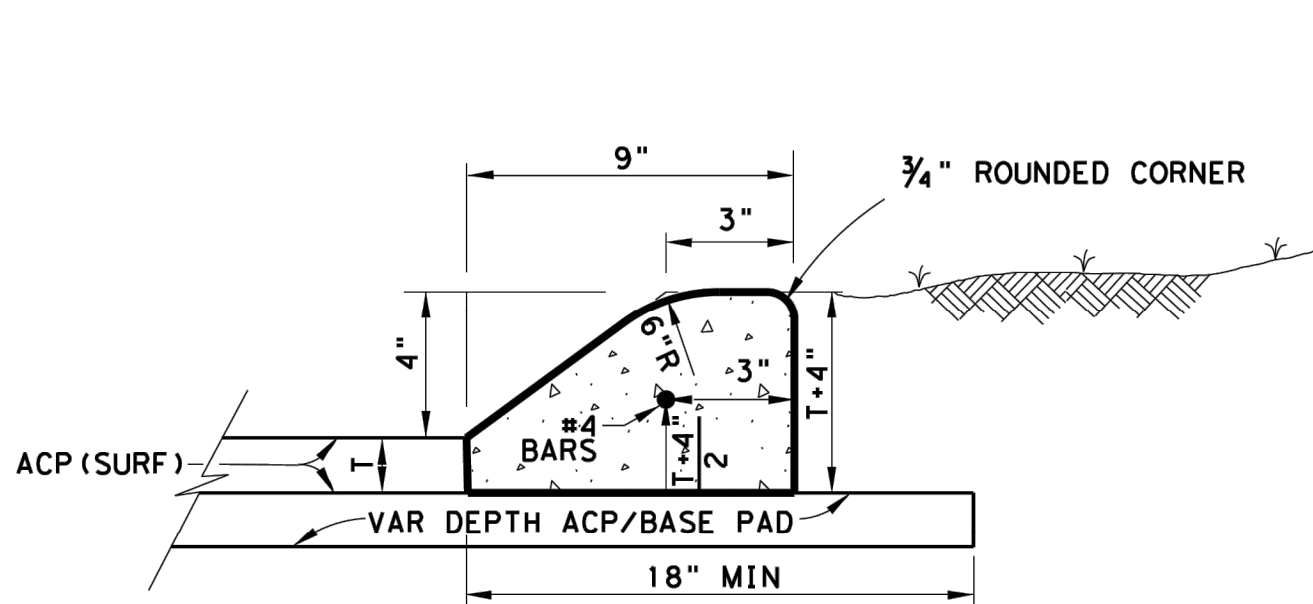
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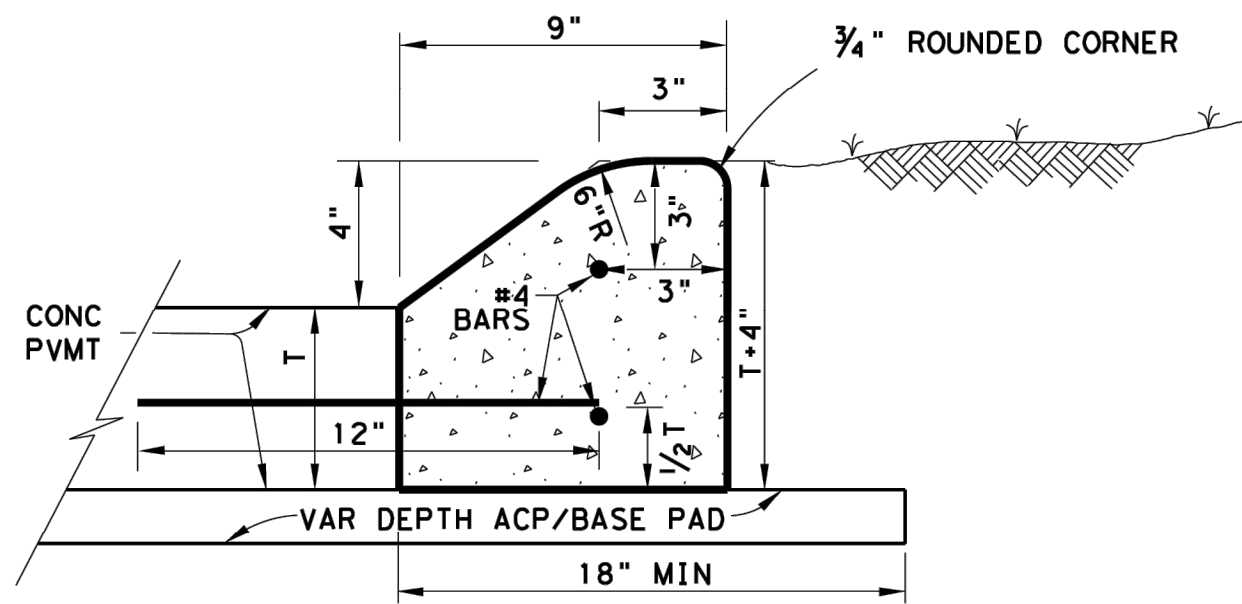
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W/ ACP



