SYMBOL LEGEND

- EM — Electric Meter
- EB — Electric Box
- ET — Electric Transformer
- FH — Fire Hydrant
- GM — Gas Meter
- GV — Gas Valve
- GUY — Guy Anchor
- ICV — Irrigation Control Valve
- JB — Junction Box
- LP — Light Pole
- MB — Mailbox
- PP — Power Pole
- SN — Sign
- SSCO — Sanitary Sewer Cleanout
- SSMH — Sanitary Sewer Manhole
- SDMH — Storm Drain Manhole
- SH — Sprinkler Head
- TS — Traffic Signal
- TSB — Traffic Signal Box
- TPED — Telephone Pedestal
- UG — Underground Gas
- UGM — Underground Gas Meter
- UTMH — Underground Telephone Manhole
- WM — Water Meter
- WV — Water Valve
- — Deciduous Tree
- — Coniferous Tree
- — Bush
- — Bench Mark
- — Survey Control Point Found
- — Survey Control Point Set

CONSTRUCTION PLANS FOR TULSA METROPOLITAN UTILITY AUTHORITY

CITYWIDE 2" WATERLINE REPLACEMENT

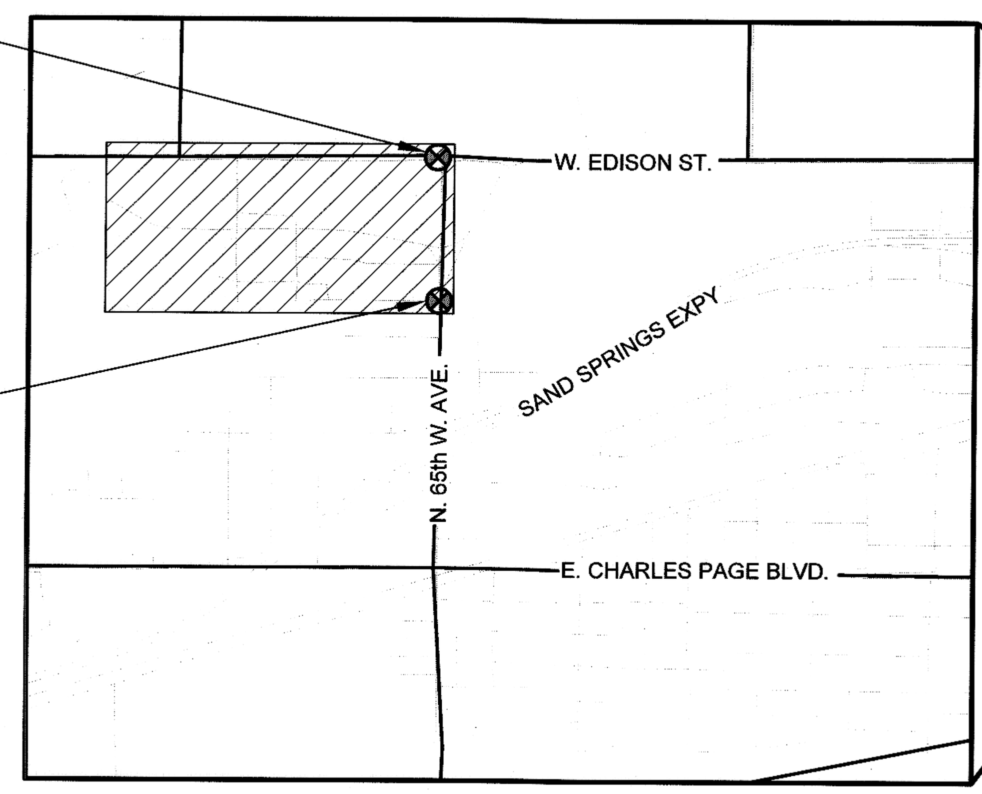
IN THE VICINITY OF W. EDISON ST. & N. 65th W. AVE.

