

CITY OF LUCAS

CONSTRUCTION PLANS FOR

BAIT SHOP WATERLINE RELOCATION



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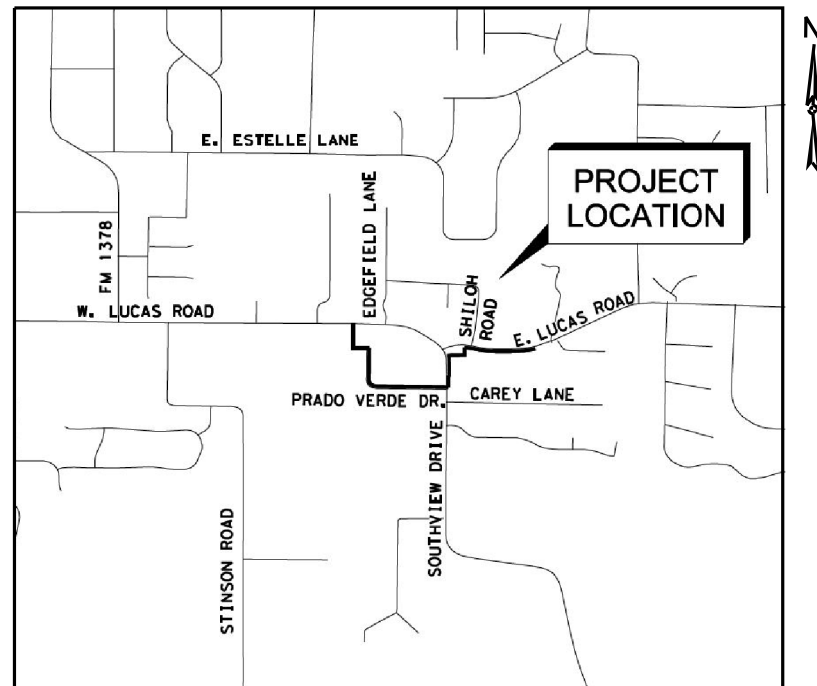
MAYOR

JIM OLK

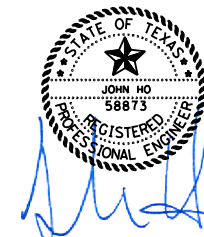
CITY COUNCIL

KATHLEEN PEELE
TIM BANEY
PHIL LAWRENCE

TIM JOHNSON
DAVID KEER
DEBBIE FISHER



NOT TO SCALE



The Seal Appearing on this Document was Authorized By John Ho, P.E. 58873 on November 15, 2022

TXDOT NOTE: ALL FACILITIES, THAT WILL BE IN DIRECT CONFLICT WITH TXDOT CONSTRUCTION, INCLUDING THE EXISTING WATER LINE, ARE REQUIRED TO BE REMOVED FROM R.O.W. ALL CONDUIT OR PIPE UNDER EXISTING PAVING WILL REMAIN. ALL CONDUIT OR PIPE 3 INCHES IN DIAMETER AND GREATER UNDER EXISTING PAVING WILL BE PURGED OF ALL CONTENTS, CAPPED, AND GROUT FILLED. THERE WILL BE NO EXCAVATION OF EXISTING PAVING FOR THE REMOVAL OF ANY FACILITIES. THERE WILL BE NO WET BORES IN TXDOT R.O.W. THE APPROXIMATE DEPTH OF THE EXISTING PIPELINE OR CONDUIT TO BE ABANDONED IS +/- 4'. THE APPROXIMATE LINEAR FOOTAGE OF THE EXISTING PIPELINE THAT SHALL BE REMOVED IS 2480 LF. SEE END OF PLAN SET & APPENDIX OF BID BOOK FOR REMOVAL & ABANDONMENT EXHIBIT.

PREPARED BY:

HUITT-ZOLLARS

Huitt-Zollars, Inc.
5430 Lyndon B Johnson Fwy, Suite 1500
Dallas, Texas 75240
Phone (214) 871-3311
Fax (214) 871-0757
Firm Registration No. F-761

OWNER:

CITY OF LUCAS
ENGINEERING DEPARTMENT
665 COUNTRY CLUB ROAD
LUCAS, TEXAS 75002-7651
PHONE: (972) 727-8999

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NTMWD NOTES

1. NORTH TEXAS MUNICIPAL WATER DISTRICT (NTMWD) 20-INCH WATER TRANSMISSION PIPELINES ARE LOCATED WITHIN LIMITS OF CONSTRUCTION.
2. OPERATION OF HEAVY EARTH MOVING EQUIPMENT, COMPACTION EQUIPMENT OR HEAVY CONSTRUCTION EQUIPMENT, SUCH AS CONCRETE TRUCKS, SHALL BE RESTRICTED TO SPECIFIC CROSSING POINTS ACROSS NTMWD EASEMENTS, AS APPROVED BY THE NTMWD. THE CROSSINGS SHALL BE DESIGNATED AND VERIFIED TO PROVIDE A MINIMUM OF FIVE FEET OF COVER.
3. TO ASSURE THAT PLACING OF SIGNIFICANT LOADS OVER THE NTMWD PIPELINE DOES NOT DAMAGE THE EXISTING PIPELINE, NO MATERIALS SHALL BE STOCKPILED ON THE NTMWD EASEMENT WITHOUT AUTHORIZATION FROM THE NTMWD. IF THE CONTRACTOR DESIRES TO USE NTMWD'S EASEMENT FOR STOCKPILE OF MATERIALS, CONTACT NTMWD ENGINEERING AT (972) 442-5405 SO YOUR PLANS FOR USE OF NTMWD'S EASEMENT CAN BE REVIEWED.
4. UNLESS OTHERWISE SHOWN OR REQUIRED A MINIMUM OF ONE-FOOT CLEARANCE SHALL BE PROVIDED FOR ALL UTILITIES CROSSING THE NTMWD PIPELINES.
5. "THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5404 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.
6. FOR OPEN CUT WHERE CROSSING UNDER THE NTMWD PIPELINE, WITHIN TEN FEET EITHER SIDE OF CENTERLINE OF PIPELINE, THE TRENCH WIDTH SHALL BE LIMITED TO FOUR-FOOT WITH VERTICAL WALLS. NO SLOPING BANKS AND WITH THE APPROPRIATE TRENCH SAFETY. THE ENTIRE EXCAVATION WITHIN THE LIMITS NOTED ABOVE SHALL BE BACKFILLED WITH SAND TO ONE-FOOT ABOVE TOP OF NTMWD PIPELINE. ONE-FOOT MINIMUM VERTICAL CLEARANCE IS REQUIRED BETWEEN NTMWD PIPELINE AND PROPOSED UTILITIES.
7. WATER LINES CROSSING THE NTMWD EASEMENT SHALL BE INSTALLED IN COMPLIANCE WITH THE RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS PARAGRAPH 290.44 (E), LOCATION OF WATER LINES.

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.
 - o 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).

- o 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.

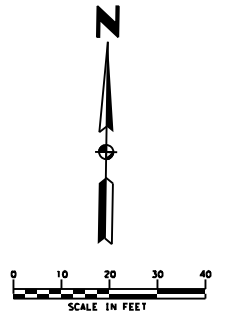
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NO.	DATE	REVISIONS	APPROVED
12" WATER RELOCATION			
FM 1378, PRADO VERDE DR., FM 3286			
GENERAL NOTES - 2			
CITY OF LUCAS, TEXAS			
HUITT-ZOLLARS			
<small>Huitt-Zollars, Inc. 5430 LBJ Freeway, Suite 1500 Dallas, Texas 75240 Phone (214) 871-3311 Fax (214) 871-0757</small>			
DESIGN	DRAWN	APPR.	SCALE
GCP	GCP	JH	NTS
DATE	PROJ. NO.	SHEET	
NOV 2022	R31149001	3	

CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

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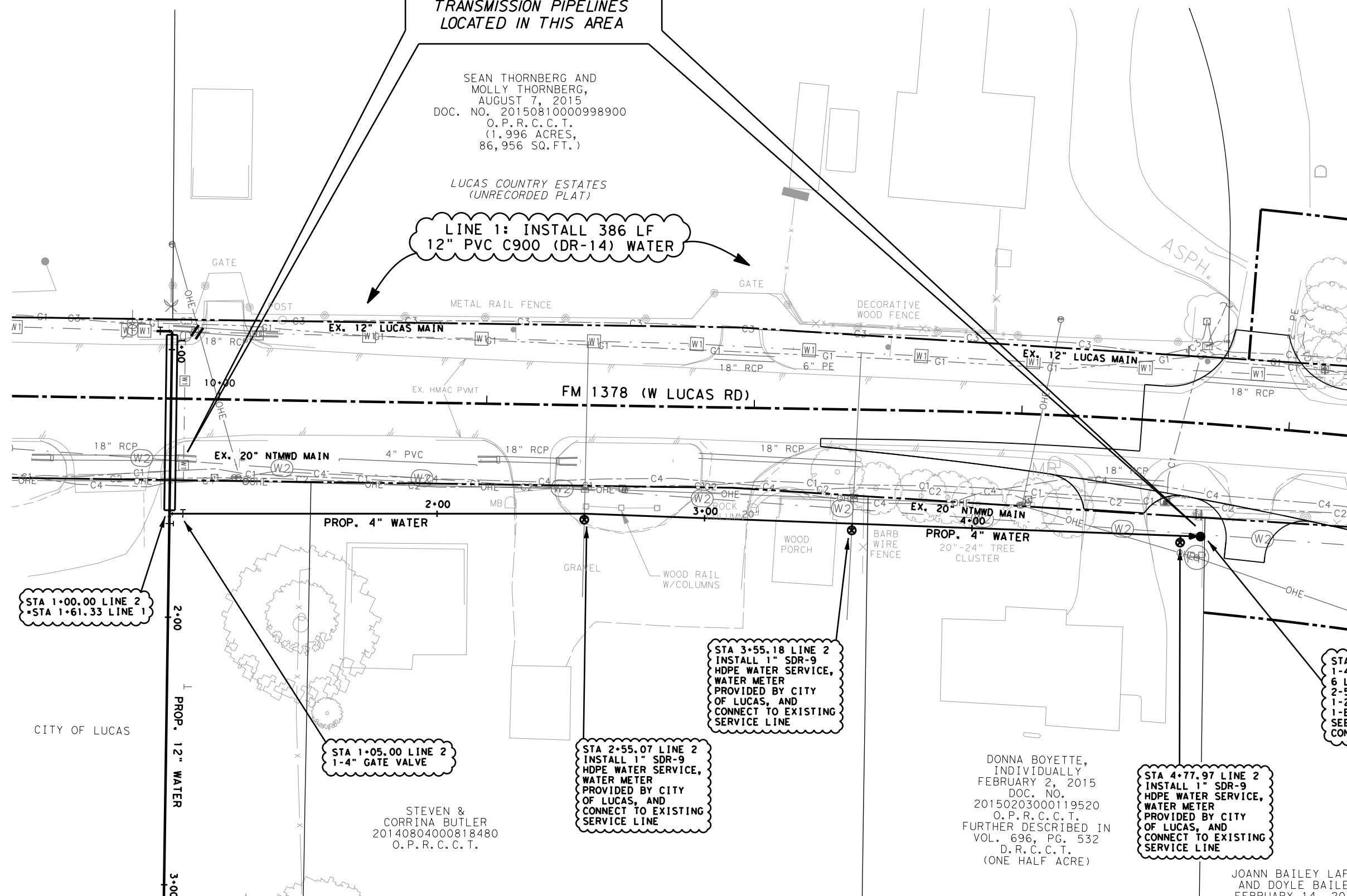


!!!CAUTION!!!
 EXISTING NTMWD WATER
 TRANSMISSION PIPELINES
 LOCATED IN THIS AREA

SEAN THORNBERG AND
 MOLLY THORNBERG,
 AUGUST 7, 2015
 DOC. NO. 20150810000998900
 O.P.R.C.C.T.
 (1,996 ACRES,
 86,956 SQ.FT.)

LUCAS COUNTRY ESTATES
 (UNRECORDED PLAT)

LINE 1: INSTALL 386 LF
 12" PVC C900 (DR-14) WATER



NOTES:

1. SEE NOTES FOR ADDITIONAL WATER MAIN INFORMATION.
2. LEVEL B SUE PERFORMED BY OTHERS.
3. REMOVE & REPLACE EX. WATER METERS AND WATER SERVICE LINES. CONTRACTOR SHALL VERIFY LOCATION OF ALL WATER METERS PRIOR TO CONSTRUCTION (TYP. ALL).
4. CONTRACTOR SHALL VERIFY PRIOR TO CONSTRUCTION THAT PROP. WATER SERVICE AND METER BOX SHALL BE LOCATED 10 FEET UPSTREAM OF THE EXISTING WASTEWATER SERVICE AND CLEANOUT.
5. CONTACT NTMWD AT (972)422-5405 FOR LOCATION OF NTMWD 20" WATER A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
6. ALL WATER FITTINGS AND VALVES SHALL BE FLANGED.
7. REMOVE AND DELIVER ALL EXISTING FIRE HYDRANTS WITHIN PROJECT LIMITS (FM 1378, PRADO VERDE, AND FM 3286) TO CITY OF LUCAS PUBLIC WORKS AFTER EXISTING WATER MAIN IS KILLED.

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STA 1+00.00 LINE 2
 STA 1+61.33 LINE 1

STA 1+05.00 LINE 2
 1-4" GATE VALVE

STA 3+55.18 LINE 2
 INSTALL 1" SDR-9
 HDPE WATER SERVICE,
 WATER METER
 PROVIDED BY CITY
 OF LUCAS, AND
 CONNECT TO EXISTING
 SERVICE LINE

STA 2+55.07 LINE 2
 INSTALL 1" SDR-9
 HDPE WATER SERVICE,
 WATER METER
 PROVIDED BY CITY
 OF LUCAS, AND
 CONNECT TO EXISTING
 SERVICE LINE

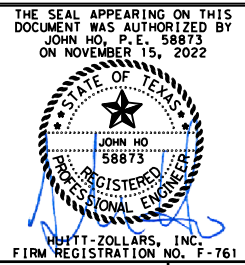
STA 4+85.47 LINE 2
 1-4" X2" REDUCER
 6 LF 2" C900 DR-14 WATER MAIN
 2-5 1/4" VALVE BOXES
 1-2" CURB STOP VALVE
 1-BLOW OFF FLUSH VALVE,
 SEE WATER DETAILS
 CONC. BLOCKING

STA 4+77.97 LINE 2
 INSTALL 1" SDR-9
 HDPE WATER SERVICE,
 WATER METER
 PROVIDED BY CITY
 OF LUCAS, AND
 CONNECT TO EXISTING
 SERVICE LINE

STEVEN &
 CORRINA BUTLER
 20140804000818480
 O.P.R.C.C.T.

DONNA BOYETTE,
 INDIVIDUALLY
 FEBRUARY 2, 2015
 DOC. NO.
 20150203000119520
 O.P.R.C.C.T.
 FURTHER DESCRIBED IN
 VOL. 696, PG. 532
 D.R.C.C.T.
 (ONE HALF ACRE)

JOANN BAILEY LAFON
 AND DOYLE BAILEY
 FEBRUARY 14, 2014
 DOC. NO. 20140417000369830
 O.P.R.C.C.T.
 (1.704 ACRES)



NO.	DATE	REVISIONS	APPROVED
12" WATER RELOCATION			
FM 1378, PRADO VERDE DR., FM 3286			
WATER PLAN			
FM 1378 (W LUCAS ROAD)			
CITY OF LUCAS, TEXAS			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
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DATE	PROJ. NO.	SHEET	
NOV 2022	R31149001	4	

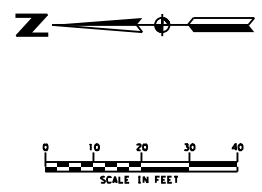
CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

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!!!CAUTION!!!
 EXISTING NTMWD WATER TRANSMISSION PIPELINES LOCATED IN THIS AREA

SEAN THORNBERG AND MOLLY THORNBERG, AUGUST 7, 2015
 DOC. NO. 2015081000998900
 O. P. R. C. C. T.
 (1.996 ACRES, 86,956 SQ. FT.)