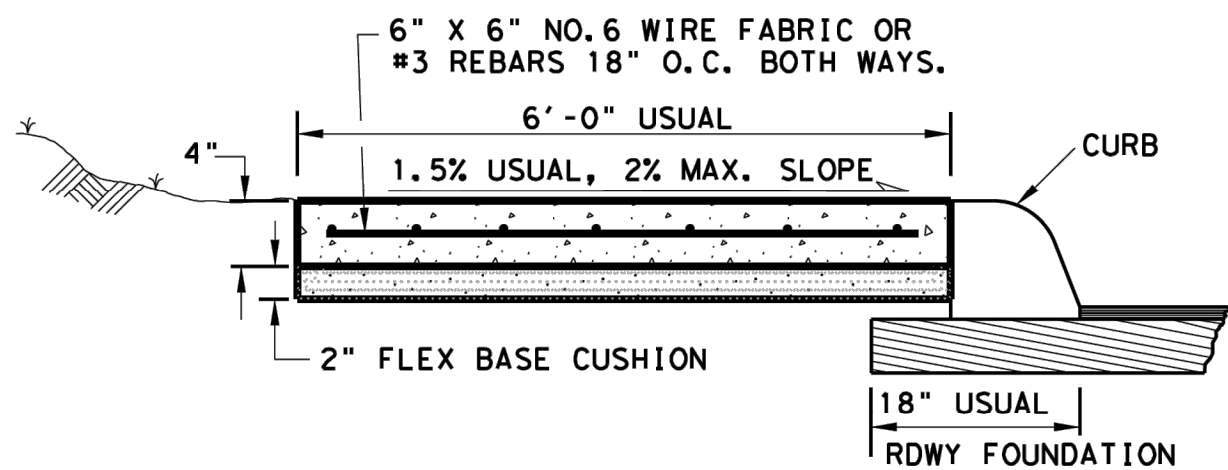
CONCRETE CURB (TYPE 1)  
W/ CONC PAVEMENT