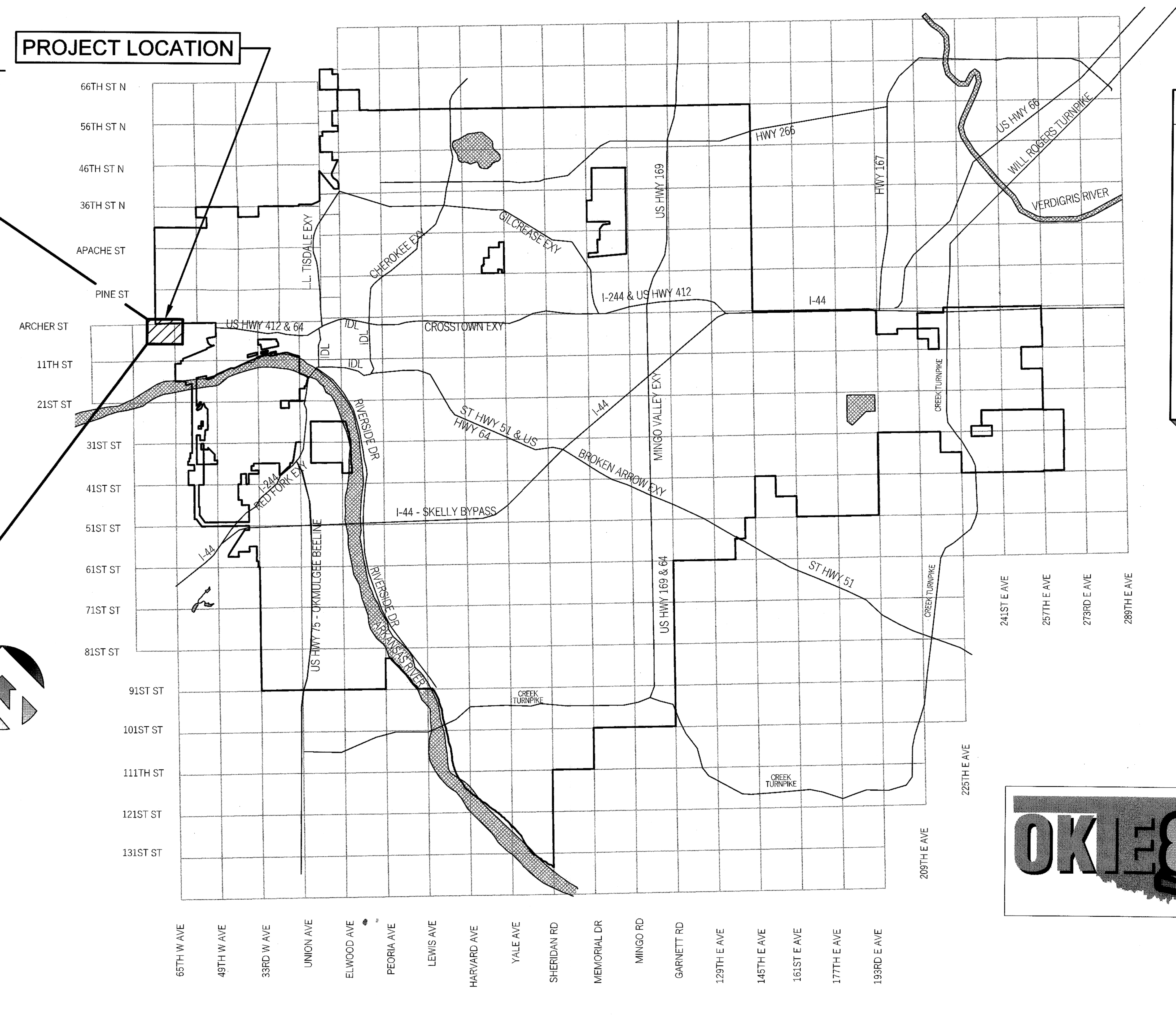
PROJECT NO. TMUA-W 18-14
CITY OF TULSA, OKLAHOMA

INDEX OF SHEETS	
SHEET No.	DESCRIPTION
01	TITLE SHEET
02	PAY ITEMS
03	NOTES
04	PROJECT OVERVIEW
05	WATER METER SUMMARY
06-27	PLAN & PROFILES
28-29	SURVEY DATA
30	DETAILS
31-35	HDPE DETAILS
36	WATER ATLAS 107

BENCHMARK CONTROL DATA

HORIZONTAL DATUM: OKLAHOMA STATE PLANE COORDINATE SYSTEM, NAD83 [1993]
VERTICAL DATUM: NAVD 1988
SEE SURVEY DATA SHEET FOR INITIAL CONTROL INFORMATION