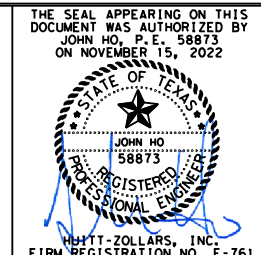
LUCAS COUNTRY ESTATES (UNRECORDED PLAT)



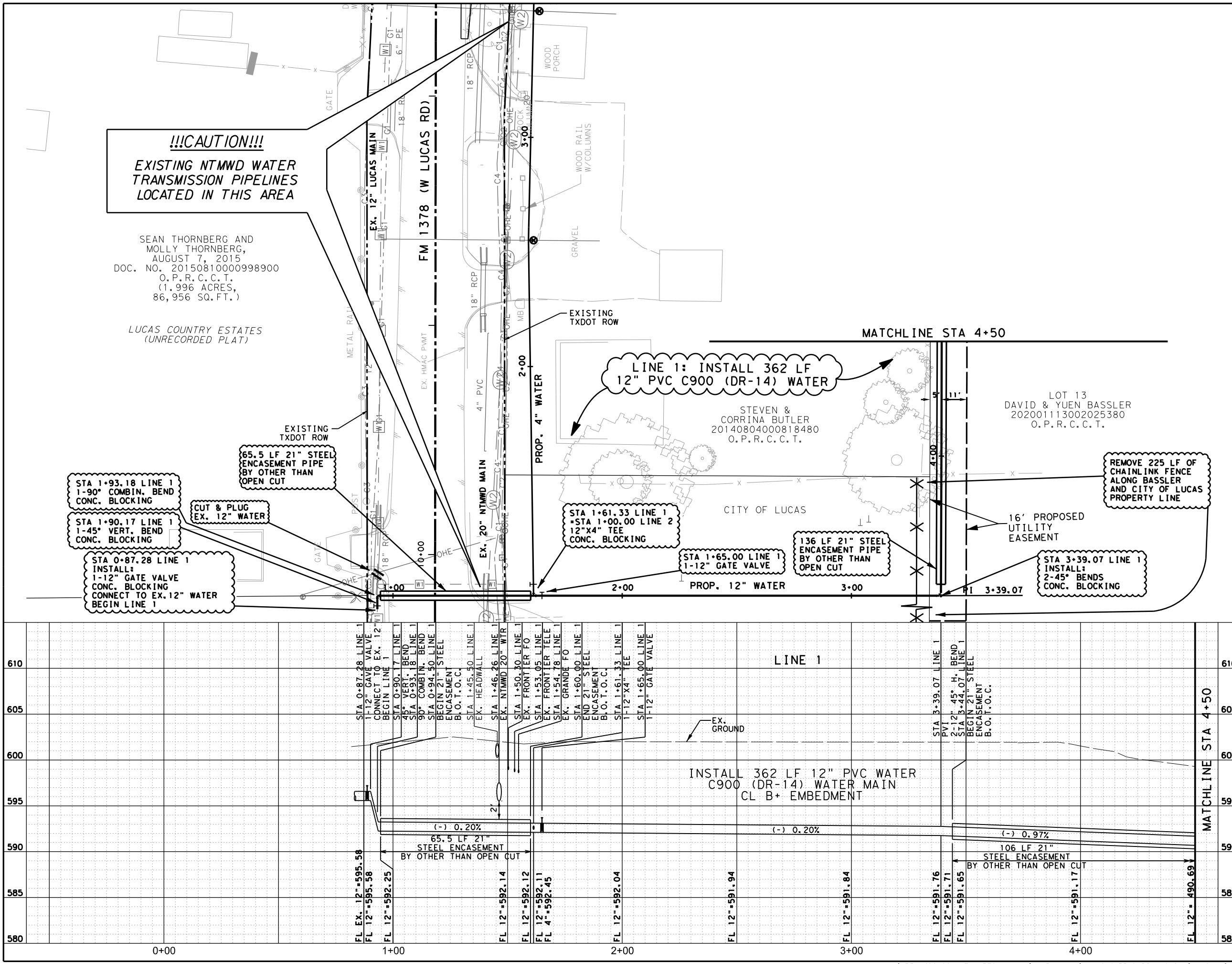
NOTES:

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- LEVEL B SUE PERFORMED BY OTHERS.
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- ALL WATER FITTINGS AND VALVES SHALL BE FLANGED.
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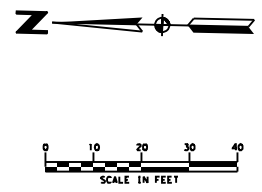
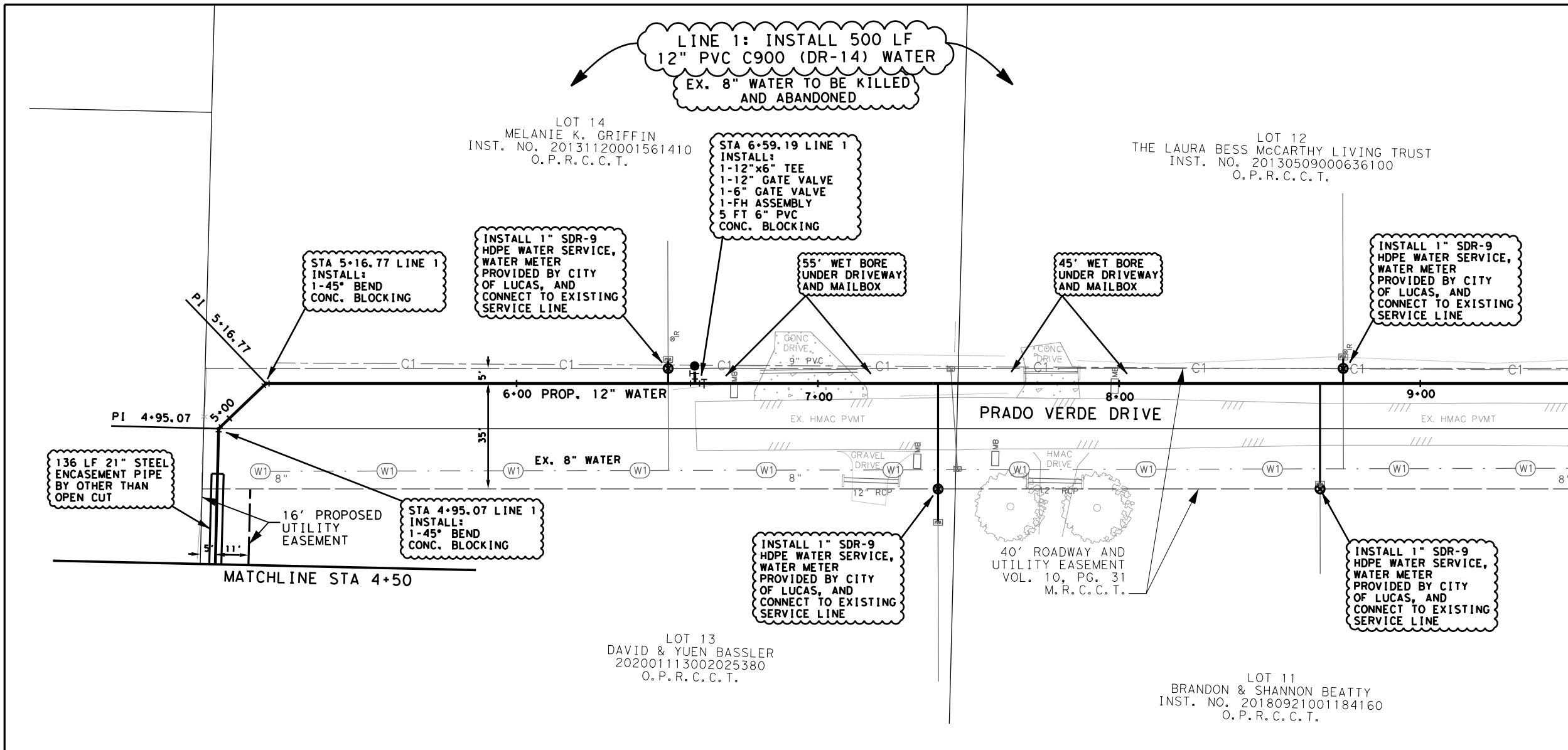


NO.	DATE	REVISIONS	APPROVED
12" WATER RELOCATION			
FM 1378, PRADO VERDE DR., FM 3286			
WATER PLAN & PROFILE STA 0+88.00 TO STA 4+50.00			
CITY OF LUCAS, TEXAS			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
GCP	GCP	JH	1"=20'H 1"=5'V
DATE	PROJ. NO.	SHEET	
NOV 2022	R31149001	5	



CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

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- NOTES:**
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STATION	LINE 1	FL 12"	REMARKS
5+00	START	490.69	30 LF 21" STEEL ENCASEMENT BY OTHER THAN OPEN CUT
5+00	END	590.39	STA 4+80.07 LINE 1 END 21" STEEL ENCASEMENT
5+00	END	590.25	B.O. 1" O.C.
5+00	END	590.20	STA 4+95.07 LINE 1 1-12" 45" H. BEND
5+00	PVI	590.04	STA 5+16.77 LINE 1 1-12" 45" H. BEND
6+00	END	589.87	FL 12" = 589.87
6+00	PVI	589.77	STA 6+59.19 LINE 1 1-12" X6" TEE
6+00	END	589.76	FL 12" = 589.76
6+00	END	590.02	FL 6" = 590.02
7+00	END	589.84	FL 12" = 589.84
7+00	END	589.94	STA 7+44.44 LINE 1 EX. FRONTIER FD
7+00	END	590.04	FL 12" = 590.04
8+00	END	590.14	FL 12" = 590.14
8+00	END	590.24	FL 12" = 590.24
9+50	END	590.34	FL 12" = 590.34