CONCRETE CURB (TYPE 2)  
W/ ACP

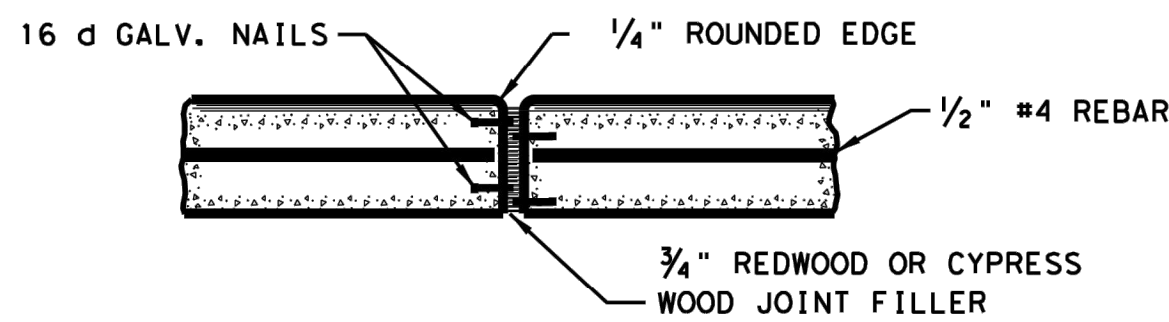


CONCRETE CURB (TYPE 2)  
W/ CONC PAVEMENT



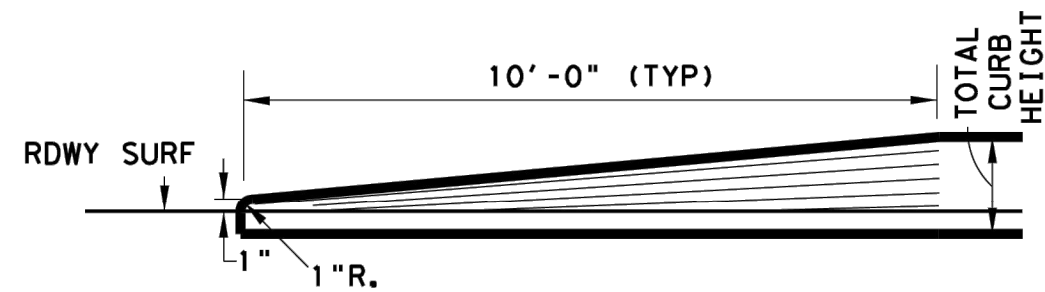
TYPICAL SIDEWALK SECTION

GROOVED JOINTS IN THE SIDE WALK SHALL BE AT A MAX. SPACING OF 10 FT. AND SHALL HAVE 3/4" EXPANSION JOINTS AT A MAX. SPACING OF 60' AND TO COINSIDE WITH THE CURB EXP. JOINTS.



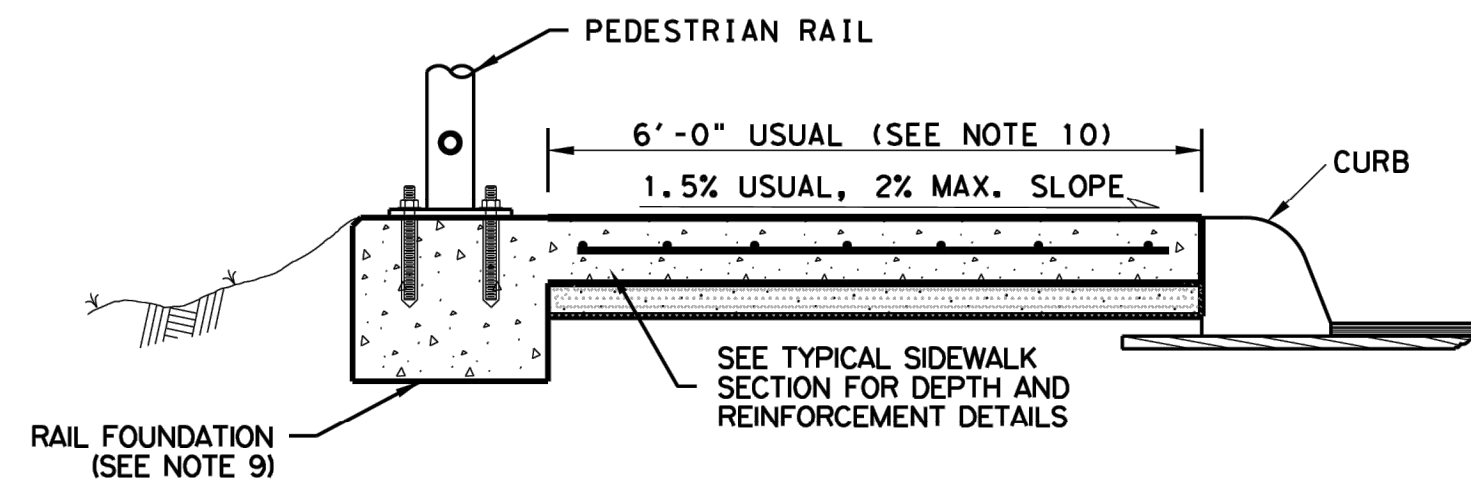
TYPICAL CURB EXPANSION JOINT DETAIL

EXPANSION JOINTS TO BE PLACED AT BEGINNING AND END OF CURVES, DRIVEWAYS WHEELCHAIR RAMPS, INLETS, ILLUMINATION/ SIGNAL FOUNDATIONS AND OTHER FIXED OBJECTS.