CITY STANDARDS
102 - PROJECT SIGN
126 - STANDARD SILT FENCE AND CONSTRUCTION
304 - BEDDING DETAIL - RIGID PIPE
305 - BEDDING DETAIL - SEMI-RIDGE PIPE
306 - TRENCH DETAIL CONSTRUCTION ADJACENT TO ROADWAY
309 - FIRE HYDRANT
313 - VALVE BOX
315 - THRUST BLOCK AND TRENCH CONDITIONS
327 - COMBO AIR VACUUM / AIR RELIEF VALVE VAULT & 2" ARV < 5lbs
501 - STRD METER SETTINGS FOR ¾" AND 1" WATER SERVICES
505 - METER CAN WITH RIM & LID FOR ¾" AND 1" WATER METER CAN
713 - PAVEMENT REMOVAL AND REPLACEMENT
714 - PAVEMENT CUTS
725 - STANDARD PAVEMENT PATCH AND REPAIR
730 - STANDARD ASPHALT PAVEMENT CUT AND REPAIR
731 - STANDARD CONCRETE PAVEMENT CUT AND REPAIR
790 - STANDARD SIDEWALK RAMP

ODOT STANDARDS	
FOR TRAFFIC CONTROL	
TCS1-1-02E	TCS31-1-00E
TCS2-1-00E	TCS33-1-00E
TCS4-1-00E	TCS37-1-00E
TCS5-1-00E	TCS38-1-00E
TCS6-1-00E	TCS42-1-00E
TCS8-1-00E	TCS48-1-00E
TCS9-1-00E	RWF3-1-01E
TCS29-1-00E	

ODOT STANDARDS
FOR EROSION CONTROL
SSS-1 SOLID SLAB SOD

NOTE:
THIS DESIGN IS SPECIFICALLY PREPARED FOR USE AT THIS LOCATION SHOWN. USE IN ANY OTHER MANNER EXCEEDS THE INTENDED PURPOSE OF THESE DRAWINGS AND SPECIFICATIONS

UTILITY COORDINATION BOX	
COMPANY	NUMBER
ENGINEERING SERVICES	
WATER DESIGN	918-596-9580
WASTE WATER DESIGN	918-596-9564
TRANSPORATION DESIGN	918-596-9636
TRAFFIC ENGINEERING DESIGN	918-596-9749
STORMWATER DESIGN	918-596-9498
COT IT NETWORK SERVICES	918-596-7070
COT UTILITY (CHRIS KOVAC)	918-596-9649
ONG (JONATHON MEADOWS)	918-831-8215
COX (BRANDON WADE)	918-286-4716
AEP (ADAM FIELDS)	918-250-6257
AT&T (AL NICHOLOS)	918-596-4237

GOVERNMENT EXTERNAL SPECIFICATIONS:

1) 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION - ENGLISH GOVERN. APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JAN. 4TH, 2010.

2) CITY OF TULSA ENGINEERING DESIGN CRITERIA AND STANDARD SPECIFICATIONS.

3) ODEQ REQUIREMENTS.

THIS PROJECT COMPLIES WITH ALL OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REQUIREMENTS.

OKIE 811

APPROVED BY:

Clayton Edwards 11-5-20
DIRECTOR, WATER AND SEWER DEPT. DATE

APPROVED BY:

11.13.20
CITY ENGINEER DATE

PLANS PREPARED BY:

KEITHLINE ENGINEERING GROUP, PLLC KE
8556 East 101st Street, Suite C
Tulsa, OK 74133
(918) 520-0069

CERTIFICATE OF AUTHORIZATION NO. 5736
RENEWAL DATE - June 30, 2021

SIGNED BY:

Daniel A. Keithline 09/24/2020
Daniel A. Keithline, P.E. DATE
OKLA. REG. P.E. No. 17348

Jim Umdenstock 09/24/2020
James R. Umdenstock, P.E. DATE
OKLA. REG. P.E. No. 11407

