

Exhibit A: Detailed Plan Set & Design



EL PASO COUNTY
SQUARE DANCE AREA
WATER LINE EXTENSIONS PROJECT

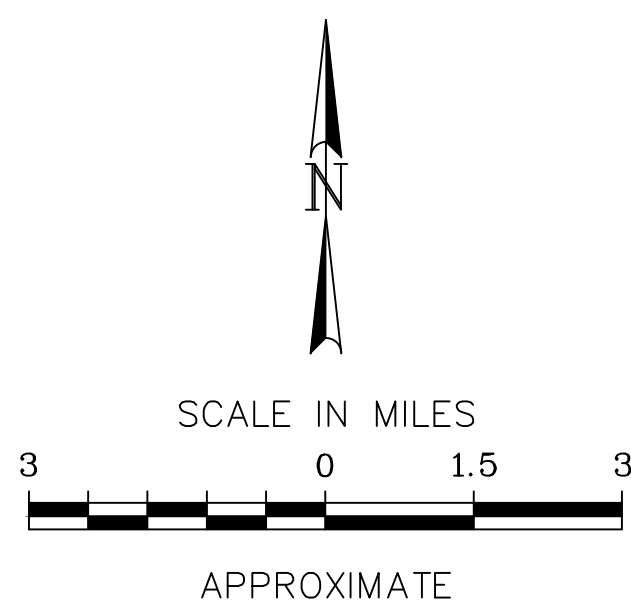
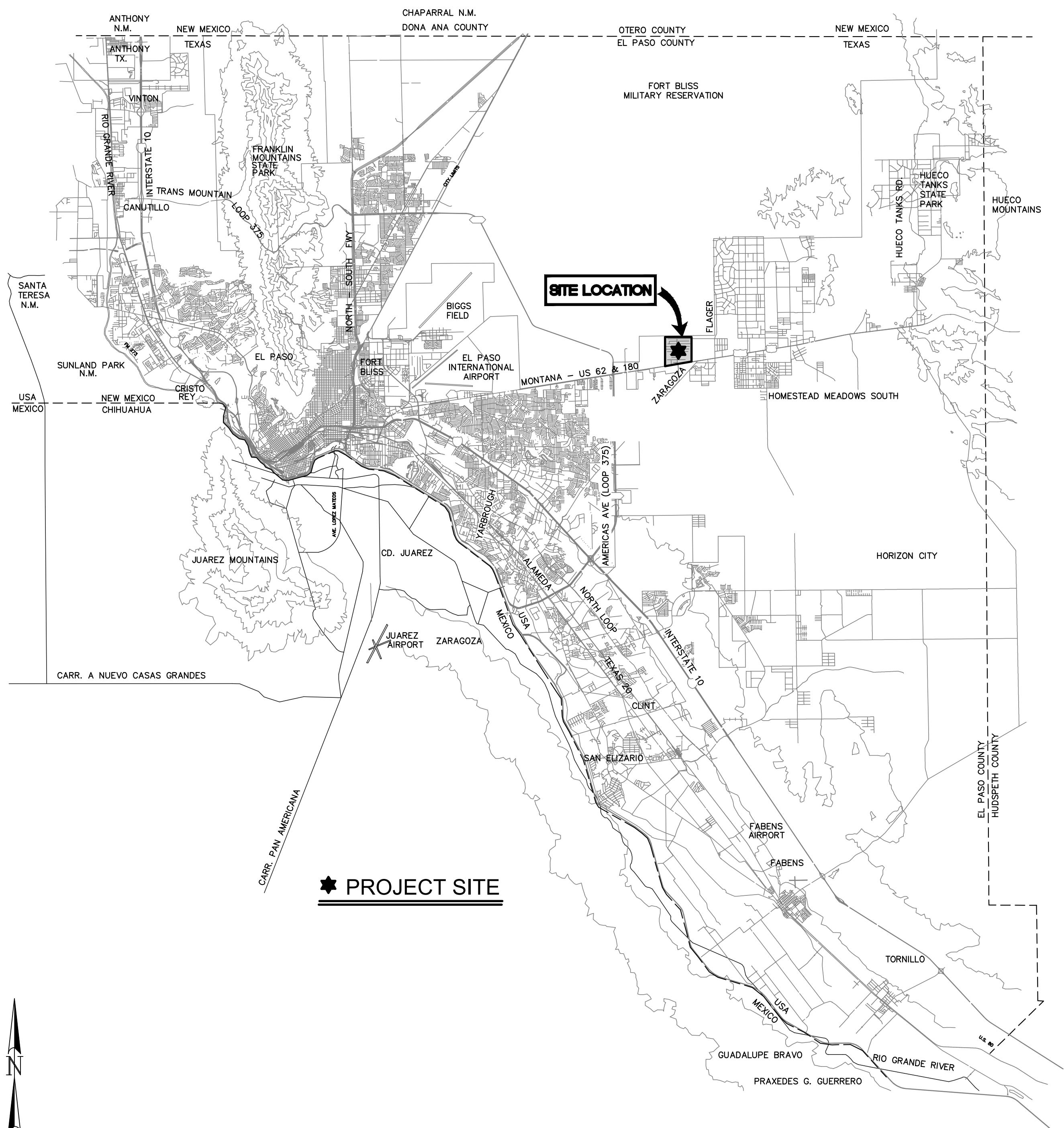
SEPTEMBER 11, 2020

EL PASO COMMISSIONER'S COURT

RICARDO A. SAMANIEGO..... COUNTY JUDGE
CARLOS LEON..... COMMISSIONER PRECINCT 1
DAVID STOUT..... COMMISSIONER PRECINCT 2
VINCENT PEREZ..... COMMISSIONER PRECINCT 3
CARL L. ROBINSON..... COMMISSIONER PRECINCT 4

SHEET INDEX

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UTILITY OWNER



800 E. OVERLAND AVE. #407
EL PASO, TX. 79901
PH (915) 546-2015

ENGINEER

PLANNING-ENGINEERING-PROJECT MANAGEMENT

MCI Moreno
Cardenas Inc.

EL PASO • SAN ANTONIO

2505 E. Missouri Ave. El Paso, TX 79903 (915) 532-2091
9601 McAllister Freeway #207, San Antonio TX 78216 (210) 314-3553
Texas Board of Professional Engineers Registration No. F-000554



Filename: F:\410\WATER LINE EXTENSION\SQUARE DANCE WATER EXTENSION\DWG\CONSTRUCTION.V2- TCEQ NOTES.DWG
Plot Date: 9/11/2020 10:50:22 AM By: Arturo Barragan

TCEQ 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.

- 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;
-

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

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).
- 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;

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

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).
12. 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).
 13. 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)].
 14. 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)].
 15. 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)].
 16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
 17. 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)].
 18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

REV.	DATE	BY	DESCRIPTION

**WARNING I
BEFORE YOU DIG**

CALL
1-800-DIG-TESS
1-800-344-8377
**FOR FIELD LOCATING
EXISTING UTILITIES**

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY

SAUL TREJO P.E. 107801
ON SEPTEMBER 11, 2020

ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT



DESIGNED
S.T.
DRAWN
A.B.
CHECKED
B.J.K.
DATE
09/11/2020



ENGINEER
PLANNING•ENGINEERING•PROJECT MANAGEMENT
MCI Moreno Cardenas Inc.
EL PASO SAN ANTONIO
2505 E. Missouri Ave. El Paso, TX 79903 (915) 532-2091
9601 McAllister Freeway #307, San Antonio TX 78216 (210) 314-3553
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EL PASO COUNTY
SQUARE DANCE AREA
WATER LINE EXTENSIONS PROJECT

TCEQ WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY AND EXCLUSIVELY FOR THE DESIGN OF

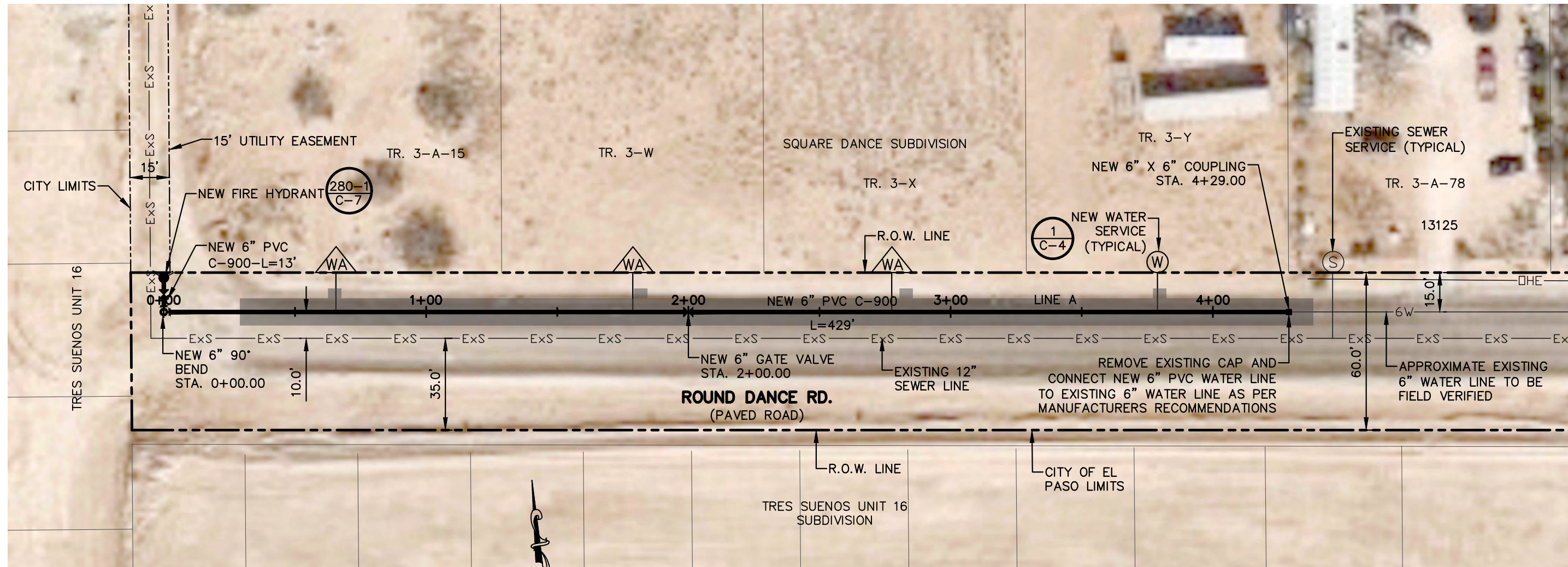
"WATER EXTENSION" (SQUARE DANCE)

MORENO CARDENAS INC. IS NOT RESPONSIBLE FOR THEIR USE ON ANY OTHER PROJECT OR APPLICATION.