TRANSITION FOR CONCRETE CURB ENDS

SEE CURB DETAIL FOR REINFORCEMENT



TYPICAL SIDEWALK SECTION  
WITH PEDESTRIAN RAIL

GENERAL NOTES:

1. CONCRETE CURB TYPE 1 AND 2 SHOWN SHALL MEET THE MINIMUM SPECIFICATION REQUIREMENTS OF CLASS "A" CONCRETE PER ITEM 529 AND 421.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. WHERE CONCRETE CURB IS PLACED ON EXISTING CONCRETE PAVEMENT, THE PAVEMENT SHALL BE DRILLED AND THE REINFORCING BARS GROUTED IN PLACE.
4. EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH PAVEMENT JOINTS IN ALL CURBS AND CURB AND GUTTER ADJACENT TO JOINTED CONCRETE PAVEMENT. WHERE PLACEMENT OF CURB OR CURB AND GUTTER IS NOT ADJACENT TO CONCRETE PAVEMENT, EXPANSION JOINTS SHALL BE PROVIDED AT STRUCTURES, CURB RETURNS AT STREETS, AND AT LOCATIONS DIRECTED BY THE ENGINEER.
5. VERTICAL AND HORIZONTAL DOWEL BARS AND TRANSVERSE REINFORCING BARS SHALL BE PLACED AT 4 FEET C-C, UNLESS OTHERWISE SHOWN.
6. ONE-HALF INCH EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB OR CURB AND GUTTER IS ADJACENT TO SIDEWALK OR RIPRAP. THIS IS SUBSIDIARY TO THE CURB, ITEM 529.
7. LAYDOWN CURB AT DRIVEWAYS WILL BE PAID AS SUBSIDIARY TO ITEM 530.
8. FOR SIDEWALK DETAILS AT DRIVEWAYS, SEE SAN ANTONIO DISTRICT STANDARD "DRIVEWAY DETAILS".
9. SEE PEDESTRIAN HANDRAIL DETAILS STANDARD "PRD" FOR MORE INFORMATION. CONCRETE RAIL FOUNDATION TO BE POURED WITH THE SIDEWALK BUT PAYMENT IS SUBSIDIARY TO ITEM 450 "RAILING".
10. CLEAR SIDEWALK WIDTH EXCLUDING THE PEDESTRIAN RAIL FOUNDATION SHALL BE 6' UNLESS OTHERWISE SPECIFIED IN THE PLANS

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San Antonio District

**MISCELLANEOUS CURB  
AND SIDEWALK DETAILS**  
San Antonio District Standard  
Sheet (1 of 2)

T:\Engdata\Standards\MiscCurbDetail1.s.dgn		PREPARED BY AND FOR USE OF: TxDOT.	
ORIGINAL DRAWING DATE:	STATE	FEDERAL	PROJECT
09-01-08	DISTRICT	REGION	SHEET
10-10-17 sidewalk width equals 6' usual	6		
07-22-20 9' curb + curb w/ conc pvmt det.	COUNTY	CONTROL	SECTION
			JOB
			HIGHWAY

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9601 McAllister Freeway, Suite 1008  
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Web - www.freeze.com