LICENSED PROFESSIONAL ENGINEER DANIEL A. KEITHLINE 17348 OKLAHOMA

LICENSED PROFESSIONAL ENGINEER JAMES R. UMDENSTOCK 11407 OKLAHOMA

CITY OF TULSA OKLAHOMA 1898

TMUA-W 18-14 - CITYWIDE 6" WATERLINE REPLACEMENT

PAY QUANTITIES

PROJECT NO: TMUA-W 18-14

150 CDs

BID ITEM	SPEC NO.	DESCRIPTION	PAY NOTES	UNIT	QTY	WL 'A'	WL 'B'	WL 'C'	WL 'D'	WL 'E'	WL 'F'	WL 'G'
BASE BID												
1	301A	RIGHT-OF-WAY CLEARING AND RESTORING	4,5,6,7,17,22,23,45	LF	6208	720	267	1421	997	982	402	1419
2	302A	EXCAVATION AND BACKFILL	14,22	CY	2429	267	99	526	369	364	149	526
3	303A	MOBILIZATION		EA	1	0.10	0.05	0.20	0.15	0.20	0.10	0.20
4	304B	CONTRACTOR CONSTRUCTION STAKING		EA	1	0.10	0.05	0.20	0.15	0.20	0.10	0.20
5	312C	6-INCH PLUG, RJ	2,8	EA	2	1		1				
6	312F	REMOVE SERVICE CORP AND INSTALL PLUG	2,8,9,30	EA	69	6	1	7	11	14	6	24
7	312G	12-INCH S-B 413 SLEEVE, OR EQUAL (FOR CONNECTING TO OUT-OF-ROUND CI PIPE)	2,12,44,47	EA	6	2	2		2			
8	312H	6-INCH S-B 413 SLEEVE, OR EQUAL (FOR CONNECTING TO OUT-OF-ROUND CI PIPE)	2,12,44,47	EA	14	2	2	2	2	2	2	2
9	312I	12-INCH SOLID DI SLEEVE,RJ (FOR CONNECTING TO ROUND DIP)	2,8,47	EA	3	1	1		1			
10	312J	6-INCH SOLID DI SLEEVE,RJ (FOR CONNECTING TO ROUND DIP)	2,8,47	EA	17	2	2	2	2	3	2	4
11	315A	3/4-INCH METER METER CAN, RIM AND LID		EA	68	6	4	4	8	14	8	24
12	315B	1-INCH WATER METER CAN, RIM AND LID		EA	2			1	1			
13	315C	3-WAY FIRE HYDRANT (3 FT BURY DEPTH)	31	EA	18	3		5	2	3	2	3
14	315D	3/4" SERVICE LINES, EXTENTION (CONTIGENCY)	15,16	LF	100							
15	315E	6-IN HYDRANT EXTENSION		EA	19	3		5	2	4	2	3
16	317A	2-INCH AIR RELIEF VALVE, STD. 327		EA	4			1	1	1		1
17	318A	VALVE BOX	21	EA	19	3	0	5	2	3	2	4
18	318B	VALVE BOX EXTENSION		EA	19	3	0	5	2	3	2	4
19	322A	STEEL CONDUIT OPEN CUT 12-INCH (3/8" WALL THICKNESS) (CONTIGENCY ONLY)	2	LF	20							
20	325A	SLAB SOD	32	SY	1724	200	74	395	277	273	112	394
21	326A	STREET WASHDOWN	22	LF	6208	720	267	1421	997	982	402	1419
22	327A	SAFETY FENCE	22,33	LF	300							
23	327B	BARRELS WITH STEADY BURN LIGHTS	34	SD	4410							
24	327C	TUBE CHANNELIZER W/TYPE 'A' FLASHING LIGHTS,RJ	34	SD	6300							
25	327D	TYPE III BARRICADES W/TYPE 'A' FLASHING LIGHTS	34	SD	1890							
26	327E	ADVANCED WARNING ARROW PANELS	34	SD	190							
27	327F	SIGNS, 0 TO 15.99 SF W/TYPE 'A' FLASHING LIGHTS	34	SD	300							
28	327G	SIGNS, 16 SF AND OVER W/TYPE 'A' FLASHING LIGHTS	34	SD	720							
29	327H	FLAG PERSON	34	FD	75							
30	328A	8-INCH (HDPE) OR 6-INCH (DIP) BORE (NO PVC) - BORE ONLY	35,48,49	LF	1824	95	124	448	260	310	406	181
31	328B	8-INCH HDPE BORE - BORE ONLY UNDER BIG HEART CREEK	35,48,49	LF	421	240	181					