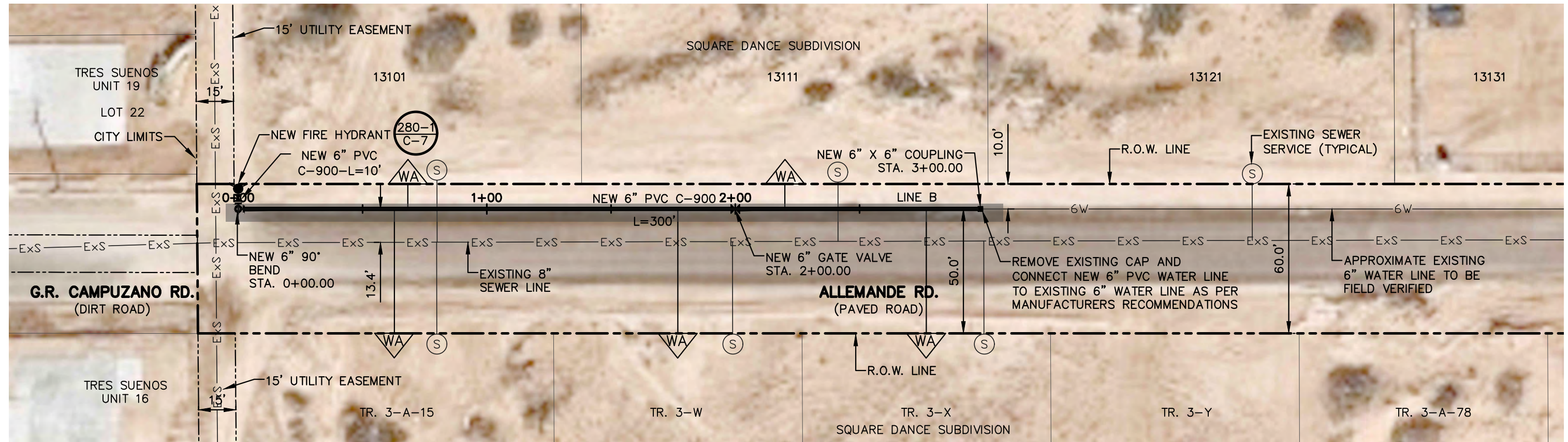
JOB NO.
14-110

SHEET
2 OF 8

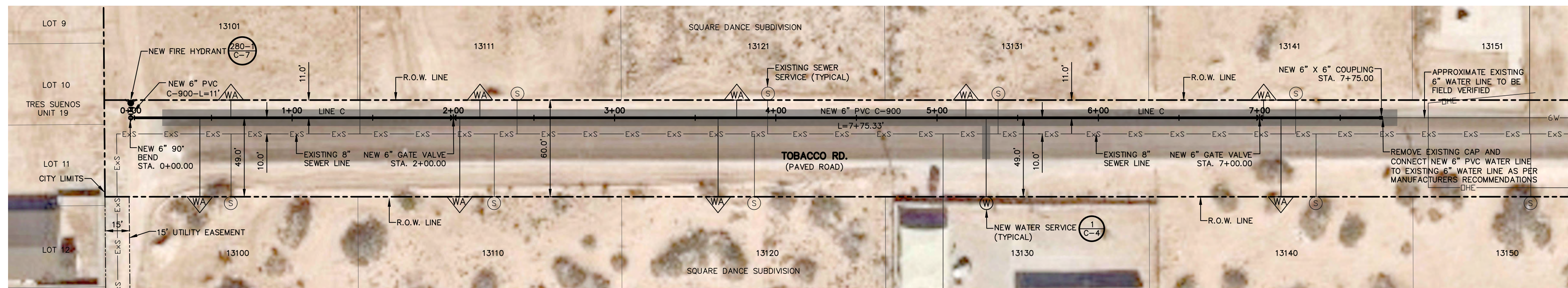
SHEET NO.
C-2



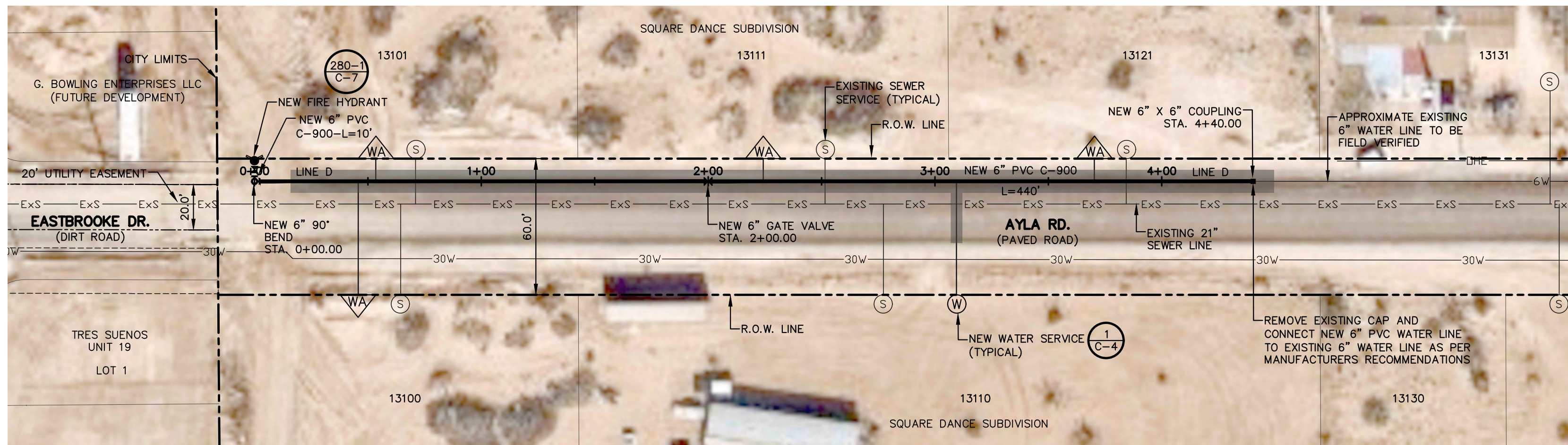
PLAN
WATER EXTENSION LINE A
STA. 0+00.00 TO STA. 4+29.00
SCALE: 1"=40'



PLAN
WATER EXTENSION LINE B
STA. 0+00.00 TO STA. 3+00.00
SCALE: 1"=40'



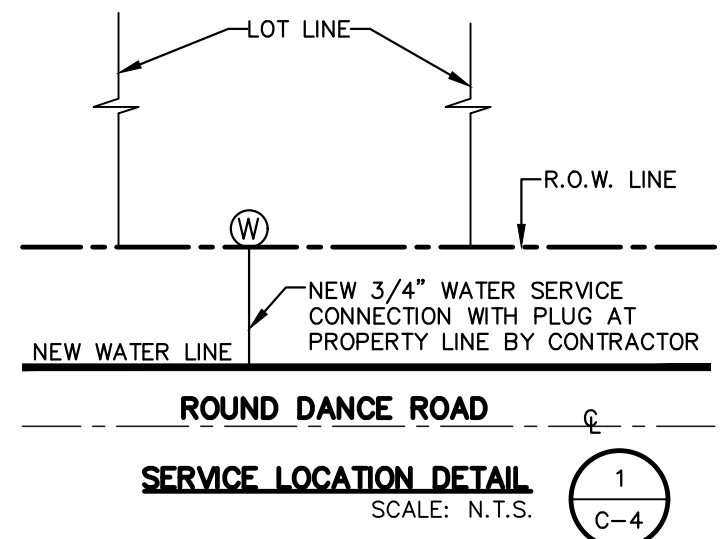
WATER EXTENSION LINE C
STA. 0+00.00 TO STA. 7+75.00
SCALE: 1"=40'



WATER EXTENSION LINE D
STA. 0+00.00 TO STA. 4+40.00
SCALE: 1"=40'

QUANTITY WATER SERVICE SHEET SUMMARY	
(W)	BASE BID WATER SERVICE Q= 3
(WA)	BASE BID ALTERNATIVE WATER SERVICE Q= 21

LEGEND:	
(W)	PROPOSED PVC WATER LINE (C-900)
(H)	NEW WATER SERVICE
(X)	NEW FIRE HYDRANT
(G)	NEW 6" GATE VALVE
(T)	NEW 6" TEE
(A)	PROPOSED ASPHALT PAVEMENT REPLACEMENT
(S)	EXISTING SEWER SERVICE
(6W)	EXISTING 6" WATER LINE
(30W)	EXISTING 30" WATER LINE
(ExS)	EXISTING SEWER LINE (SIZE VARIES)
(OHE)	EXISTING OVERHEAD ELECTRIC LINE

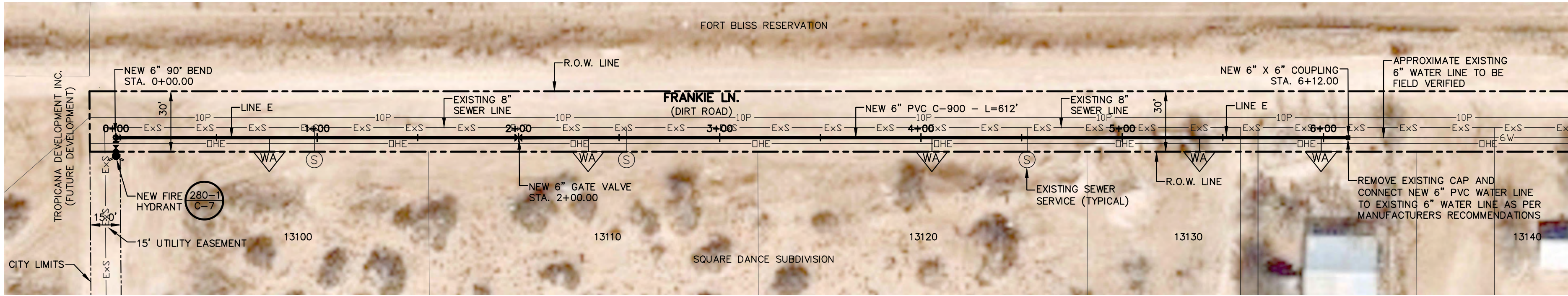


GENERAL SHEET NOTES:

- CONTRACTOR SHALL PROVIDE ACCESS TO OWNERS AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR MUST FIELD VERIFY SERVICE CONNECTION WITH HOMEOWNER AND ENGINEER IN ADVANCE.
- CONTRACTOR SHALL MAINTAIN ALL WORK ACTIVITIES/STAGING TO APPROVED EASEMENTS AND STREET ROW IN ACCORDANCE WITH OWNER REQUIREMENTS AS SPECIFIED.
- WORK TO COMPLETE INSTALLATION OF EXTENSION OF WATER SERVICE STUBOUTS SHALL INCLUDE RESTORATION OF EXISTING SURFACE FEATURES (I.E. FENCE, GATES, CONCRETE, TURF, ETC.) TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH GAS, OIL, ELECTRIC, TELEPHONE, FIBER OPTIC, CABLE TV, SEWER AND WATER UTILITIES OWNERS ETC. FOR ANY RELOCATION, REPAIRS AND/OR PROTECTION OF EXISTING LINES OR CABLES AS REQUIRED, DUE TO CONSTRUCTION ACTIVITIES, AT NO ADDITIONAL COST TO OWNER.
- CONTRACTOR SHALL VERIFY LOCATION/DEPTH OF EXISTING UTILITIES INCLUDING SERVICES AND PROTECT THEM AT ALL TIMES THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS TO EXISTING UTILITIES TO AVOID CONFLICTS. AT NO ADDITIONAL COST TO OWNER.
- SERVICE STUBOUTS SHALL BE EXTENDED TO THE PROPERTY LINE/ROW AS SHOWN ON DETAIL 1 SHEET C-4.
- RESTORE ALL LANDSCAPING TO ORIGINAL OR BETTER CONDITIONS. COORDINATE/SCHEDULE WORK TO MINIMIZE IMPACT TO EXISTING RESIDENTIAL OWNERS.
- OWNER REFERENCES TO "ASPHALT PAVEMENT OR PAVEMENT" ARE INCLUSIVE OF HMA OR CHIP SEAL CONDITIONS. BIDDER ATTENTION TO MAXIMUM PAVEMENT REPLACEMENT LIMITS. ADDITIONAL REPLACEMENT DUE TO PAVEMENT DISTURBANCE DURING CONSTRUCTION SHALL BE PERFORMED AT NO ADDITIONAL COST TO OWNER.
- CONTRACTOR SHALL PROTECT EXISTING STREET SIGNALS, COMMUNICATION LINES, AND UNDERGROUND ELECTRIC. IF DAMAGED CONTRACTOR SHALL COORDINATE WITH CITY OF EL PASO TO REPLACE TO ORIGINAL OR BETTER CONDITION.

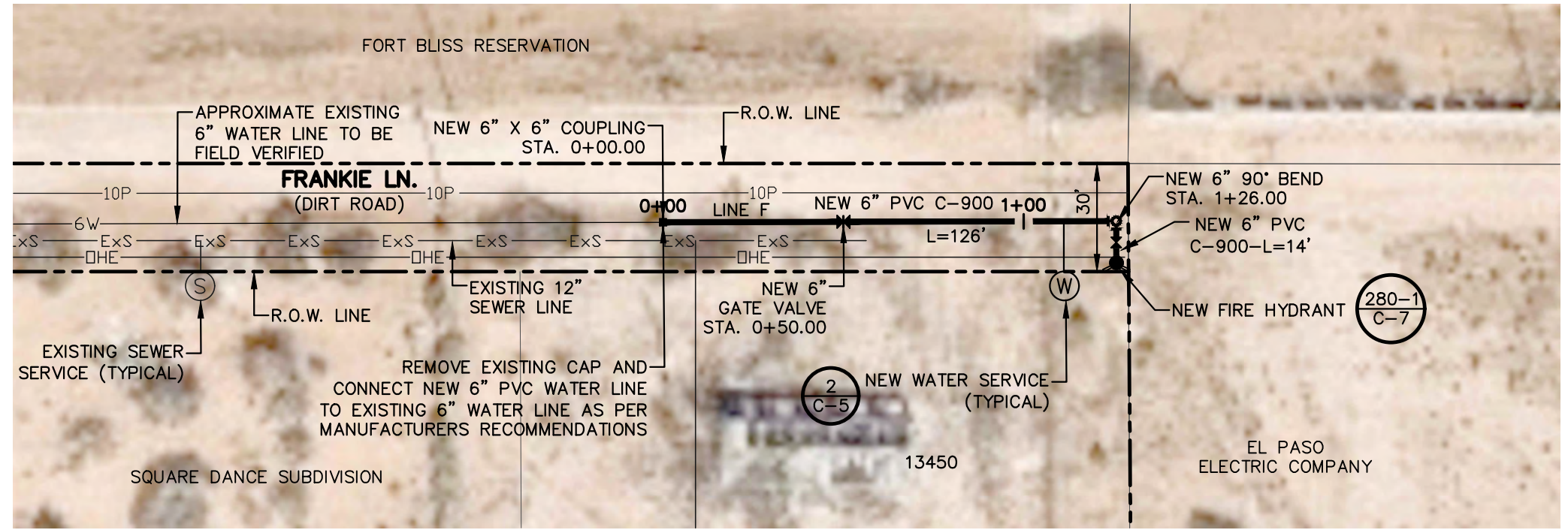
REV.	DATE	BY	DESCRIPTION

WARNING ! BEFORE YOU DIG CALL 1-800-DIG-TESS 1-800-344-8377 FOR FIELD LOCATING EXISTING UTILITIES	THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY SAUL TREJO P.E. 107801 ON SEPTEMBER 11, 2020 ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT		DESIGNED S.T.	UTILITY OWNER 	ENGINEER PLANNING•ENGINEERING•PROJECT MANAGEMENT MCI Moreno Cardenas Inc. EL PASO SAN ANTONIO 2505 E. Missouri Ave. El Paso, TX 79903 (915) 532-2091 9601 McAllister Freeway #307, San Antonio TX 78216 (210) 314-3553 Texas Board of Professional Engineers Registration No. F-000554	EL PASO COUNTY SQUARE DANCE AREA WATER LINE EXTENSIONS PROJECT WATER EXTENSION LINE A WATER EXTENSION LINE B WATER EXTENSION LINE C WATER EXTENSION LINE D	THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY AND EXCLUSIVELY FOR THE DESIGN OF "WATER EXTENSION" (SQUARE DANCE) MORENO CARDENAS INC. IS NOT RESPONSIBLE FOR THEIR USE ON ANY OTHER PROJECT OR APPLICATION.	JOB NO. 14-110
			DRAWN A.B.					SHEET 4 OF 8
			CHECKED B.J.K.					SHEET NO. C-4
			DATE 09/11/2020					



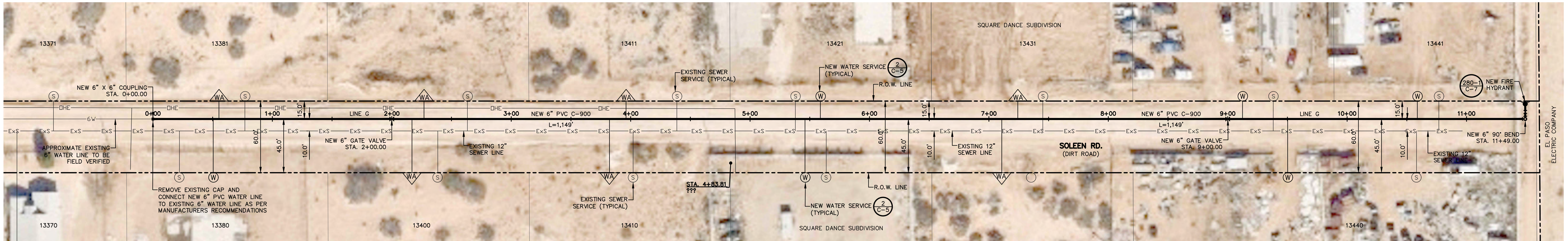
PLAN

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STA. 0+00.00 TO STA. 6+12.00
SCALE: 1"=40'



PLAN

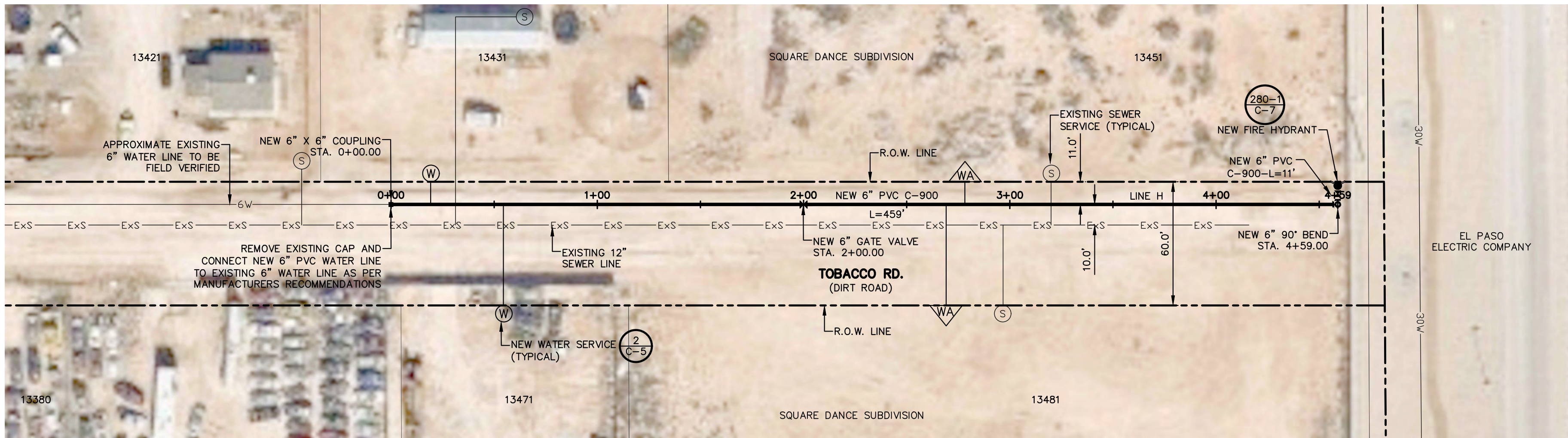
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STA. 0+00.00 TO STA. 1+26.00
SCALE: 1"=40'



PLAN

WATER EXTENSION LINE G
STA. 0+00.00 TO STA. 11+49.00
SCALE: 1"=40'

QUANTITY WATER SERVICE SHEET SUMMARY	
	BASE BID WATER SERVICE Q= 9
	BASE BID ALTERNATIVE WATER SERVICE Q= 14



PLAN

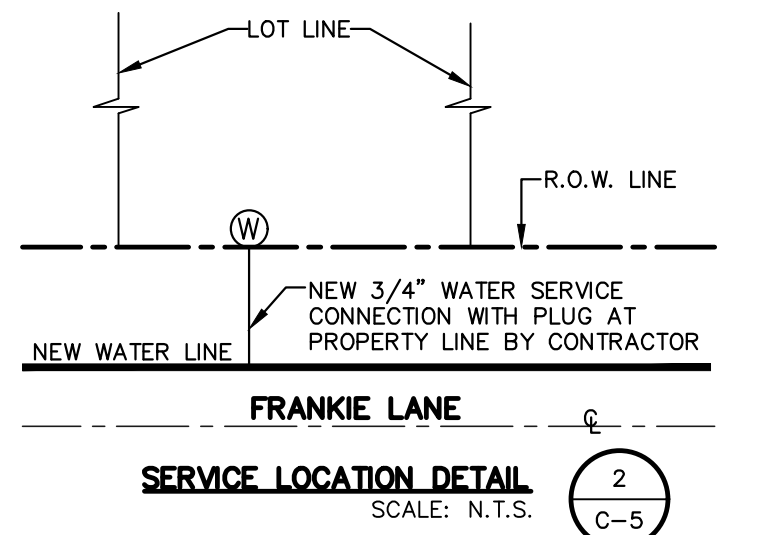
WATER EXTENSION LINE H
STA. 0+00.00 TO STA. 4+59.00
SCALE: 1"=40'

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LEGEND:

	PROPOSED PVC WATER LINE (C-900)
	NEW WATER SERVICE
	NEW FIRE HYDRANT
	NEW 6" GATE VALVE
	NEW 6" TEE
	EXISTING SEWER SERVICE
	EXISTING 6" WATER LINE
	EXISTING 30" WATER LINE
	EXISTING SEWER LINE (SIZE VARIES)
	EXISTING OVERHEAD ELECTRIC LINE



SERVICE LOCATION DETAIL
SCALE: N.T.S.