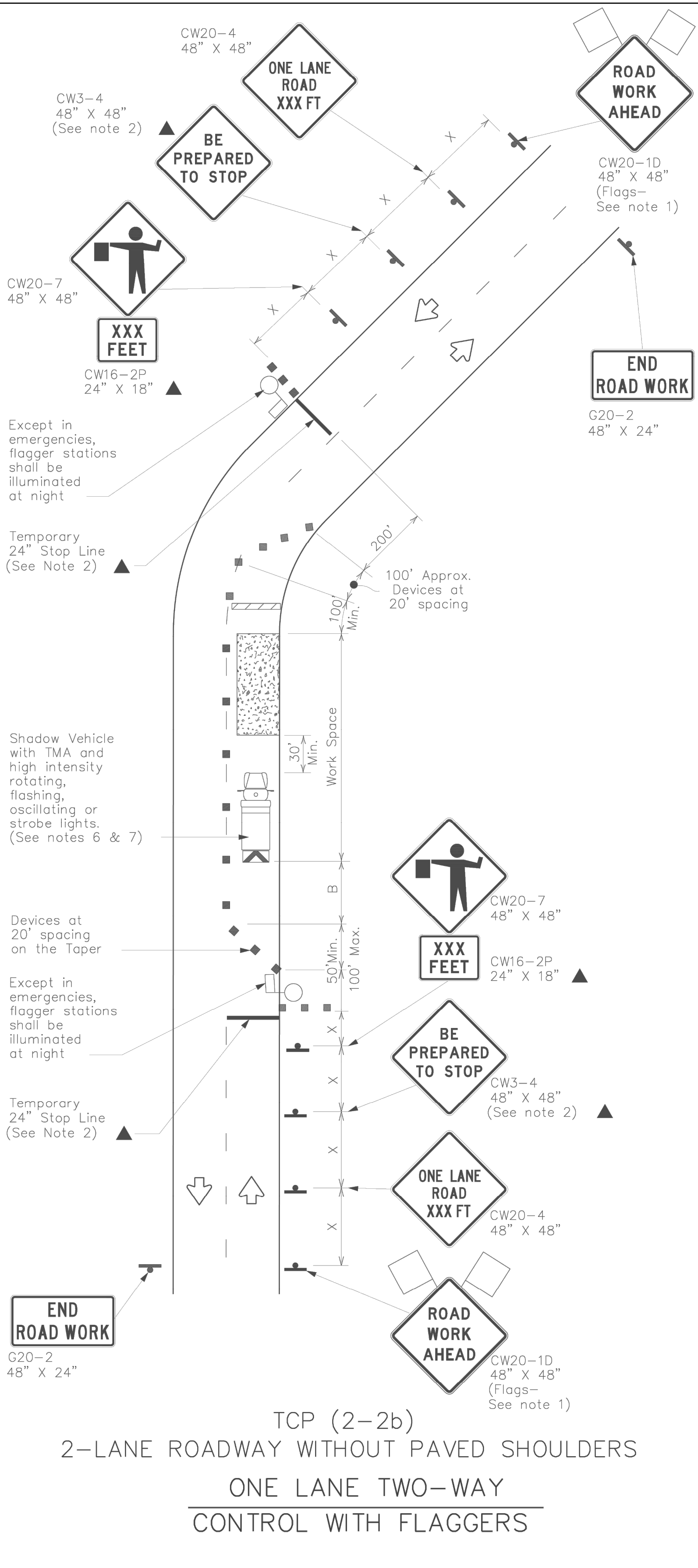
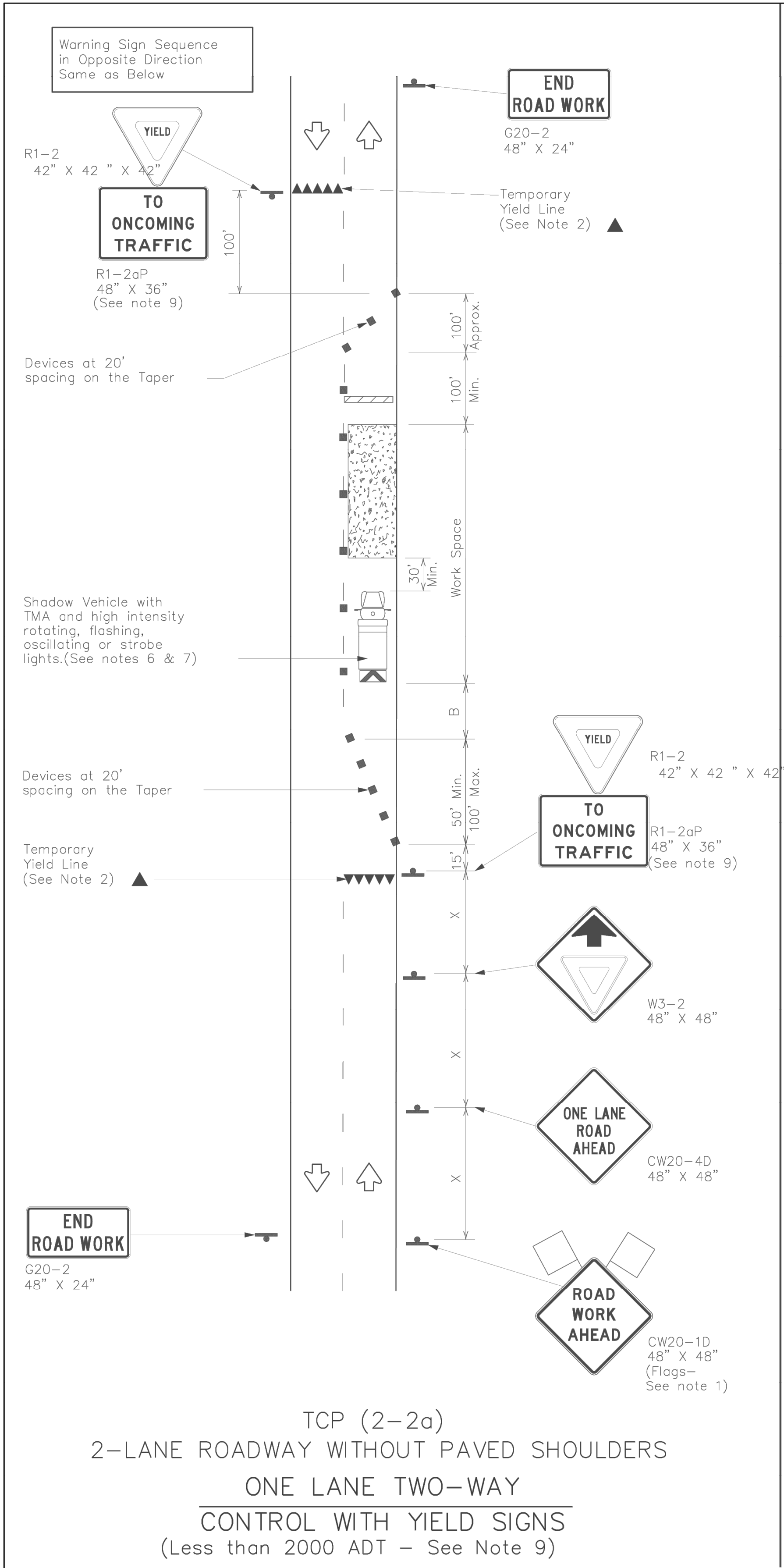
NEW BRAUNFELS UTILITIES  
LAST TUBER'S EXIT UTILITY  
IMPROVEMENTS  
CIVIL  
TXDOT DETAILS II