32	329A	REMOVE & REPAIR ASPHALT PAVEMENT (STD. 730)		SY	123	43	0	14	0	0	0	66
33	329F	SAW CUT	22	LF	286	270	0	16	0	0	0	0
34	329I	REMOVE & REPLACE 6-IN CONCRETE DRIVEWAY(H.E.S) (CONTINGENCY ONLY)		SY	15							
35	330A	SILT FENCE	37	LF	140	20	20	20	20	20	20	20
36	SPECIAL - 1	REPAIR DAMAGED ONG SERVICE (CONTINGENCY ONLY)	42	ALLOW	1							
37	SPECIAL -2	CONSTRUCTION AS-BUILT		EA	1							
38	SPECIAL - 3	BLOW-OFF HYDRANT (STD 310) (CONTINGENCY ONLY)	22	EA	2							
39	SPECIAL - 4	OWNERS ALLOWANCE	18	ALLOW	1							
40	SPECIAL -5	REMOVE AND DISPOSE OF EXISTING 24" DIA TREE AT STA 92+73 SHT 20	50	EA	2			1		1		
Material Option 1 (DIP)												
41	307A	12-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED, RJ	1,2,3,8,9,11,27,46	LF	120	20	10	10	80	0	0	0
42	307B	6-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED	1,2,3,9,11,27,46	LF	2543	64	0	735	457	522	235	530
43	307C	6-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED, RJ	1,2,3,8,9,11,27,46	LF	5369	731	381	1124	720	770	573	1070
44	309A	8-INCH DIRECT DRILLED HDPE AWWA C906 PE 4710 DR11 (DIPS) AT BIG HEART CREEK	1,2,3,9,10,19,20,27,38, 39,46	LF	421	240	181					
45	312A	12-INCHx12-INCHx6-INCH DUCTILE IRON TEE, RJ	2,8	EA	2				2			
46	312B	6-INCHx6-INCHx6-INCH DUCTILE IRON TEE, RJ	2,8	EA	19	4	1	6	1	3	1	3
47	312C	6-INCH DUCTILE IRON - 90 DEGREE BEND, RJ	2,8	EA	3			1				2
48	312D	6-INCH DUCTILE IRON - 45 DEGREE BEND, RJ	2,8	EA	14	1	2	9	2			
49	312E	6-INCH DUCTILE IRON - 22 1/2 DEGREE BEND, RJ	2,8	EA	1	1						
50	312F	6-INCH DUCTILE IRON - 11 1/4 DEGREE BEND, RJ	2,8	EA	7	4	2	1		1		
51	312G	8-INCH x 6-INCH DIP REDUCER, RJ (FOR DIRECTIONAL DRILLED HDPE)	2,8	EA	4	2	2					
52	312H	8-INCH HDPE MJ ADAPTER (DIPS) (RJ) (FOR DIRECTIONAL DRILLED HDPE)	38	EA	4	2	2					
53	312I	8-INCH HDPE WALL ANCHOR (DIPS) (RJ) (FOR DIRECTIONAL DRILLED HDPE)	26,40,41	EA	4	2	2					
54	315A	1- INCH WATER CONNECTION (LONG)	15,16	EA	1				1			
55	315B	1-INCH WATER CONNECTION (SHORT)	15,16	EA	1			1				
56	315C	3/4 INCH WATER CONNECTION (LONG)	15,16	EA	28		1		2	7	6	12
57	315D	3/4 INCH WATER CONNECTION (SHORT)	15,16	EA	40	6	3	4	6	7	2	12
58	317A	12-INCH DUCTILE IRON GATE VALVE, RJ	8	EA	2		2					
59	317B	6-INCH DUCTILE IRON GATE VALVE, RJ	8	EA	19	4	1	4	2	3	1	4
Material Option 2 (PVC)												
60	307B	12-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED, RJ	1,2,3,8,9,11,27,46	LF	120	20	10	10	80			
61	309A	6-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED, RJ	1,2,3,9,10,27,43,46	LF	5369	731	381	1124	720	770	573	1070
62	309B	8-INCH DIRECT DRILLED HDPE AWWA C906 PE 4710 DR11 (DIPS) AT BIG HEART CREEK	1,2,3,9,10,19,20,27,38, 39,46	LF	421	240	181					