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JOHN HO, P.E. 58873 ON NOVEMBER 15, 2022

HUITT-ZOLLARS, INC. FIRM REGISTRATION NO. F-761

NO.	DATE	REVISIONS	APPROVED

12" WATER RELOCATION
 FM 1378, PRADO VERDE DR., FM 3286

WATER PLAN & PROFILE
 STA 4+50.00 TO STA 9+50.00

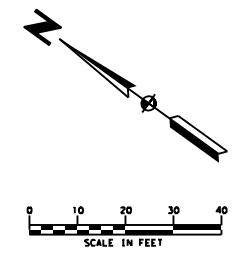
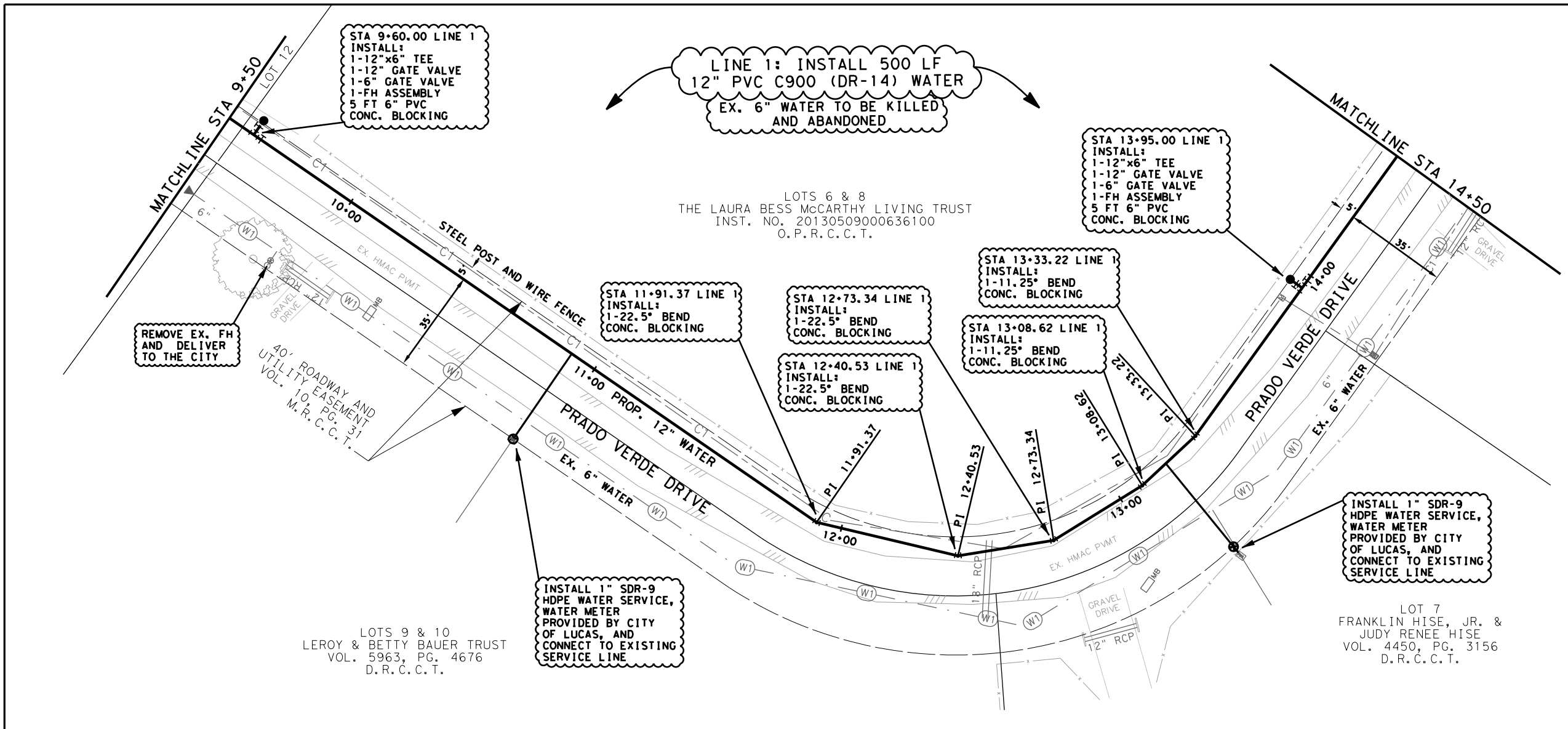
CITY OF LUCAS, TEXAS

HUITT-ZOLLARS
 Huitt-Zollars, Inc. 5430 LBJ Freeway, Suite 1500 Dallas, Texas 75240 Phone (214) 871-3311 Fax (214) 871-0757

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
GCP	GCP	JH	1"=20' H 1"=5' V	NOV 2022	R31149001	6

CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

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- NOTES:**
- SEE NOTES FOR ADDITIONAL WATER MAIN INFORMATION.
 - LEVEL B SUE PERFORMED BY OTHERS.
 - REMOVE & REPLACE EX. WATER METERS AND WATER SERVICE LINES. CONTRACTOR SHALL VERIFY LOCATION OF ALL WATER METERS PRIOR TO CONSTRUCTION (TYP. ALL).
 - CONTRACTOR SHALL VERIFY PRIOR TO CONSTRUCTION THAT PROP. WATER SERVICE AND METER BOX SHALL BE LOCATED 10 FEET UPSTREAM OF THE EXISTING WASTEWATER SERVICE AND CLEANOUT.
 - CONTACT NTMWD AT (972)422-5405 FOR LOCATION OF NTMWD 20" WATER A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
 - ALL WATER FITTINGS AND VALVES SHALL BE FLANGED.
 - REMOVE AND DELIVER ALL EXISTING FIRE HYDRANTS WITHIN PROJECT LIMITS (FM 1378, PRADO VERDE, AND FM 3286) TO CITY OF LUCAS PUBLIC WORKS AFTER EXISTING WATER MAIN IS KILLED.

TXDOT NOTE: ALL FACILITIES, THAT WILL BE IN DIRECT CONFLICT WITH TXDOT CONSTRUCTION, INCLUDING THE EX. WATER LINE, ARE REQUIRED TO BE REMOVED FROM R.O.W. ALL CONDUIT OR PIPE UNDER EX. PAVING WILL REMAIN. ALL CONDUIT OR PIPE 3 INCHES IN DIAMETER AND GREATER UNDER EX. PAVING WILL BE PURGED OF ALL CONTENTS, CAPPED, AND GROUT FILLED. THERE WILL BE NO EXCAVATION OF EX. PAVING FOR THE REMOVAL OF ANY FACILITIES. THERE WILL BE NO WET BORES IN TXDOT R.O.W. THE APPROXIMATE DEPTH OF THE EX. PIPELINE OR CONDUIT TO BE ABANDONED IS +/- 4'. THE APPROX. LINEAR FOOTAGE OF THE EX. PIPELINE THAT SHALL BE REMOVED IS 2480 LF. SEE END OF SET FOR REMOVAL & ABANDONMENT EXHIBIT.