F&N JOB NO. NBU22825-06P  
DATE 4/1/2024  
DESIGNED AJM  
DRAWN EWL  
REVISED  
CHECKED ECM  
FILE NAME TU-LTE-DT-01.dwg

NO. 1  
SHEET DT-3  
SEQ.

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.





LEGEND								
	Type 3 Barricade				Channelizing Devices			
	Heavy Work Vehicle				Truck Mounted Attenuator (TMA)			
	Trailer Mounted Flashing Arrow Board				Portable Changeable Message Sign (PCMS)			
	Sign				Traffic Flow			
	Flag				Flagger			

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	L = WS/60	10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	120'	90'	200'
35		150'	165'	180'	30'	60'	160'	120'	250'
40	L=WS	205'	225'	245'	35'	70'	240'	155'	305'
45		265'	295'	320'	40'	80'	320'	195'	360'
50		450'	495'	540'	45'	90'	400'	240'	425'
55		500'	550'	600'	50'	100'	500'	295'	495'
60		550'	605'	660'	55'	110'	600'	350'	570'
65		600'	660'	720'	60'	120'	700'	410'	645'
70		650'	715'	780'	65'	130'	800'	475'	730'
75		700'	770'	840'	70'	140'	900'	540'	820'
		750'	825'	900'	75'	150'			

\* Conventional Roads Only  
\*\* Taper lengths have been rounded off.  
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

#### GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
  - Flaggers should use two-way radios or other methods of communication to control traffic.
  - Length of work space should be based on the ability of flaggers to communicate.
  - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.

#### TCP (2-2b)

- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
- Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

		Traffic Operations Division Standard			
TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL					
TCP(2-2)-18					
FILE: tcp2-2-18.dgn	DN:	CK:	DW:		
©TxDOT December 1985	CONT	SECT	JOB HIGHWAY		
8-95 3-03	DIST		COUNTY		
1-97 2-12			SHEET NO.		
4-98 2-18					

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NEW BRAUNFELS UTILITIES  
LAST TUBER'S EXIT UTILITY  
IMPROVEMENTS  
CIVIL  
TXDOT DETAILS III

F&N JOB NO.	DATE	BY	ISSUE	NO.	SHEET
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DRAWN	EWL				
REVIEWED					
CHECKED					
ECM					