63	309C	6-INCH PVC PIPE, AWWA C900, CLASS 200, DR14	1,2,3,9,10,27,43,46	LF	2543	64	0	735	457	522	235	530
64	312A	12-INCHx12-INCHx6-INCH DUCTILE IRON TEE, RJ	2,8	EA	2				2			
65	312B	6-INCHx6-INCHx6-INCH DUCTILE IRON TEE, RJ	2,8	EA	19	4	1	6	1	3	1	3
66	312C	6-INCH DUCTILE IRON - 90 DEGREE BEND, RJ	2,8	EA	3			1				2
67	312D	6-INCH DUCTILE IRON - 45 DEGREE BEND, RJ	2,8	EA	14	1	2	9	2			
68	312E	6-INCH DUCTILE IRON - 22 1/2 DEGREE BEND, RJ	2,8	EA	1	1						
69	312F	6-INCH DUCTILE IRON - 11 1/4 DEGREE BEND, RJ	2,8	EA	7	4	2	1		1		
70	312G	8-INCH x 6-INCH DIP REDUCER, RJ (FOR DIRECTIONAL DRILED HDPE)	2,8	EA	4	2	2					
71	312H	8-INCH HDPE MJ ADAPTER (DIPS) (RJ) (FOR DIRECTIONAL DRILLED HDPE)	38	EA	4	2	2					
72	312I	8-INCH HDPE WALL ANCHOR (DIPS) (RJ)((FOR DIRECTIONAL DRILED HDPE)	26,40,41	EA	4	2	2					
73	315A	1-INCH WATER CONNECTION (LONG)	15,16	EA	1				1			
74	315B	1-INCH WATER CONNECTION (SHORT)	15,16	EA	1			1				
75	315A	3/4 INCH WATER CONNECTION (LONG)	15,16	EA	28		1		2	7	6	12
76	315B	3/4 INCH WATER CONNECTION (SHORT)	15,16	EA	40	6	3	4	6	7	2	12
77	317A	12-INCH DUCTILE IRON GATE VALVE, RJ	8	EA	3	1	2					
78	317B	6-INCH DUCTILE IRON GATE VALVE, RJ	2,8	EA	19	4	1	4	2	3	1	4
Material Option 3 (HDPE)												
79	307B	12-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED, RJ	1,2,3,8,9,11,27,46	LF	120	20	10	10	80			
80	307C	6-INCH DIP, AWWA, CL51, POLYETHENE WRAPPED, RJ	1,2,3,8,9,11,27,46	LF	20	0	0	0	0	0	0	20
81	309A	8-INCH HDPE AWWA C906 PE 4710 DR11 (DIPS)	1,2,3,9,10,19,20,27,38, 39,46	LF	7892	805	381	1869	1177	1292	808	1560
82	309B	8-INCH DIRECT DRILLED HDPE AWWA C906 PE 4710 DR11 (DIPS) AT BIG HEART CREEK	1,2,3,9,10,19,20,27,38, 39,46	LF	421	240	181					
83	312A	12-INCHx12-INCHx6-INCH DUCTILE IRON TEE, RJ	2,8	EA	4			2	2			
84	312C	6-INCH HDPE - 90 DEGREE BEND, RJ	2,8	EA	3			1				2
85	312B	8-INCH HDPE - 45 DEGREE BEND, RJ	38	EA	14	1	2	9	2			
86	312C	8-INCH x 6-INCH DIP REDUCER, RJ	2,8	EA	38	6	2	9	6	5	2	8
87	312D	8-INCH HDPE MJ ADAPTER (DIPS) (RJ)	38	EA	38	6	2	9	6	5	2	8
88	312E	6-INCHx6-INCHx6-INCH DI TEE, RJ	2,	EA	19	4	1	6	1	3	1	3
89	312F	8-INCH HDPE WALL ANCHOR (DIPS) (RJ)	26,40,41	EA	40	8	2	9	6	5	2	8
90	315A	1-INCH WATER CONNECTION (LONG)	15,16	EA	1				1			
91	315B	1-INCH WATER CONNECTION (SHORT)	15,16	EA	1			1				
92	315C	3/4 INCH WATER CONNECTION (LONG)	15,16	EA	28		1		2	7	6	12
93	315D	3/4 INCH WATER CONNECTION (SHORT)	15,16	EA	40	6	3	4	6	7	2	12
94	317A	12-INCH DUCTILE IRON GATE VALVE, RJ	8	EA	3	1	2					
95	317B	8-INCH DUCTILE IRON GATE VALVE, RJ	2,8	EA	19	4	1	4	2	3	1	4