REV.	DATE	BY	DESCRIPTION

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DESIGNED
S.T.
DRAWN
A.B.
CHECKED
B.J.K.
DATE
09/11/2020



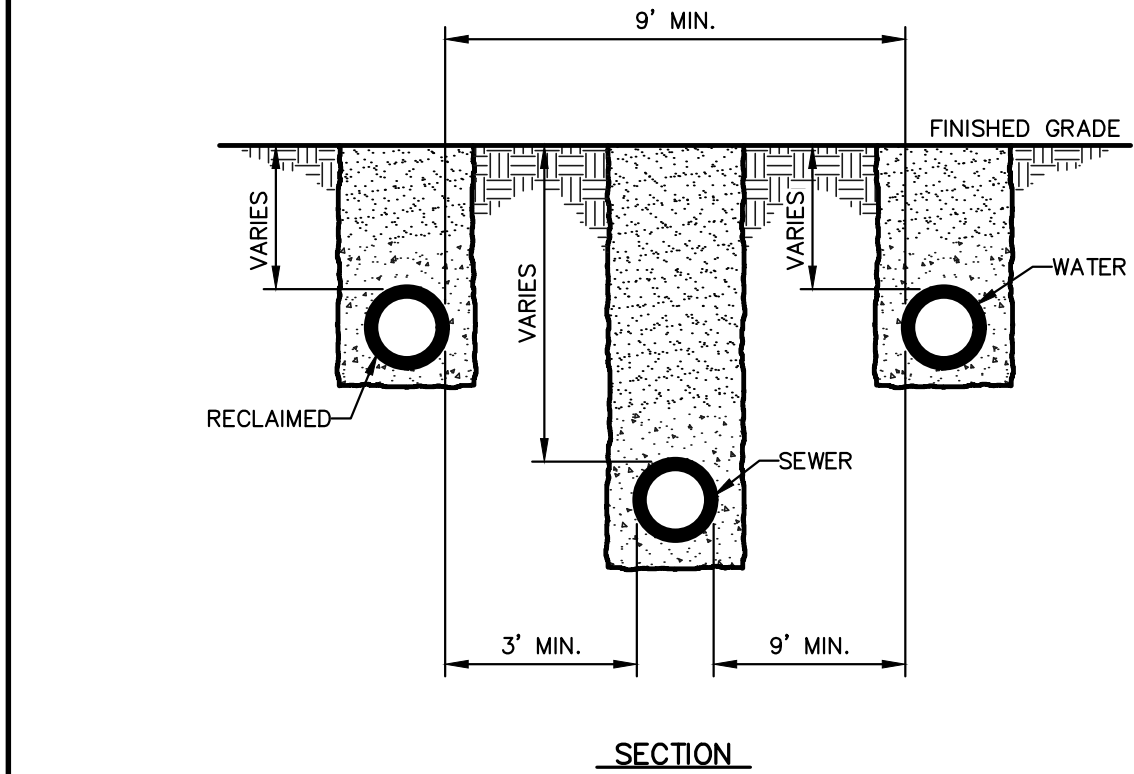
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**EL PASO COUNTY
SQUARE DANCE AREA
WATER LINE EXTENSIONS PROJECT**
WATER EXTENSION LINE E
WATER EXTENSION LINE F
WATER EXTENSION LINE G
WATER EXTENSION LINE H

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JOB NO.
14-110
SHEET
5 OF 8
SHEET NO.
C-5

F:\moreno\1410\WATER LINE EXTENSION\SQUARE DANCE WATER EXTENSION\DWG\CONSTRUCTION-WATER DETAILS.DWG
Plot Date: 9/11/2020 10:54:17 AM By: Arturo Barragan



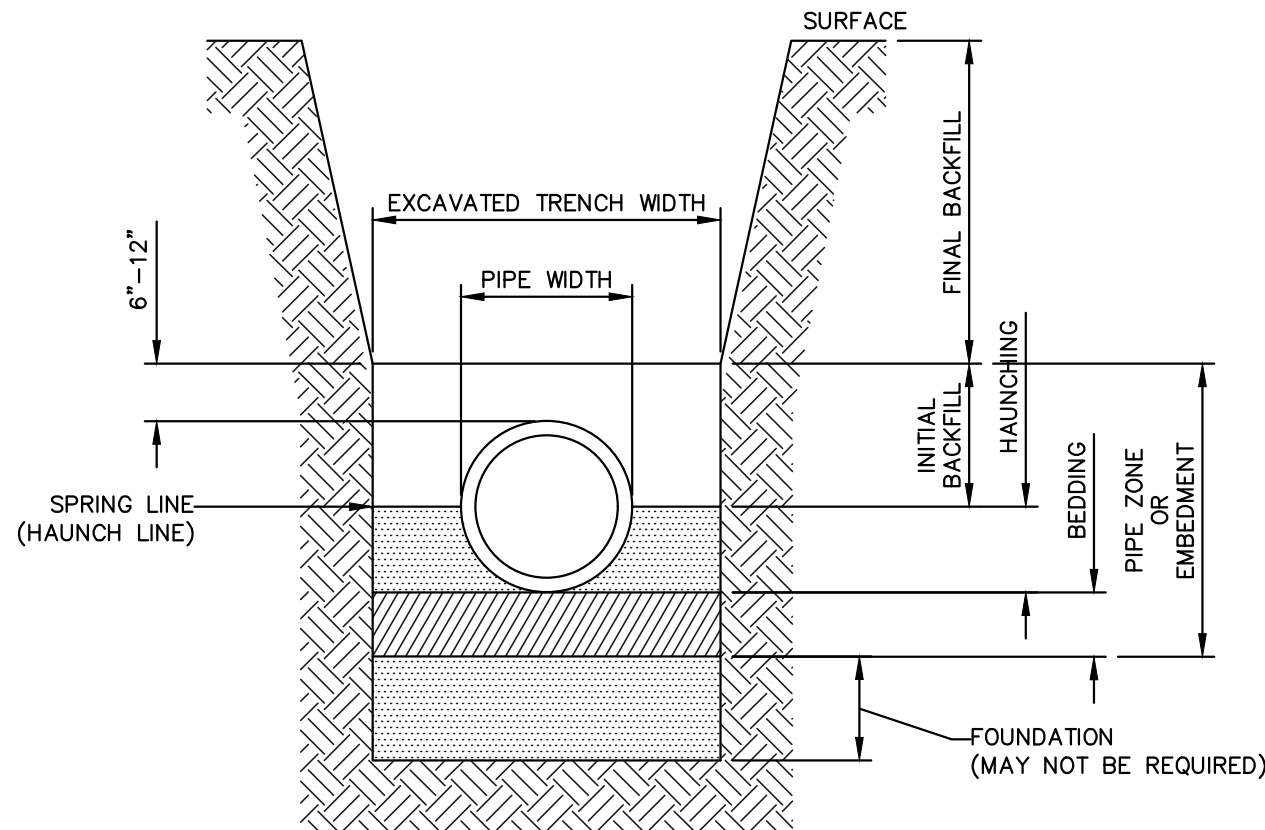
GENERAL NOTES:

- SEPARATION DISTANCES SHALL FOLLOW TEXAS COMMISSION ON ENVIRONMENTAL QUALITY STANDARD REQUIREMENTS.
- MINIMUM SEPARATION DISTANCES SHOWN. IF CONDITIONS DO NOT ALLOW FOR INDICATED DISTANCES REFER TO DETAILS 161, 162 & 163.
- RECLAIMED WATER LINE AT OR ABOVE SEWER LINE.

STANDARD DETAIL DATE: 8/13/2006 REV: 3/28/2007 SEPARATION DISTANCE POTABLE WATER, SANITARY SEWER AND RECLAIMED WATER



DETAIL No. 160



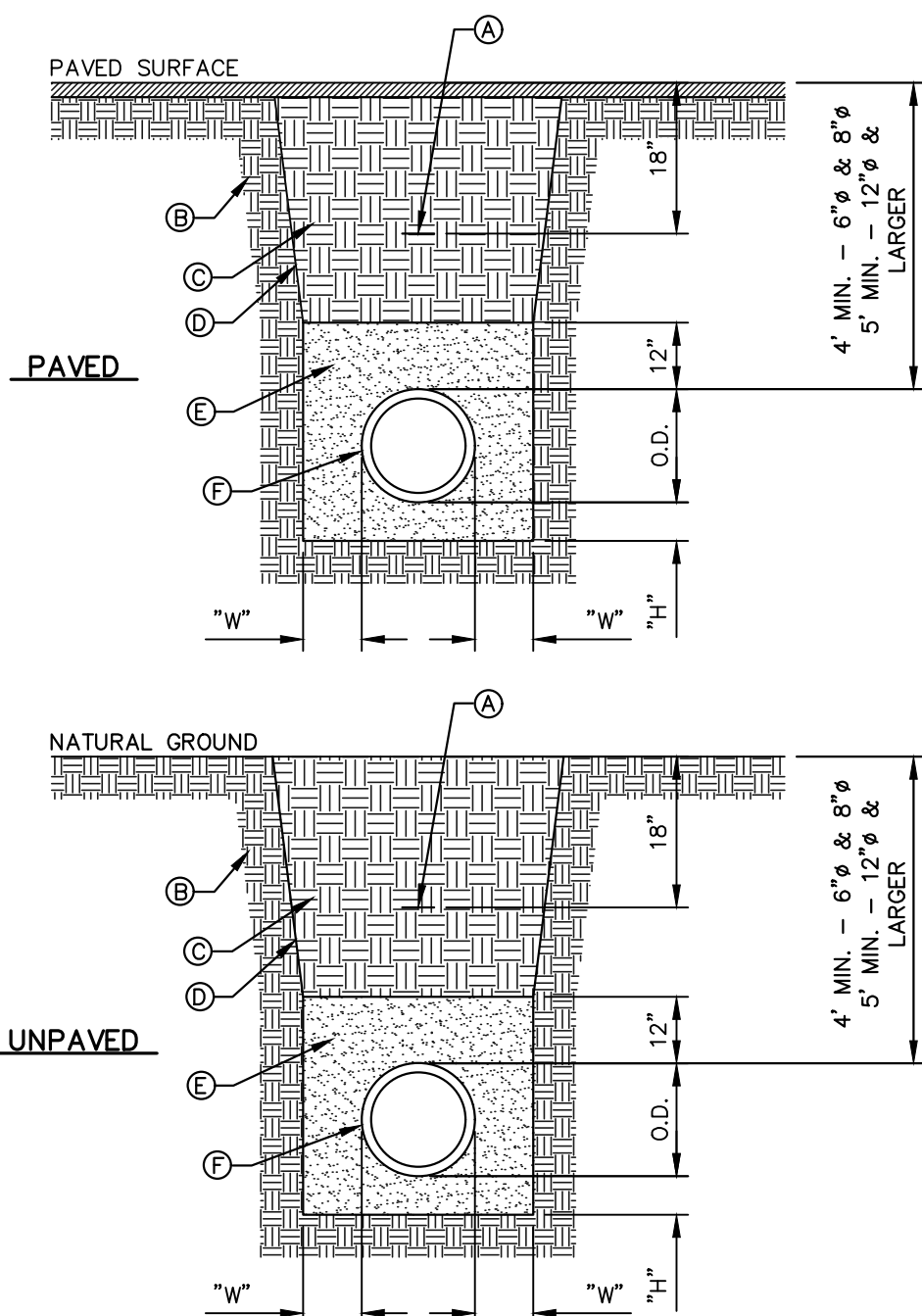
GENERAL NOTES:

- DETAIL DRAWING TERMINOLOGY IS IN ACCORDANCE WITH ASTM D-2321.
- UNLESS OTHERWISE PERMITTED BY THE ENGINEER, ALL MATERIAL IN THE EMBEDMENT ZONE SHALL BE HOMOGENOUS.

STANDARD DETAIL DATE: 11/1992 REV: 3/28/2007 TRENCH CROSS SECTION TERMINOLOGY



DETAIL No. 170



GENERAL NOTES:

- BEDDING FOR PRESSURE AND GRAVITY PIPE IN DRY CONDITIONS.
- PROVIDE TRENCH SAFETY SYSTEM FOR TRENCH DEPTHS GREATER THAN 5 FEET.
- IF THE NATIVE MATERIAL EXCAVATED FROM THE TRENCH IS UNSUITABLE AS BACKFILL MATERIAL, OR THE REQUIRED COMPACTION IS UNATTAINABLE, THE CONTRACTOR SHALL, AT HIS EXPENSE, IMPORT SELECT MATERIAL TO BE MIXED WITH OR USED IN PLACE OF THE NATIVE MATERIAL. SELECT MATERIAL MUST BE APPROVED BY EPWJ. SUBSTITUTE SOIL CEMENT SLURRY (1-SACK) IF REQUIRED IN SPECS.

CONSTRUCTION KEY NOTES:

- APPROVED MARKING TAPE.
- UNDISTURBED STABLE MATERIAL.
- NATIVE MATERIAL BACKFILL. PAVED CONDITION: COMPACT TO 90% DENSITY PER ASTM D-1557 MODIFIED PROCTOR. UNPAVED CONDITION: COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR. (*SEE NOTE #3 IF THESE PREVIOUS CONDITIONS CANNOT BE MET.)
- SLOPE TRENCH IN SANDY SOIL CONDITIONS.
- USE CLASS II OR CLASS III SAND PER ASTM D-2487. NATIVE MATERIAL OR IMPORTED SELECT MATERIAL MEETING OR EXCEEDING THIS REQUIREMENT MAY BE USED. COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR (OR 90% D-698 STANDARD PROCTOR).
- APPROVED PIPE.
- TRENCH DIMENSIONS AS FOLLOWS:

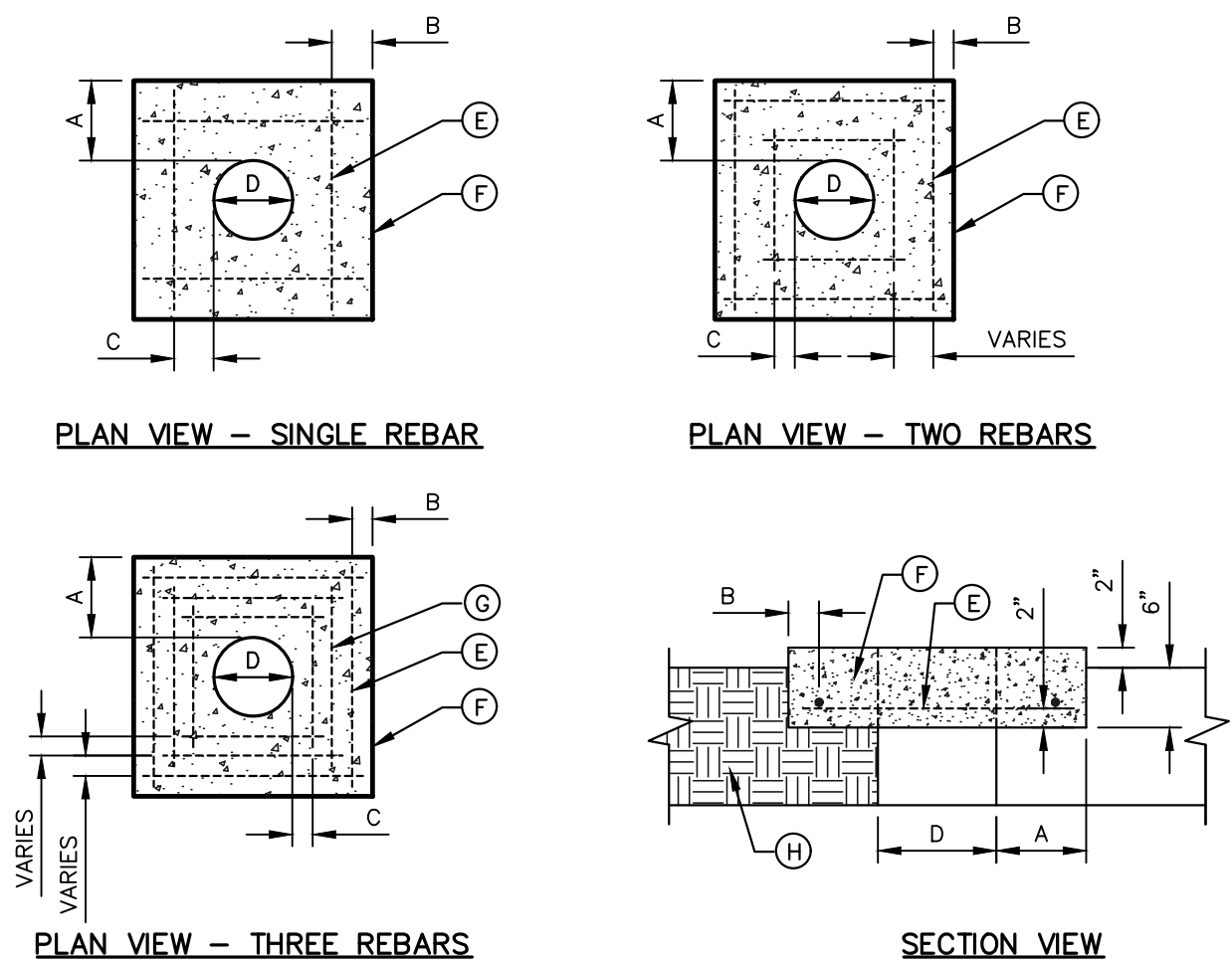
PIPE DIAMETER	"H"
6" - 30"	4"
GREATER THAN 30"	6"

PIPE DIAMETER	"W"
6" - 30"	8"
GREATER THAN 30"	12"

STANDARD DETAIL DATE: 4/24/2007 REV: 2/21/2011 EMBEDMENT CLASS "A" FOR PRESSURE PIPE AND GRAVITY PIPE DRY CONDITIONS



DETAIL No. 171



GENERAL NOTES:

- THE CONCRETE APRON SHOULD BE CAST IN-PLACE CONCRETE. (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI. HIGH EARLY CONCRETE IS REQUIRED).
- TOPS OF CONCRETE APRON SHALL BE FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
- PROVIDE A MINIMUM OF 1 1/2" OF CONCRETE COVER FOR ALL REINFORCEMENT STEEL.
- REINFORCING SHALL MEET ASTM C-478 AND TRAFFIC LOADING (HS-20).
- NO. 3 REBARS SPACED EQUALLY MAY BE LAP TIED OR SQUARE HOOPS.

CONSTRUCTION KEY NOTES:

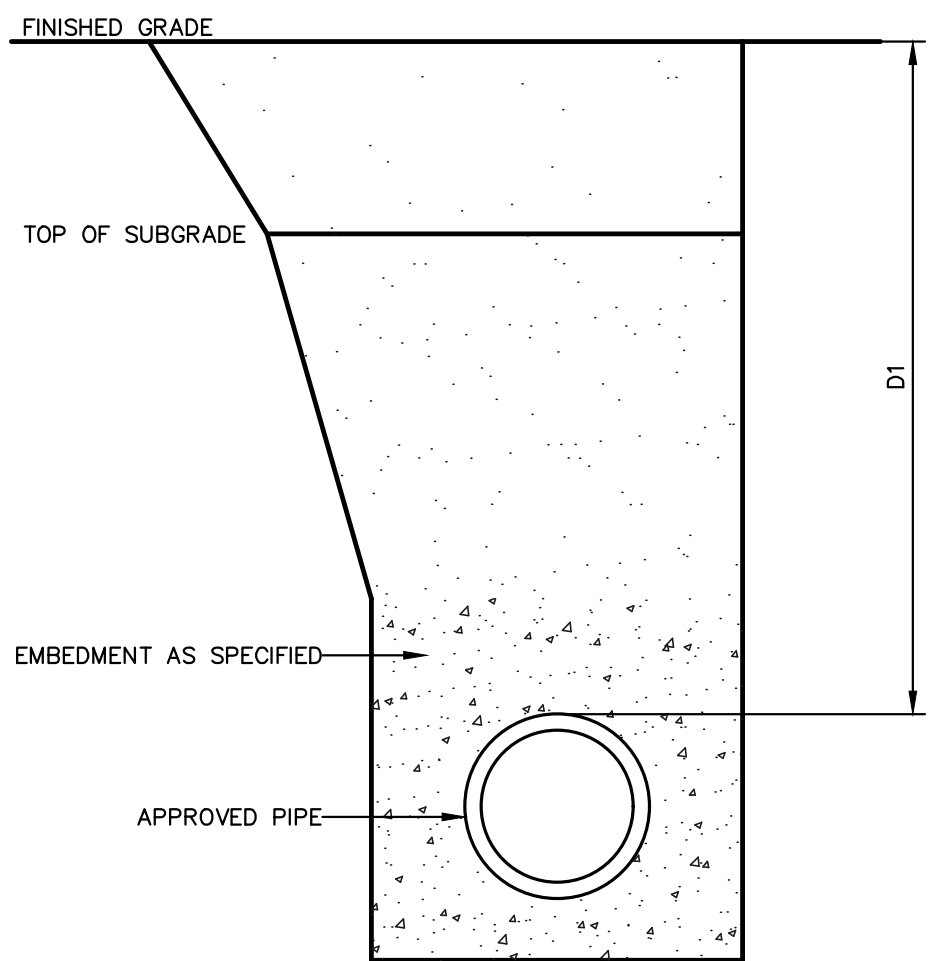
- #3 REINFORCING STEEL TYP.
- CONCRETE APRON.
- #3 REINFORCING STEEL EQUALLY SPACED.
- COMPACTED BACKFILL.