STATION	FL 12" =	FL 6" =	REVISIONS	APPROVED
610				
605				
600				
595				
590				
585				
580				

NO.	DATE	REVISIONS	APPROVED

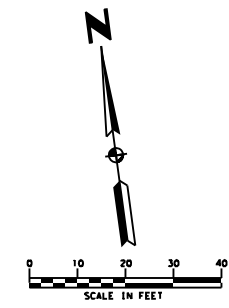
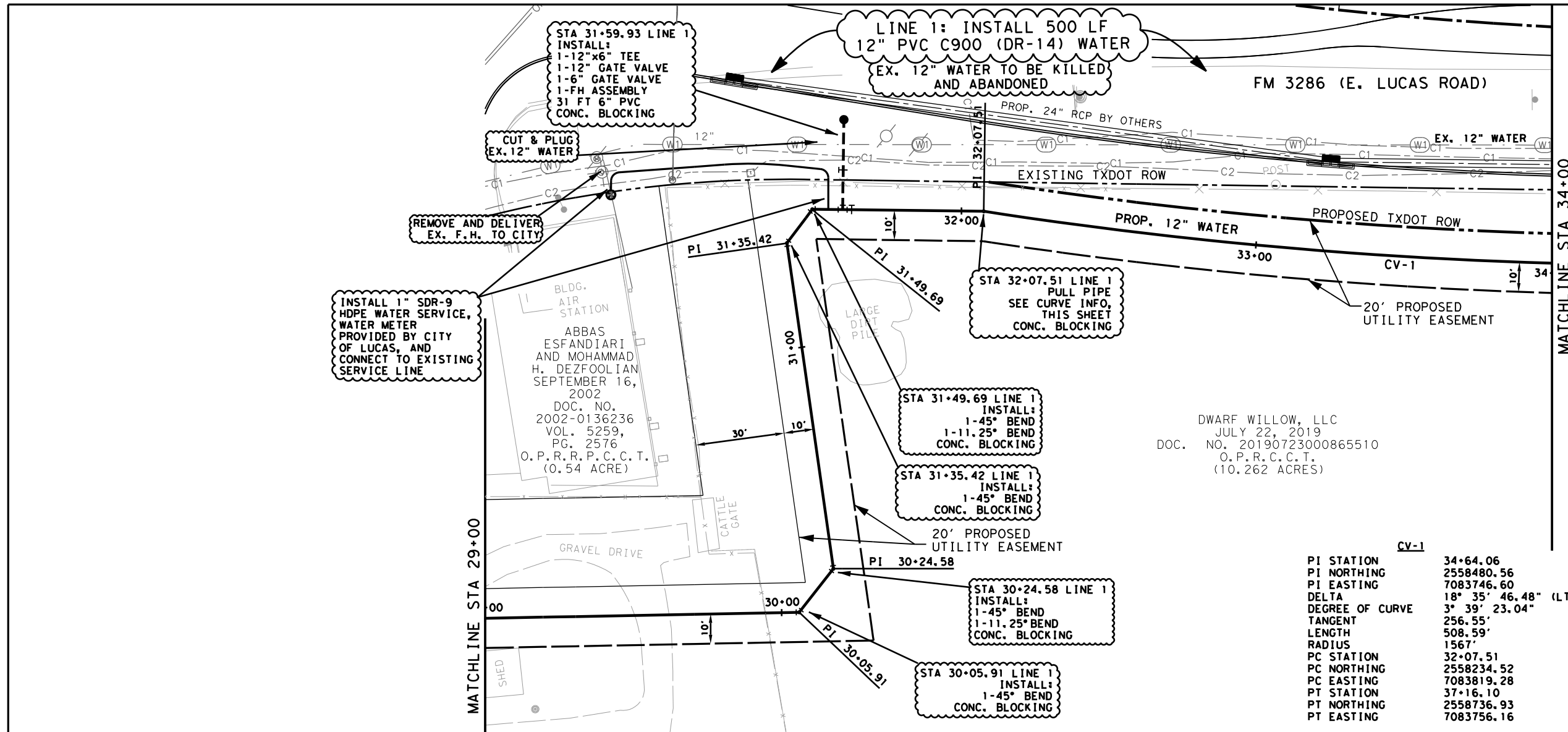
12" WATER RELOCATION
 FM 1378, PRADO VERDE DR., FM 3286
 WATER PLAN & PROFILE
 STA 9+50.00 TO STA 14+50.00
 CITY OF LUCAS, TEXAS

HUETT-ZOLLARS
 Huett-Zollars, Inc.
 5430 LBJ Freeway, Suite 1500
 Dallas, Texas 75240
 Phone (214) 871-3311 Fax (214) 871-0757

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
GCP	GCP	JH	1"=20'H 1"=5'V	NOV 2022	R31149001	7

CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

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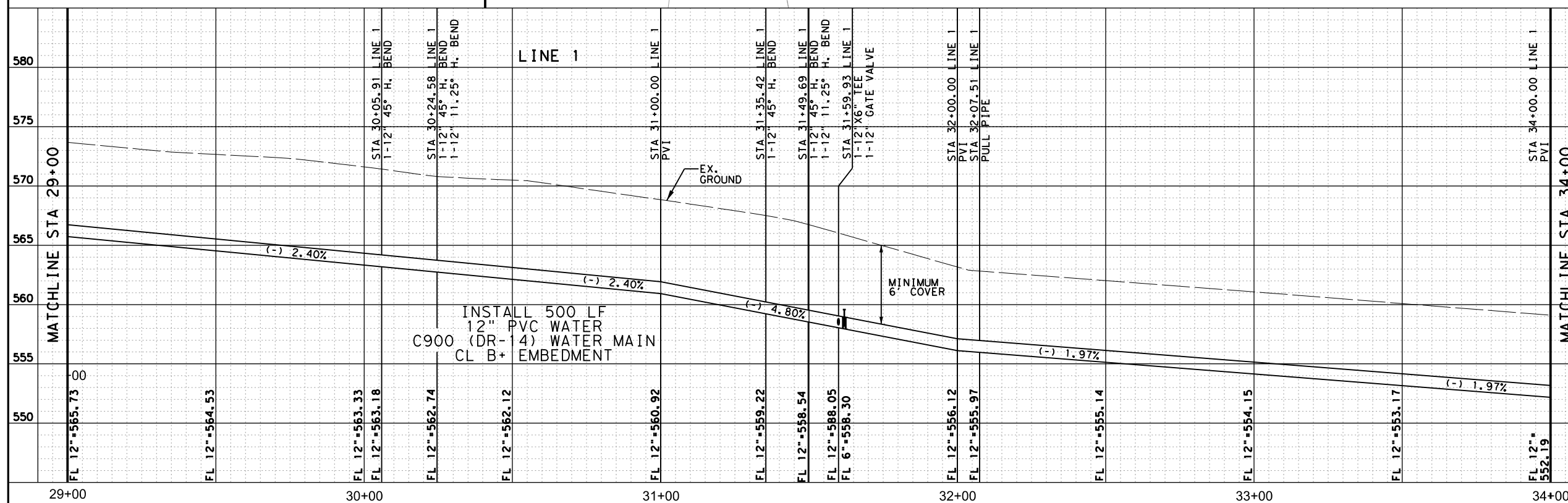


- NOTES:**
- SEE NOTES FOR ADDITIONAL WATER MAIN INFORMATION.
 - LEVEL B SUE PERFORMED BY OTHERS.
 - REMOVE & REPLACE EX. WATER METERS AND WATER SERVICE LINES. CONTRACTOR SHALL VERIFY LOCATION OF ALL WATER METERS PRIOR TO CONSTRUCTION (TYP. ALL).
 - CONTRACTOR SHALL VERIFY PRIOR TO CONSTRUCTION THAT PROP. WATER SERVICE AND METER BOX SHALL BE LOCATED 10 FEET UPSTREAM OF THE EXISTING WASTEWATER SERVICE AND CLEANOUT.
 - CONTACT NTMWD AT (972)422-5405 FOR LOCATION OF NTMWD 20" WATER A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
 - ALL WATER FITTINGS AND VALVES SHALL BE FLANGED.
 - REMOVE AND DELIVER ALL EXISTING FIRE HYDRANTS WITHIN PROJECT LIMITS (FM 1378, PRADO VERDE, AND FM 3286) TO CITY OF LUCAS PUBLIC WORKS AFTER EXISTING WATER MAIN IS KILLED.

CV-1

PI STATION	34+64.06
PI NORTHING	2558480.56
PI EASTING	7083746.60
DELTA	18° 35' 46.48" (LT)
DEGREE OF CURVE	3° 39' 23.04"
TANGENT	256.55'
LENGTH	508.59'
RADIUS	1567'
PC STATION	32+07.51
PC NORTHING	2558234.52
PC EASTING	7083819.28
PT STATION	37+16.10
PT NORTHING	2558736.93
PT EASTING	7083756.16