STATION SUMMARY

6-INCH WATERLINE	BEGIN STA.	END STA.	STATION TO STATION
A	10+00	20+35	1,035
B	30+00	35+62	562
C	40+00	58+59	1,859
D	60+00	72+52	1,252
E	80+00	92+92	1,292
F	100+00	108+08	808
G	118+98	134+78	1,580
TOTAL LENGTHS STA TO STA			8,388
TOTAL 12-/6-INCH PIPE			

TYPE OF PIPE

6" RJ PIPE (HDPE-PVC -DIP)	12" PIPE RJ	DIRECTIONAL DRILLED 8" HDPE	6" PUSH-ON PIPE (HDPE-PVC-DIP)	12" DIP PERPENDICLAR CONNECTIONS RJ	6" DIP PERPENDICLAR CONNECTIONS RJ
731		240	64	20	
381		181		10	
1,124			735	10	
720	75		457	5	
770			522		
573			235		
1,050			530		20
5,349	75	421	2,543	45	20
8,453					

PIPE TOTALS

6" PUSH-ON PIPE (HDPE,PVC, OR DIP)	6" RJ (HDPE,PVC, OR DIP)	DIRECTIONAL DRILLED 8" HDPE	12" DIP RJ PIPE ONLY	6" / 8" BORE LENGTH	8" BORE UNDER BIG HEART CREEK
64	731	240	20	95	240
	381	181	10	124	181
735	1,124		10	448	
457	720		80	260	
522	770			310	
235	573			406	
530	1,070			181	
2,543	5,369	421	120		
8,453				1,824	421

James R. Umdenstock
LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE811

PAY ITEMS

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	RMW	10/2020	
			HORIZONTAL:	LEAD ENGINEER	DEW	10/2020	
			----	FIELD MGR	[illegible]	4/20	
			VERTICAL:	RECOMMENDED: HAS 11-20			
			----	DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 02 OF 36 SHEETS

PAY ITEM NOTES (TYPICAL)

1. **TESTING AND CHLORINATION** OF WATER MAINS SHALL BE PERFORMED BY THE CITY OF TULSA. TESTING, CHLORINATION, AND FLUSHING SHALL BE DONE IN ACCORDANCE WITH SECTION 109.3 OF THE GENERAL SPECIFICATIONS.
   A. CONTRACTOR SHALL FURNISH AND INSTALL **TEMPORARY PLUGS** WITH ADEQUATE BLOCKING OR **RESTRAINTS**, PLUS CORPORATION STOPS, AS DIRECTED BY CITY TESTING PERSONNEL, THEN, ONCE TESTING, CHLORINATION AND FLUSHING BY CITY PERSONNEL IS COMPLETED, REMOVE **TEMPORARY BLOCKING** AND TIE INTO EXISTING SYSTEM, USING FITTINGS **SWABBED INTERNALLY** WITH 2% BLEACH SOLUTION.
   B. TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAIN SHALL BE PERFORMED BY CITY PERSONNEL ON MAINS WHICH ARE PHYSICALLY DISCONNECTED FROM THE EXISTING WATER SYSTEM. TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAINS SHALL **NOT BE PERFORMED** AGAINST VALVES WHICH ARE PHYSICALLY CONNECTED TO EXISTING SYSTEM.
   C. **ALL COSTS** FOR TEMPORARY PLUGS, BLOCKING, RESTRAINING, CORPORATION STOPS, TUBING, THREADED CONNECTIONS, BLEACH AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.
2. BURIED BOLTS, HARNESS LUGS, AND COUPLINGS SHALL BE GIVEN **TWO COATS OF KOPPER'S BITUMASTIC 300-M** (DRY MIL THICKNESS OF 16 MILS) OR EQUAL. COST TO BE INCLUDED IN UNIT PRICE BID FOR PIPE AND FITTINGS.
3. CONTRACTOR TO **EXCAVATE ALL UTILITY CROSSINGS AHEAD OF PIPE LAYING** SO THAT THE GRADES CAN BE ADJUSTED ON THE PROPOSED WATER MAIN TO AVOID UTILITY CONFLICTS. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER MAIN. COST FOR EXCAVATING UTILITY CROSSINGS SHALL BE INCLUDED IN UNIT PRICE BID FOR PIPE.
4. CONTRACTOR SHALL **INSURE ALL POLES** WHICH ARE AFFECTED BY TRENCHING CONDITIONS ARE BRACED BY OWNERS. PAYMENT SHALL BE INCLUDED IN "RIGHT-OF-WAY CLEARING AND RESTORING". NO ADDITIONAL PAYMENT SHALL BE MADE.
5. ALL HYDRANTS, VALVES AND OTHER FITTINGS FROM ABANDONED WATER MAINS SHALL BE **SALVAGED AND DELIVERED TO SOUTH YARD**, 2317 S JACKSON. PAYMENT TO BE MADE UNDER RIGHT OF WAY CLEARING AND RESTORING. NO ADDITIONAL PAYMENT SHALL BE MADE.
6. CONTRACTOR SHALL REPAIR ANY **IRRIGATION SYSTEMS, ROOF DRAINS, AND FENCING DAMAGED** IN THE ZONE OF CONSTRUCTION DURING THE COURSE OF CONSTRUCTION TO SATISFACTION OF THE PROPERTY OWNER. PAYMENT SHALL BE INCLUDED IN RIGHT-OF- WAY CLEARING AND RESTORING. NO ADDITIONAL PAYMENT SHALL BE MADE.
7. **COST OF ANY TEMPORARY LIVESTOCK FENCING** AND POLES SHALL BE INCLUDED IN COST OF RIGHT OF WAY CLEARING AND RESTORING. NO ADDITIONAL PAYMENT SHALL BE MADE.
8. ALL COSTS FOR COMPONENTS NECESSARY TO RESTRAIN JOINTS FOR PIPE AND FITTINGS DESIGNATED RESTRAINED JOINT ("RJ") SHALL BE INCLUDED IN UNIT PRICE BID FOR PIPE OR FITTINGS.
   A. **DUCTILE IRON PIPE RESTRAINED JOINT SYSTEMS**: US PIPE TRFLEX, GRIFFIN SNAPLOK, MCWANE THRUSTLOCK, AMERICAN FLEXRING, EBAA MEGALUG, STAR STARGRIP, SMITH-BLAIR CAMLOCK, CLOW TUFGRIP OR EQUAL SHALL BE USED ON THIS PROJECT. SHOULD RJ PIPE BE SPECIFIED THROUGH UNCASED BORES, ONLY USPIPE TRFLEX, GRIFFIN SNAPLOK, MCWANE THRUSTLOCK, OR AMERICAN FLEXRING IS TO BE USED. LOCKING GASKETS NOT PERMITTED.
   B. **POLYVINYL CHLORIDE (PVC) RESTRAINED JOINT SYSTEMS**: EBAA MEGALUG, STAR STARGRIP OR EQUAL SHALL BE USED ON THIS PROJECT. LOCKING GASKETS NOT PERMITTED; SHOULD RJ PIPE BE SPECIFIED ON BORE CASING IS REQUIRED.
   C. **HIGH DENSITY POLYETHYLENE (HDPE) RESTRAINED JOINT SYSTEMS:** EBAA MEGALUG, STAR STARGRIP OR EQUAL SHALL BE USED ON THIS PROJECT.