"D" DIAMETER OF PENETRATION	NUMBER OF #3 REINFORCING STEEL BARS	"A" MINIMUM CONCRETE HORIZONTAL DIMENSION FROM PENETRATION	"B" MINIMUM CLEARANCE FROM EDGE OF CONCRETE APRON TO CENTER OF NEAREST REBAR	"C" MINIMUM CLEARANCE FROM PENETRATION EDGE TO CENTER OF NEAREST REBAR
0" TO 6"	1	4"	1 1/2"	4 1/2"
6.1" TO 18"	2	6"	1 1/2"	1 1/2"
18.1" AND OVER	3	8"	1 1/2"	1 1/2"

STANDARD DETAIL DATE: 11/6/2008 REV: CONCRETE APRON INSTALLATION IN NON PAVED AREAS



DETAIL No. 184-2



GENERAL NOTES:

- REFER TO UTILITY DETAIL FOR PAVEMENT REPLACEMENT AND BACKFILL REQUIREMENTS.
- TRENCH SAFETY SYSTEMS SHALL BE USED WHEN TRENCH DEPTH EXCEEDS 5 FEET.

CONSTRUCTION KEY NOTES:

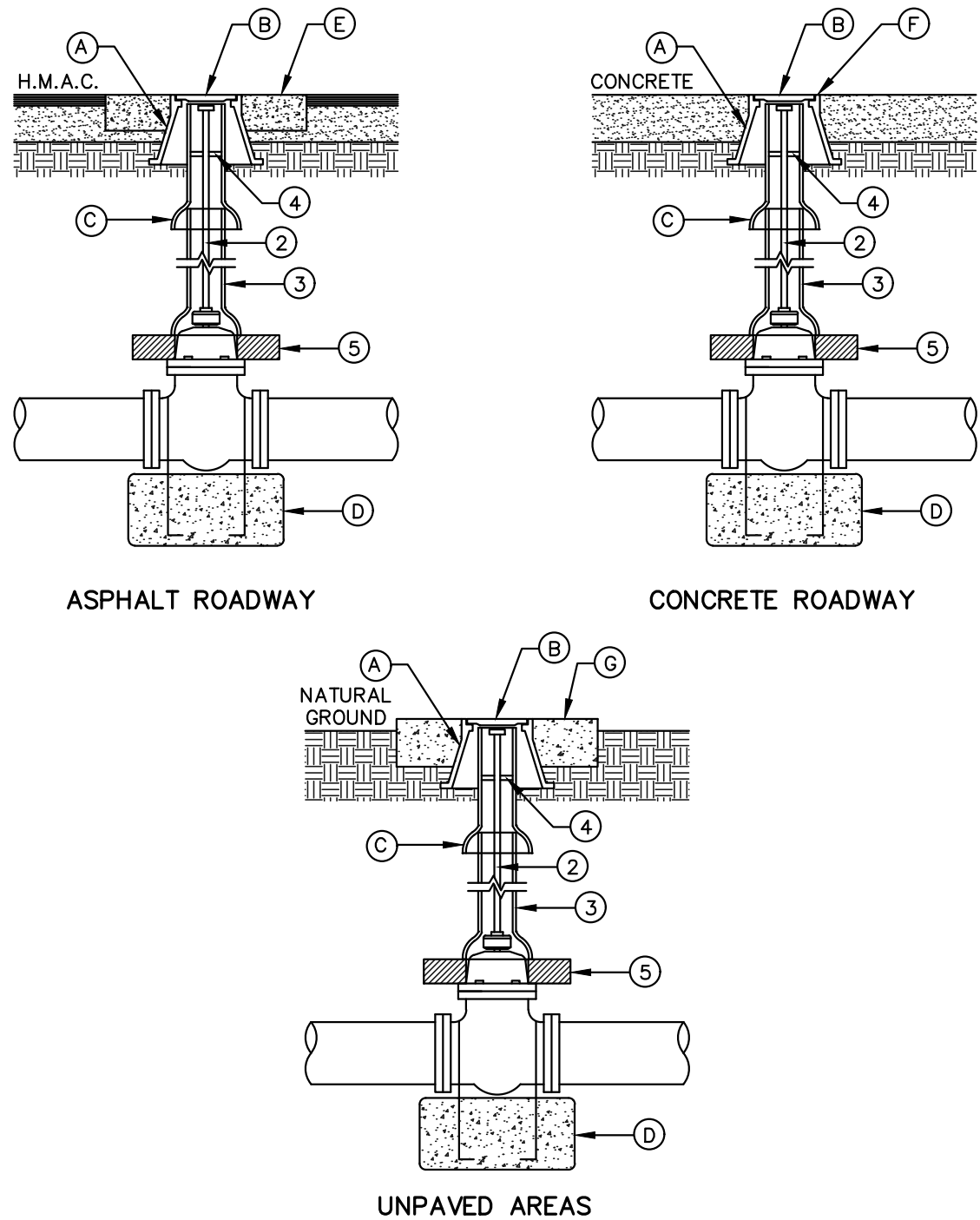
- COVER FOR WATER MAINS SHALL DEPEND ON THE PIPE SIZE AND THE FOLLOWING INSTALLATION CONDITIONS.
CONDITION A - NORMAL LINE INSTALLATION, STREET AND DRAINAGE PROJECTS, WATERLINE RELOCATION
CONDITION B - NEW SUBDIVISIONS, NON-PAVED AREA AND SHALL BE AS FOLLOWS.

PIPE SIZE	CONDITIONS	DIMENSIONS
6" - 8"	A	D=4'
6" - 8"	B	D1=4'
12" & LARGER	A OR B	D1=5'

STANDARD DETAIL DATE: 1994 REV: 8/3/2006 COVER FOR WATER MAINS



DETAIL No. 250



GENERAL NOTES:

- VALVE TYPE AND VALVE ENDS SHALL BE AS SHOWN ON THE PLANS.
- ALL BURIED VALVES 5' AND DEEPER SHALL BE PROVIDED WITH SOLID STEEL EXTENSION STEM OPERATOR WITH 2" SQUARE AWWA NUT WITHIN 36" OF VALVE BOX COVER. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.
- 8" DIA. MINIMUM VITRIFIED CLAY OR SDR 35 P.V.C. PIPE, PIPE SHALL NOT REST ON VALVE BODY.
- 1/4" THICK STEEL TRASH RING VALVE BOX INSIDE DIAMETER MINUS 1/8".
- MINIMUM 2 1/2" CONCRETE OR BRICK ALL AROUND.
- CLEAN BONNET BOX OF ALL DEBRIS AND SOIL.
- COAT BURIED PIPE AND BONNET BOX PER SPECIFICATIONS. VALVE SHALL BE WRAPPED IN POLYETHYLENE IN ACCORDANCE WITH SPECIFICATIONS.

CONSTRUCTION KEY NOTES:

- BONNET BOX (SEE DETAIL 268).
- BONNET BOX COVER (SEE DETAILS 269-1 & 269-2).
- FINAL EXTENSION TO BONNET BOX SHALL BE WITH BELL AND SPIGOT ENDS (CLAY OR SDR 35 P.V.C. SPOOL).
- CONCRETE VALVE ANCHOR (SEE DETAIL 271).
- CONCRETE COLLAR (SEE DET 184-1) FLUSH WITH TOP OF H.M.A.C.
- BONNET BOX FLUSH WITH TOP OF CONCRETE, CONCRETE COLLAR NOT NEEDED.
- CONCRETE APRON (SEE DETAIL 184-2) FLUSH WITH BONNET BOX AND 2" ABOVE NATURAL GROUND.

STANDARD DETAIL DATE: 5/1994 REV: 6/22/2009 GATE VALVE INSTALLATION



DETAIL No. 260

**WARNING I
BEFORE YOU DIG**
CALL
1-800-DIG-TESS
1-800-344-8377
FOR FIELD LOCATING
EXISTING UTILITIES

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY
SAUL TREJO P.E. 107801
ON SEPTEMBER 11, 2020
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S.T.
DRAWN
A.B.
CHECKED
B.J.K.
DATE
09/11/2020