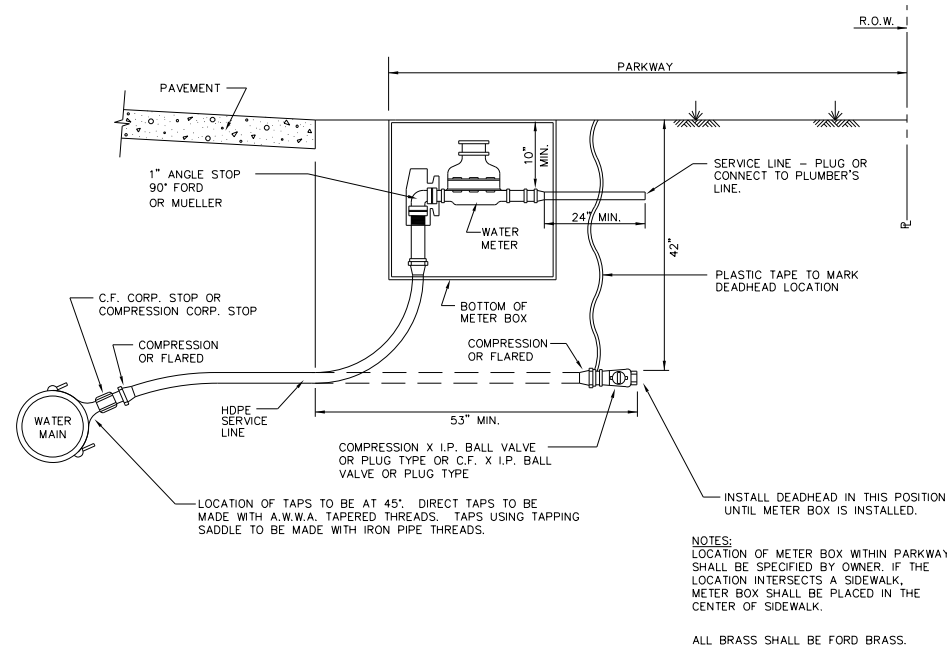
TXDOT NOTE: ALL FACILITIES, THAT WILL BE IN DIRECT CONFLICT WITH TXDOT CONSTRUCTION, INCLUDING THE EX. WATER LINE, ARE REQUIRED TO BE REMOVED FROM R.O.W. ALL CONDUIT OR PIPE UNDER EX. PAVING WILL REMAIN. ALL CONDUIT OR PIPE 3 INCHES IN DIAMETER AND GREATER UNDER EX. PAVING WILL BE PURGED OF ALL CONTENTS, CAPPED, AND GROUT FILLED. THERE WILL BE NO EXCAVATION OF EX. PAVING FOR THE REMOVAL OF ANY FACILITIES. THERE WILL BE NO WET BORES IN TXDOT R.O.W. THE APPROXIMATE DEPTH OF THE EX. PIPELINE OR CONDUIT TO BE ABANDONED IS +/- 4'. THE APPROX. LINEAR FOOTAGE OF THE EX. PIPELINE THAT SHALL BE REMOVED IS 2480 LF. SEE END OF SET FOR REMOVAL & ABANDONMENT EXHIBIT.



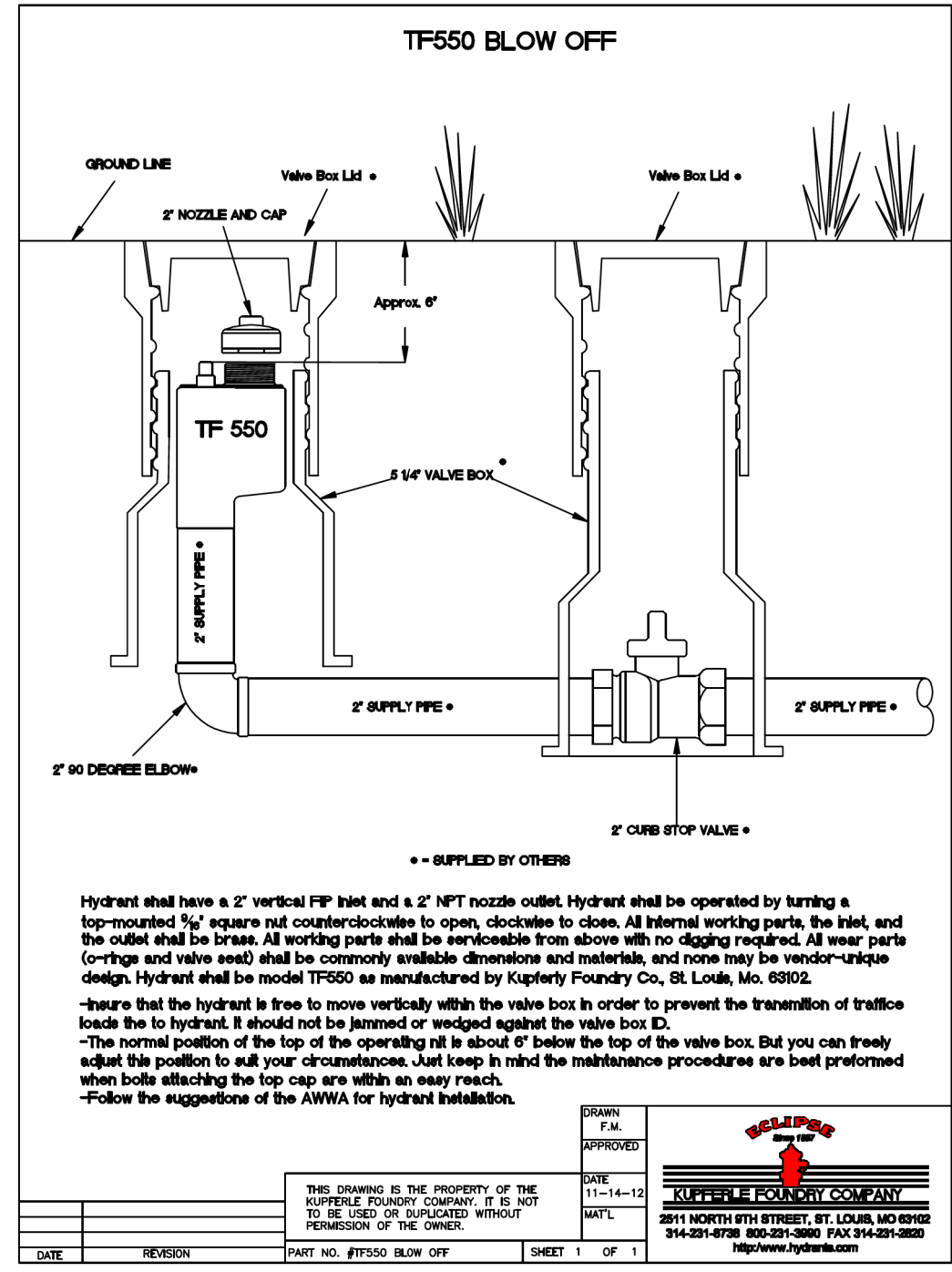
NO.	DATE	REVISIONS	APPROVED
12" WATER RELOCATION			
FM 1378, PRADO VERDE DR., FM 3286			
WATER PLAN & PROFILE			
STA 29+00.00 TO STA 34+00.00			
CITY OF LUCAS, TEXAS			
HUNT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
GCP	GCP	JH	1"=20'H 1"=5'V
DATE	PROJ. NO.	SHEET	
NOV 2022	R31149001	11	

CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

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 DATE: 11/15/2022
 TIME: 2:08:49 PM



WATER SERVICE INTALLATION
 N. T. S. 1" LINE



TXDOT NOTE: ALL FACILITIES, THAT WILL BE IN DIRECT CONFLICT WITH TXDOT CONSTRUCTION, INCLUDING THE EX. WATER LINE, ARE REQUIRED TO BE REMOVED FROM R.O.W. ALL CONDUIT OR PIPE UNDER EX. PAVING WILL REMAIN. ALL CONDUIT OR PIPE 3 INCHES IN DIAMETER AND GREATER UNDER EX. PAVING WILL BE PURGED OF ALL CONTENTS, CAPPED, AND GROUT FILLED. THERE WILL BE NO EXCAVATION OF EX. PAVING FOR THE REMOVAL OF ANY FACILITIES. THERE WILL BE NO WET BORES IN TXDOT R.O.W. THE APPROXIMATE DEPTH OF THE EX. PIPELINE OR CONDUIT TO BE ABANDONED IS +/- 4'. THE APPROX. LINEAR FOOTAGE OF THE EX. PIPELINE THAT SHALL BE REMOVED IS 2480 LF. SEE END OF SET FOR REMOVAL & ABANDONMENT EXHIBIT.



THIS DRAWING IS THE PROPERTY OF THE KUPPERLE FOUNDRY COMPANY. IT IS NOT TO BE USED OR DUPLICATED WITHOUT PERMISSION OF THE OWNER.