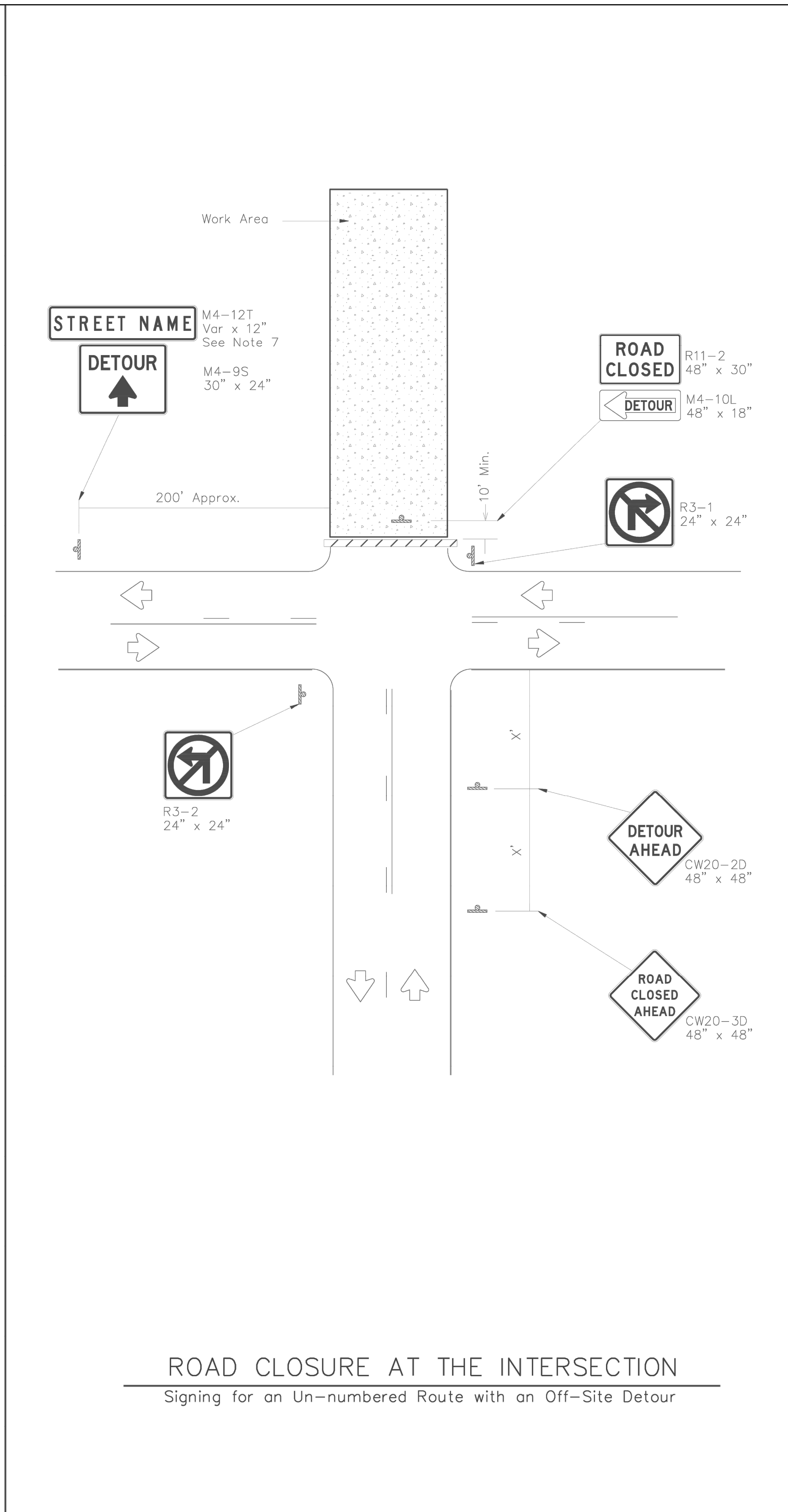
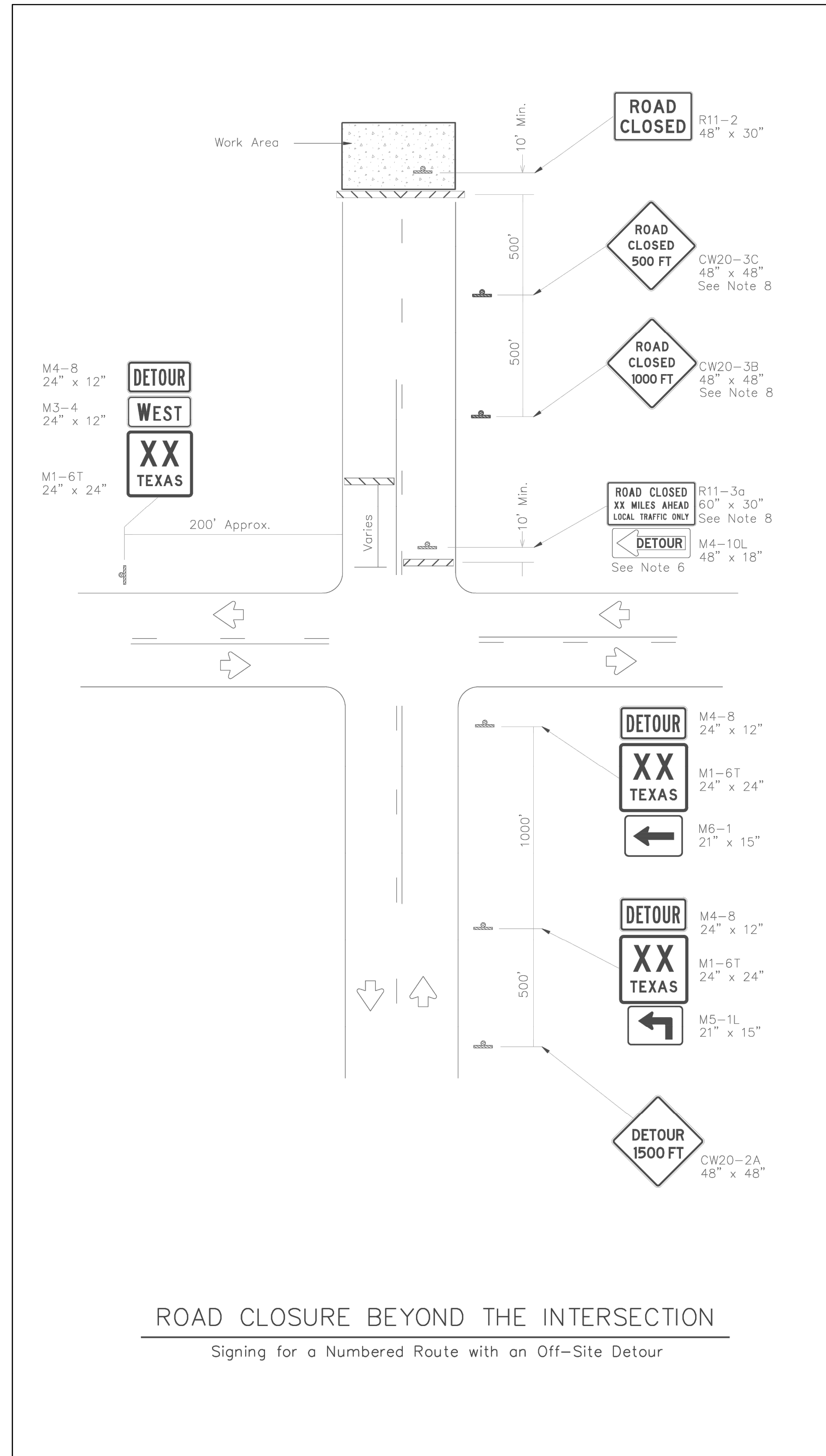
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TU-LTE-DT-01.dwg