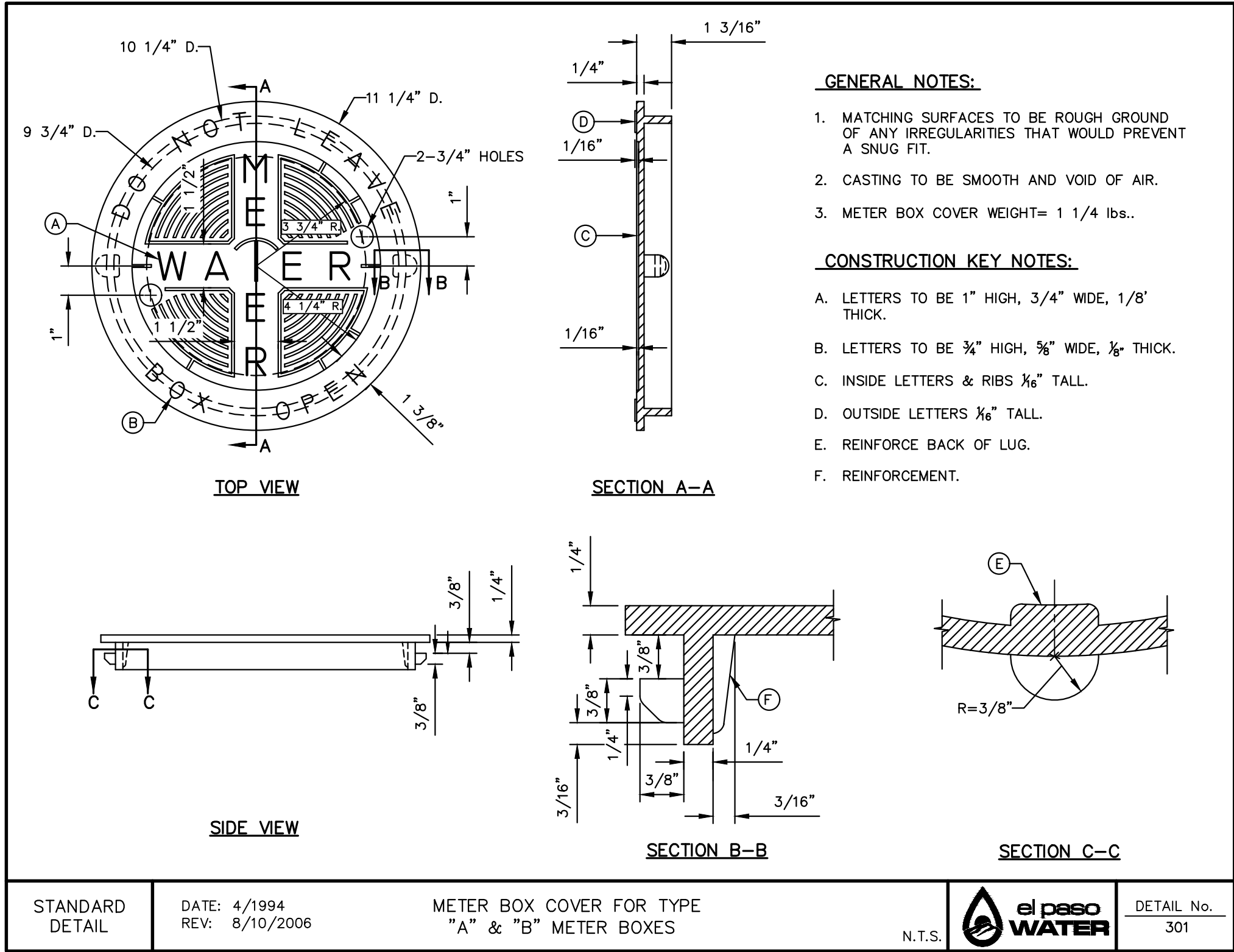
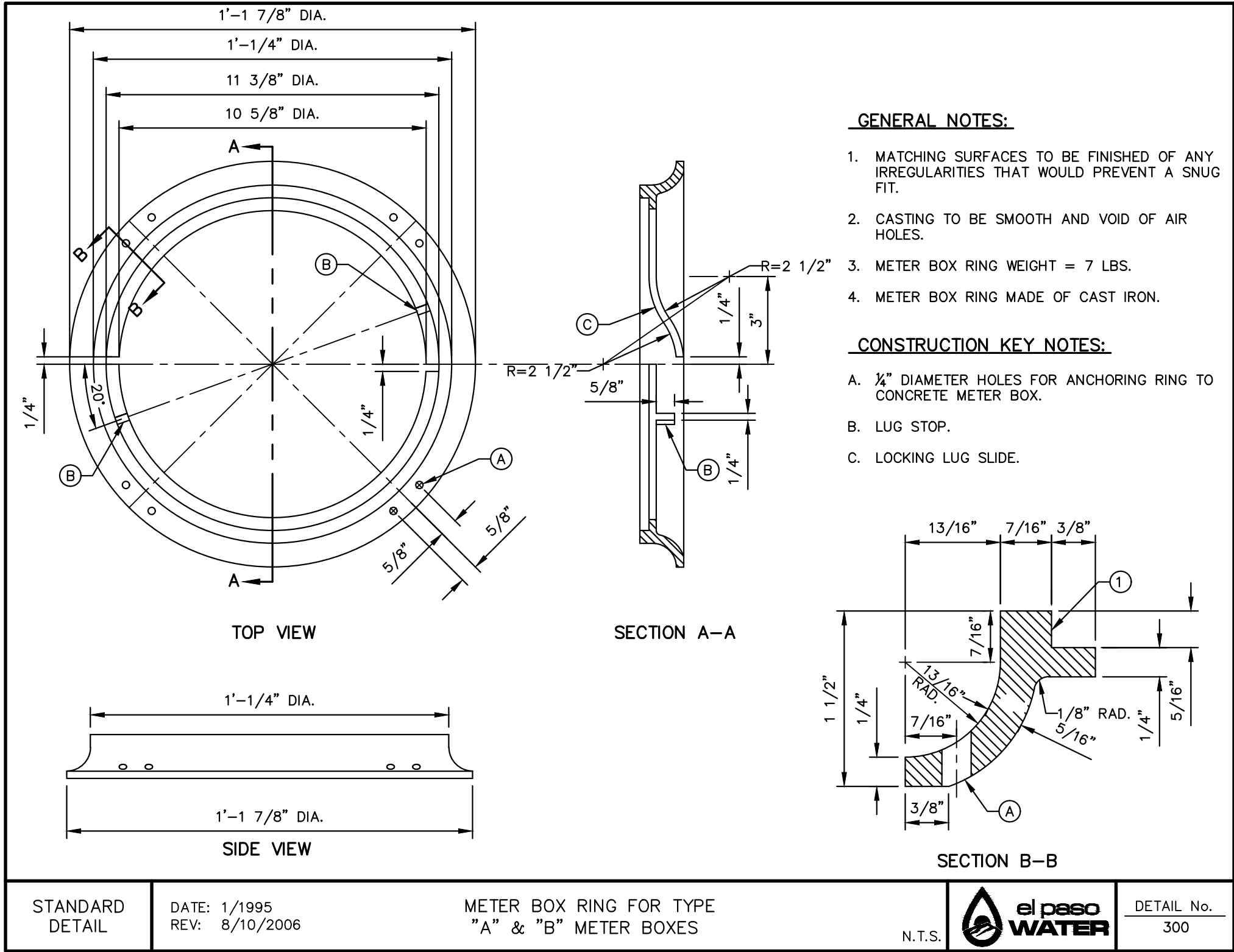
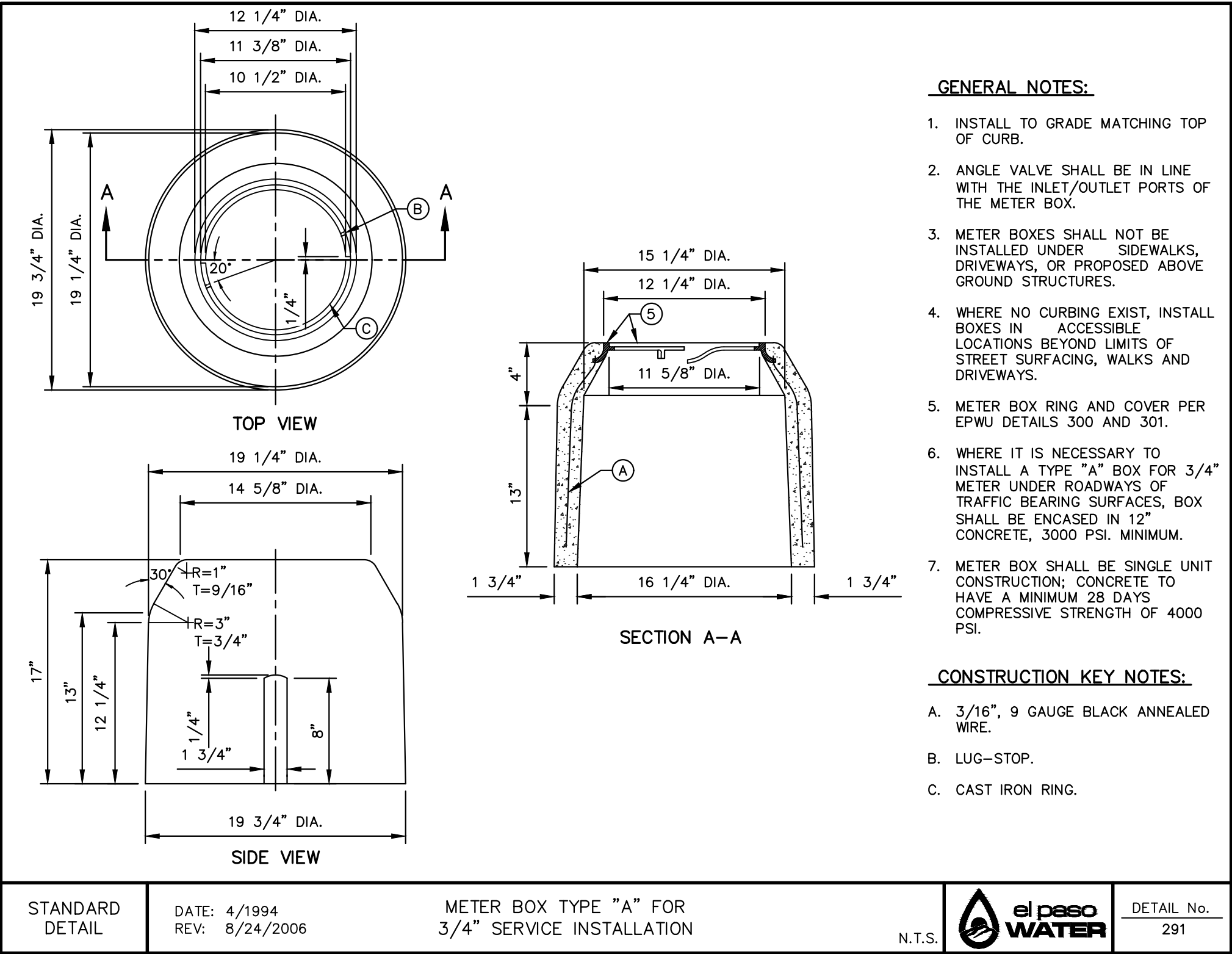
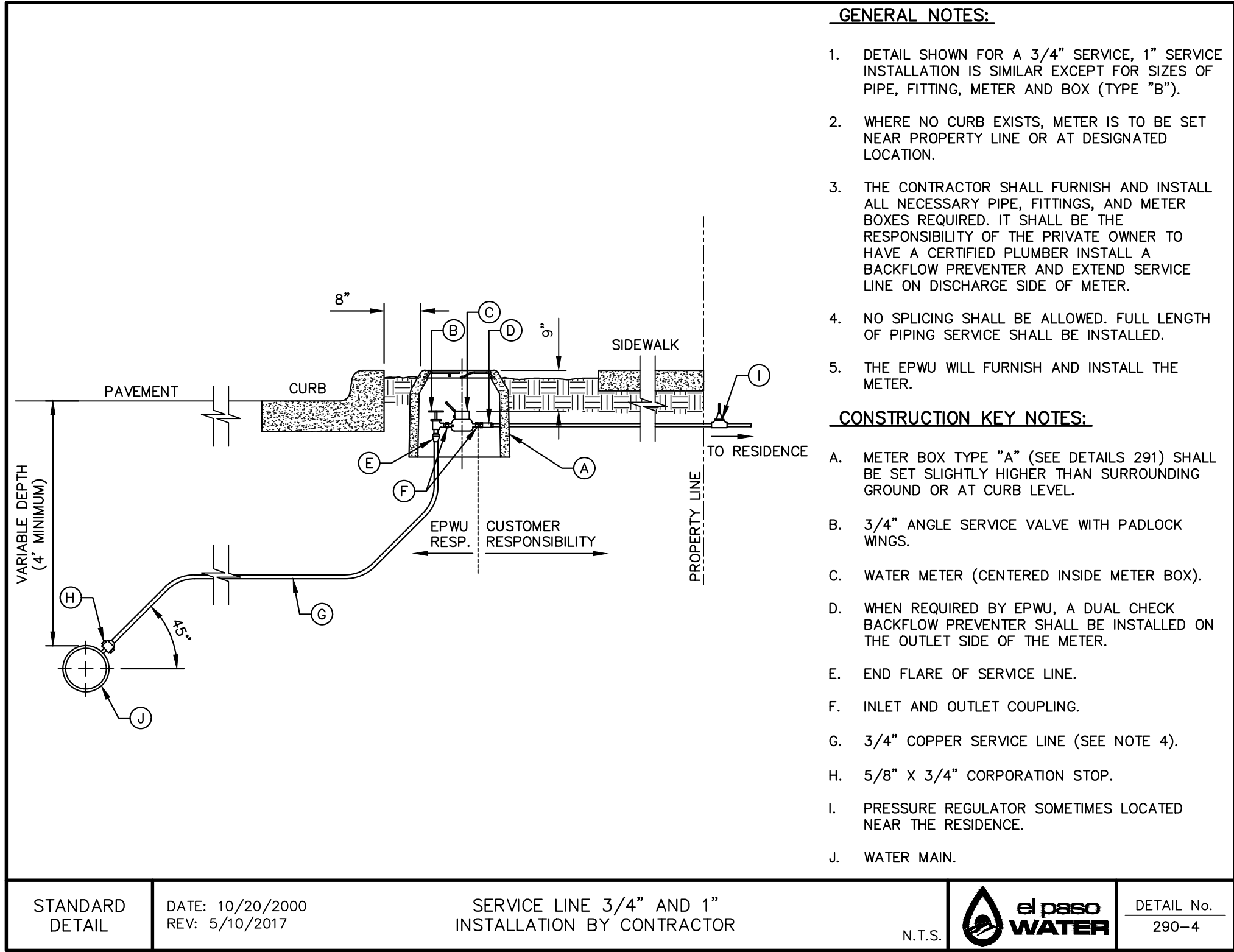
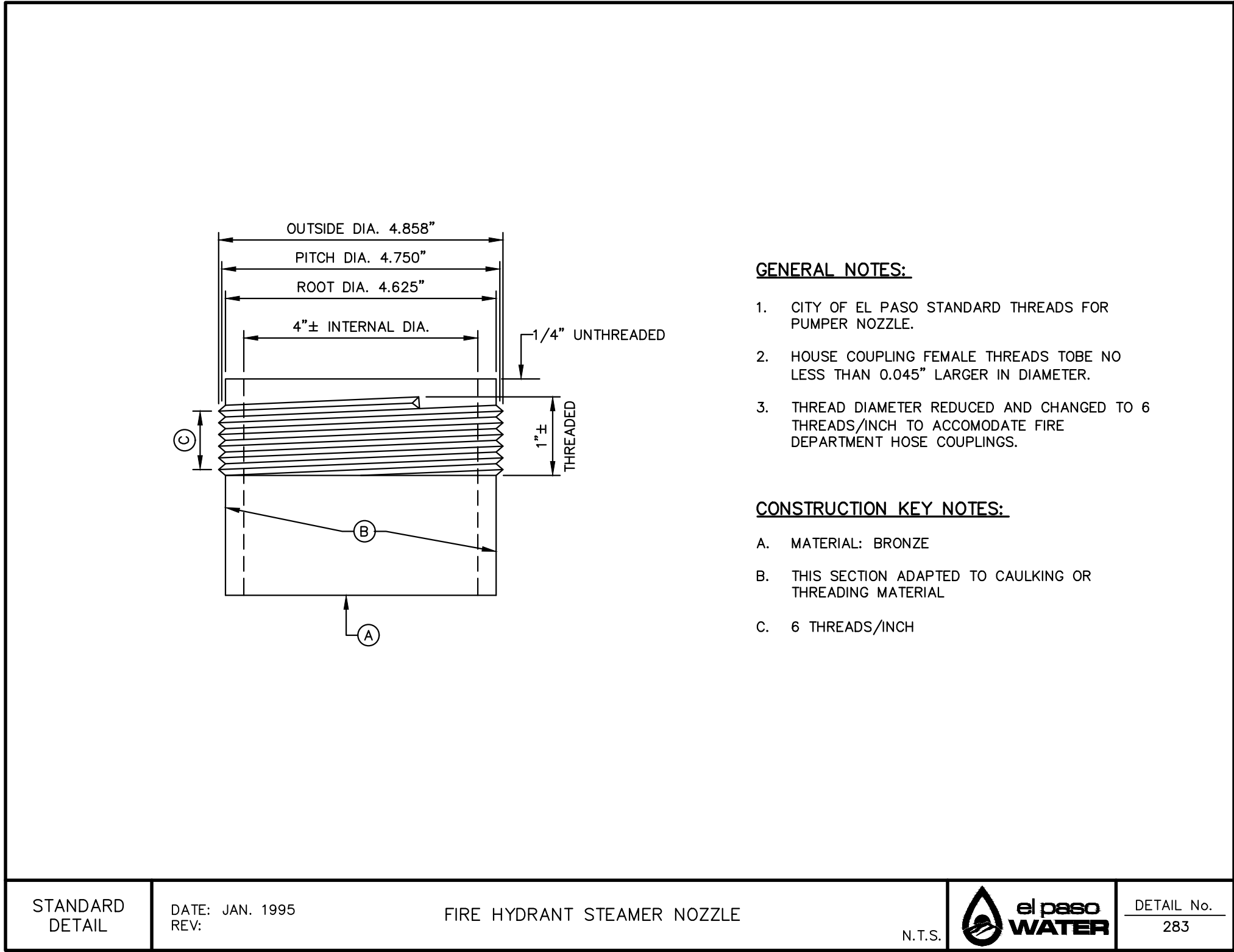
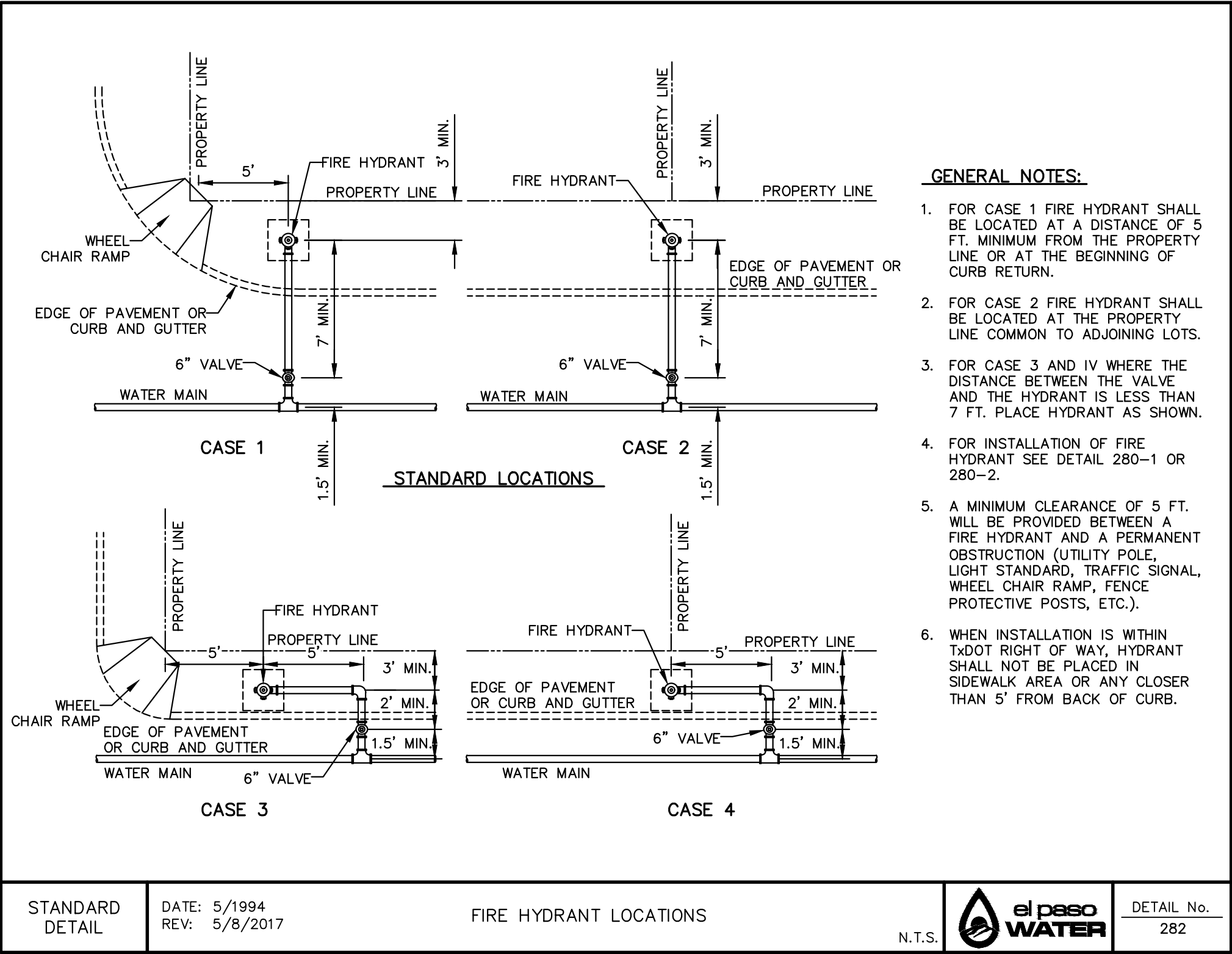
ENGINEER
PLANNING•ENGINEERING•PROJECT MANAGEMENT
McI Moreno Cardenas Inc.
EL PASO SAN ANTONIO
2505 E. Missouri Ave. El Paso, TX 79903 (915) 532-2091
9001 McAllister Freeway #307, San Antonio TX 78216 (210) 314-3553
Texas Board of Professional Engineers Registration No. F-000554

EL PASO COUNTY
SQUARE DANCE AREA
WATER LINE EXTENSIONS PROJECT

WATER DETAILS

THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY AND EXCLUSIVELY FOR THE DESIGN OF "WATER EXTENSION" (SQUARE DANCE) MORENO CARDENAS INC. IS NOT RESPONSIBLE FOR THEIR USE ON ANY OTHER PROJECT OR APPLICATION.

JOB NO.
14-110
SHEET
6 OF 8
SHEET NO.
C-6



Filename: F:\410\WATER LINE EXTENSION\SQUARE DANCE WATER EXTENSION\DWG\CONSTRUCTION-WATER DETAILS.DWG
Plot Date: 9/11/2020 10:55:24 AM By: Arturo Barragan

REV.	DATE	BY	DESCRIPTION

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C-8