DATE 11-14-12
 MAT'L

ECLIPSE
 KUPPERLE FOUNDRY COMPANY
 2811 NORTH 9TH STREET, ST. LOUIS, MO 63102
 314-231-8738 800-231-3690 FAX 314-231-2820
 http://www.hydrants.com

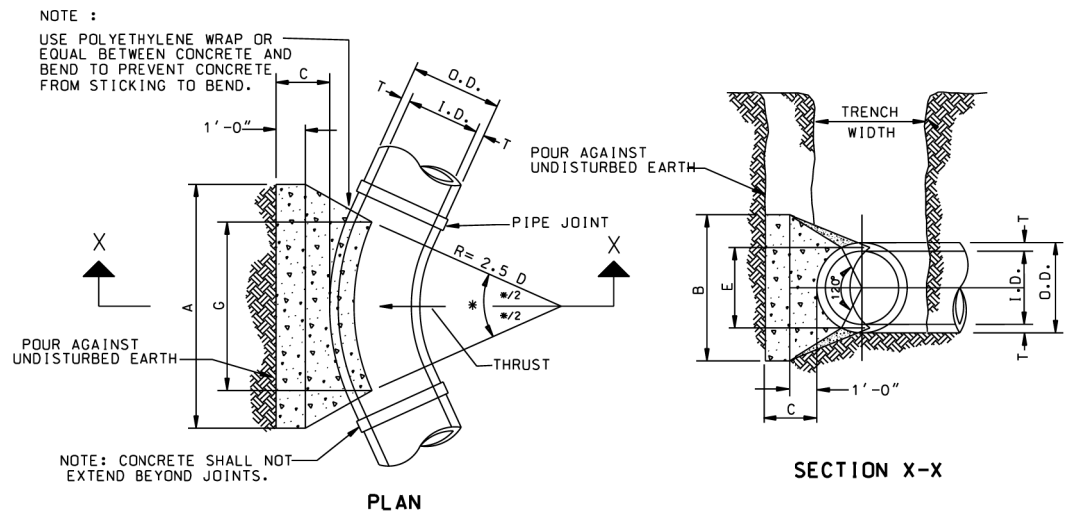
DATE	REVISION

PART NO. #TF550 BLOW OFF SHEET 1 OF 1

NO.	DATE	REVISIONS	APPROVED
12" WATER RELOCATION			
FM 1378, PRADO VERDE DR., FM 3286			
WATER DETAILS - 2			
CITY OF LUCAS, TEXAS			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
GCP	GCP	JH	NTS
DATE	PROJ. NO.	SHEET	
NOV 2022	R31149001	14	

CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

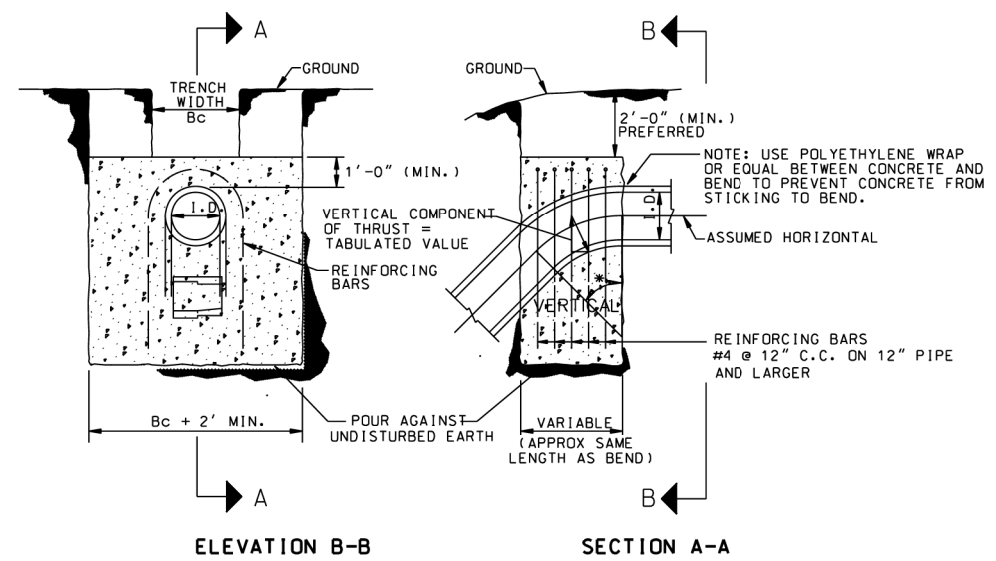
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 1:40
 TIME: 2:08:56 PM DATE: 11/15/2022



		I = 11.25										I = 22.50										I = 30									
		EARTH					ROCK					EARTH					ROCK					EARTH					ROCK				
I.D. (IN)	T (IN)	C (FT)	E (FT)	G (FT)	THRUST (TONS)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	G (FT)	THRUST (TONS)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	G (FT)	THRUST (TONS)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	
4.6	80.4	1.5	1.5	0.9	0.4	1.0	1.0	1.5	0.1	1.0	0.1	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1	1.0	1.5	0.1	
12	0.5	1.5	1.5	1.2	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2	2.0	1.5	0.2

		I = 45										I = 67.50										I = 90									
		EARTH					ROCK					EARTH					ROCK					EARTH					ROCK				
I.D. (IN)	T (IN)	C (FT)	E (FT)	G (FT)	THRUST (TONS)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	G (FT)	THRUST (TONS)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	G (FT)	THRUST (TONS)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	A (FT)	B (FT)	VOL (CY)	
4.6	80.4	1.5	1.5	0.9	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2	2.0	2.0	0.2
12	0.5	1.5	1.5	1.2	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4	4.0	16.0	6.5	2.5	1.0	3.5	2.5	0.5	3.5	2.5	0.5

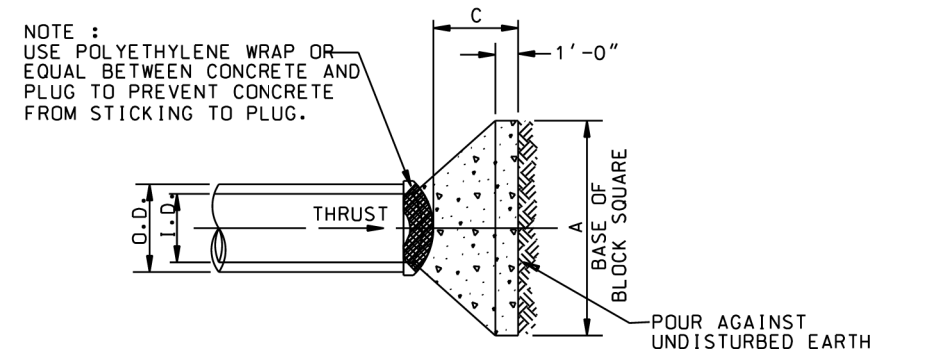
HORIZONTAL THRUST BLOCK
N. T. S.



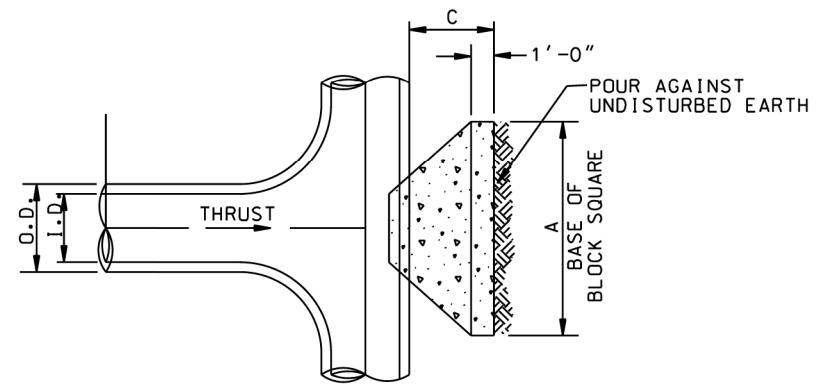
I	11.25°	22.50°	30°	45°	67.50°	90°
I.D. (IN)	4.6	8.0	12	12	12	12
THRUST (TONS)	0.5	1.0	1.5	1.8	2.3	2.5
VOL. C.Y.	0.5	1.0	1.5	1.8	2.3	2.5
THRUST (TONS)	2.0	4.0	6.0	8.0	10.5	11.3
VOL. C.Y.	2.0	4.0	6.0	8.0	10.5	11.3
THRUST (TONS)	4.3	8.7	13.0	17.3	22.6	24.6
VOL. C.Y.	4.3	8.7	13.0	17.3	22.6	24.6

VERTICAL BEND THRUST BLOCK
N. T. S.

- GENERAL NOTES FOR ALL THRUST BLOCKS :
1. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 P.S.I.
 2. VOLUMES OF VERTICAL BEND THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THRUST ON THE VERTICAL BEND.
 3. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
 4. CONCRETE FOR BLOCKING SHALL BE CLASS B CONCRETE.
 5. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.



PLAN OF PLUG THRUST BLOCK



PLAN OF TEE THRUST BLOCK

I.D. (IN)	THRUST (TONS)	EARTH			ROCK		
		C (FT)	A (FT)	VOL (CY)	A (FT)	VOL (CY)	
4.6	8	1.5	2.5	0.3	2.0	0.2	
12	11.3	1.5	3.5	0.6	2.5	0.3	
24	45.2	2.5	7.0	3.1	5.0	1.7	

PLUG AND TEE THRUST BLOCK
N. T. S.