VERIFY SCALE  
0 1  
Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.

DT-4

SEQ.






LEGEND	
	Type 3 Barricade
	Sign

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

\* Conventional Roads Only

## GENERAL NOTES

1. This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
2. Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices list (CWZTCD).
3. Stockpiled materials shall not be placed on the traffic side of barricades.
4. Barricades at the road closure should extend from pavement edge to pavement edge.
5. Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
6. If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
7. The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
8. For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
9. Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

 <p><b>Texas Department of Transportation</b></p>	<p><i><b>Traffic Operations Division Standard</b></i></p>															
<h1 style="margin: 0;">WORK ZONE ROAD CLOSURE DETAILS</h1> <h2 style="margin: 20px 0 0 0;">WZ(RCD)-13</h2>																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">FILE: wzrcd-13.dgn</td> <td style="width: 15%;">DN: TxDOT</td> <td style="width: 15%;">CK: TxDOT</td> <td style="width: 15%;">DW: TxDOT</td> <td style="width: 25%;">CK: TxDOT</td> </tr> <tr> <td> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; margin-right: 5px;">C</div> <div> TxDOT    August 1995  <small>REVISIONS</small> </div> </div> </td> <td>CONT</td> <td>SECT</td> <td>JOB</td> <td>HIGHWAY</td> </tr> <tr> <td> 1-97    4-98    7-13  2-98    3-03 </td> <td>DIST</td> <td colspan="2">COUNTY</td> <td>SHEET NO.</td> </tr> </table>		FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; margin-right: 5px;">C</div> <div> TxDOT    August 1995  <small>REVISIONS</small> </div> </div>	CONT	SECT	JOB	HIGHWAY	1-97    4-98    7-13 2-98    3-03	DIST	COUNTY		SHEET NO.
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