TXDOT NOTE: ALL FACILITIES, THAT WILL BE IN DIRECT CONFLICT WITH TXDOT CONSTRUCTION, INCLUDING THE EX. WATER LINE, ARE REQUIRED TO BE REMOVED FROM R.O.W. ALL CONDUIT OR PIPE UNDER EX. PAVING WILL REMAIN. ALL CONDUIT OR PIPE 3 INCHES IN DIAMETER AND GREATER UNDER EX. PAVING WILL BE PURGED OF ALL CONTENTS, CAPPED, AND GROUT FILLED. THERE WILL BE NO EXCAVATION OF EX. PAVING FOR THE REMOVAL OF ANY FACILITIES. THERE WILL BE NO WET BORES IN TXDOT R.O.W. THE APPROXIMATE DEPTH OF THE EX. PIPELINE OR CONDUIT TO BE ABANDONED IS +/- 4'. THE APPROX. LINEAR FOOTAGE OF THE EX. PIPELINE THAT SHALL BE REMOVED IS 2480 LF. SEE END OF SET FOR REMOVAL & ABANDONMENT EXHIBIT.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JOHN HO, P.E. 58873 ON NOVEMBER 15, 2022

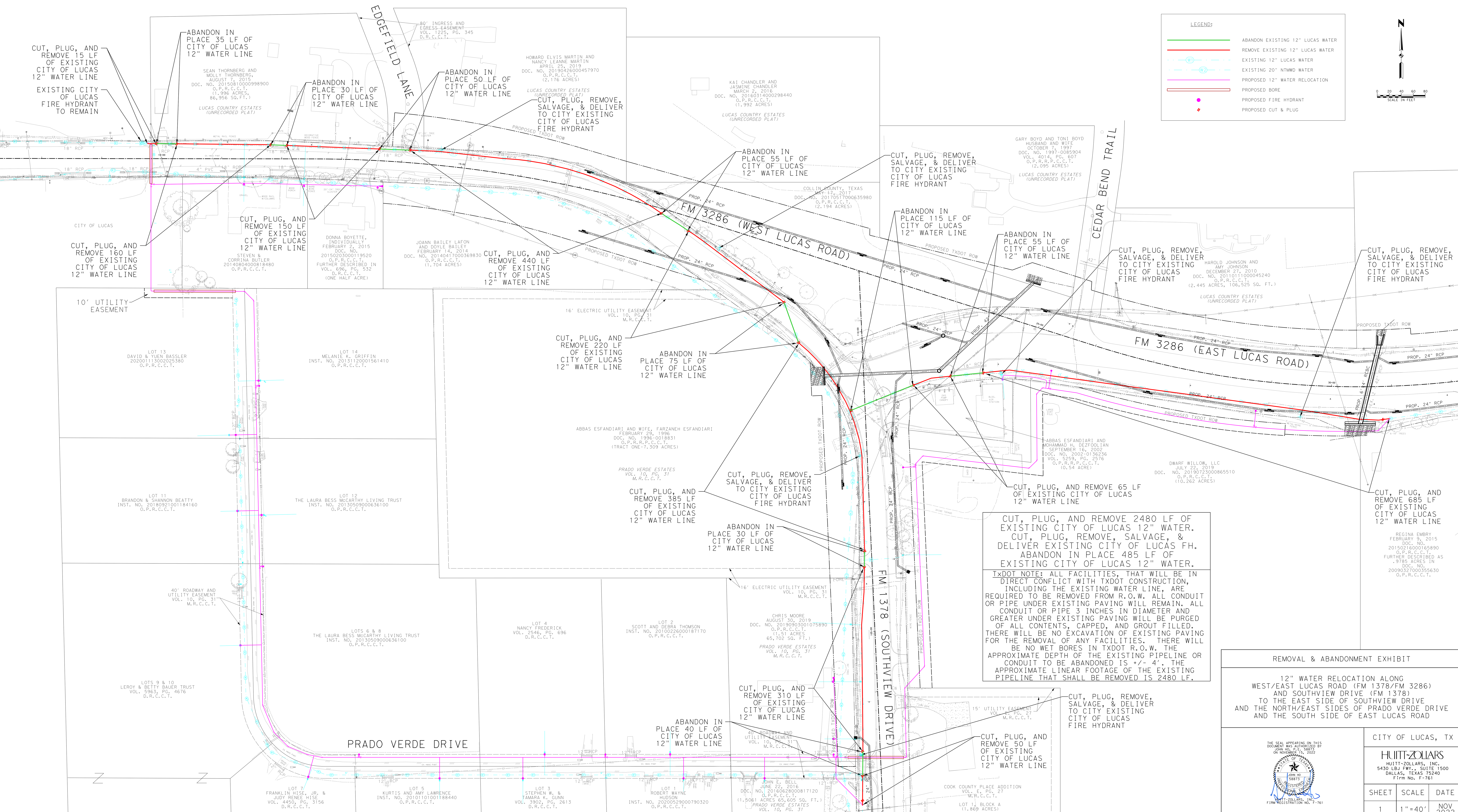
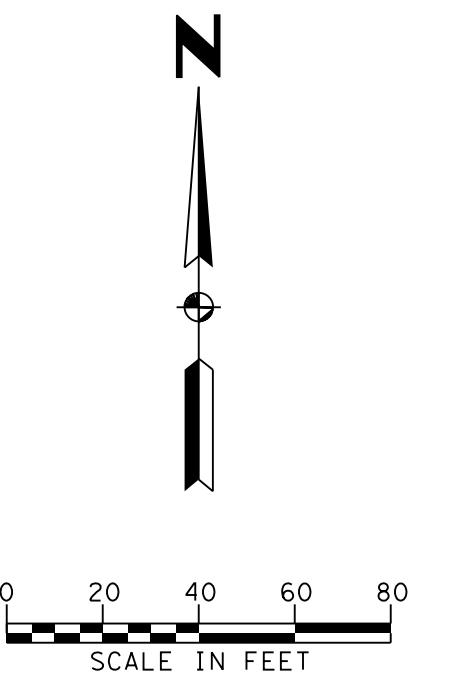
HUITT-ZOLLARS, INC.
FIRM REGISTRATION NO. F-761

NO.	DATE	REVISIONS	APPROVED
12" WATER RELOCATION			
FM 1378, PRADO VERDE DR., FM 3286			
WATER DETAILS - 3			
CITY OF LUCAS, TEXAS			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
GCP	GCP	JH	NTS
DATE	PROJ. NO.	SHEET	
NOV 2022	R31149001	15	

CITY OF LUCAS - BAIT SHOP WATERLINE RELOCATION

LEGEND:

- ABANDON EXISTING 12" LUCAS WATER
- REMOVE EXISTING 12" LUCAS WATER
- EXISTING 12" LUCAS WATER
- EXISTING 20" NTMWD WATER
- PROPOSED 12" WATER RELOCATION
- PROPOSED BORE
- PROPOSED FIRE HYDRANT
- ◆ PROPOSED CUT & PLUG



CUT, PLUG, AND REMOVE 2480 LF OF EXISTING CITY OF LUCAS 12" WATER. CUT, PLUG, REMOVE, SALVAGE, & DELIVER EXISTING CITY OF LUCAS FH. ABANDON IN PLACE 485 LF OF EXISTING CITY OF LUCAS 12" WATER.

TxDOT NOTE: ALL FACILITIES, THAT WILL BE IN DIRECT CONFLICT WITH TxDOT CONSTRUCTION, INCLUDING THE EXISTING WATER LINE, ARE REQUIRED TO BE REMOVED FROM R.O.W. ALL CONDUIT OR PIPE UNDER EXISTING PAVING WILL REMAIN. ALL CONDUIT OR PIPE 3 INCHES IN DIAMETER AND GREATER UNDER EXISTING PAVING WILL BE PURGED OF ALL CONTENTS, CAPPED, AND GROUT FILLED. THERE WILL BE NO EXCAVATION OF EXISTING PAVING FOR THE REMOVAL OF ANY FACILITIES. THERE WILL BE NO WET BORES IN TxDOT R.O.W. THE APPROXIMATE DEPTH OF THE EXISTING PIPELINE OR CONDUIT TO BE ABANDONED IS +/- 4'. THE APPROXIMATE LINEAR FOOTAGE OF THE EXISTING PIPELINE THAT SHALL BE REMOVED IS 2480 LF.

REMOVAL & ABANDONMENT EXHIBIT

12" WATER RELOCATION ALONG WEST/EAST LUCAS ROAD (FM 1378/FM 3286) AND SOUTHVIEW DRIVE (FM 1378) TO THE EAST SIDE OF SOUTHVIEW DRIVE AND THE NORTH/EAST SIDES OF PRADO VERDE DRIVE AND THE SOUTH SIDE OF EAST LUCAS ROAD

CITY OF LUCAS, TX

HUITT-ZOLLARS
HUITT-ZOLLARS, INC.
5430 LBJ FWY., SUITE 1500
DALLAS, TEXAS 75240
Firm No. F-761

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JOHN NO. 24,54825 ON NOVEMBER 15, 2022

SHEET	SCALE	DATE
1	1"=40'	NOV 2022