   NO ADDITIONAL PAYMENT SHALL BE MADE.
9. ALL CUT ENDS AND WHERE SALVAGED FITTINGS HAVE BEEN REMOVED FROM ABANDONED WATER LINES LEFT IN PLACE, SHALL BE **PLUGGED WITH 24-IN OF CONCRETE INSIDE THE PIPE.** COST OF CONCRETE PLUGGING TO BE INCLUDED IN UNIT PRICE BID FOR PIPE. NO ADDITIONAL PAYMENT SHALL BE MADE.
10. TRACER WIRE AND DETECTABLE MYLAR MARKING TAPE SHALL BE INSTALLED **ABOVE ALL PVC AND HDPE PIPE**, TERMINATING ONLY ONTO HYDRANTS JUST ABOVE GROUND LEVEL AS PER CONST SPEC 310. COST OF TRACER WIRE AND DETECTABLE MYLAR TAPE SHALL BE INCLUDED IN UNIT PRICE BID FOR PVC AND HDPE PIPE. CONST SPEC 310.1 NOW ALLOWS #12 COPPER-CLAD STEEL (CCS) WIRE, 21% CONDUCTIVITY, IN LIEU OF #8 COPPER WIRE AS TRACER WIRE ATOP PVC AND HDPE PIPE.
11. **DETECTABLE MYLAR MARKING TAPE** SHALL BE INSTALLED OVER DUCTILE IRON PIPE AS PER CONST SPEC 307.3 AND 307.4. COST WILL BE INCLUDED IN COST OF DUCTILE IRON PIPE.
12. ALL LABOR, MATERIALS, AND EQUIPMENT TO CONNECT PROPOSED WATER MAINS TO EXISTING WATER MAINS ARE INCLUDED IN COST OF SLEEVES/ADAPTORS. **CONTRACTOR TO EXCAVATE** ALL EXISTING WATER MAINS AHEAD OF PIPE LAYING SO THAT THE GRADES CAN BE ADJUSTED ACCORDINGLY. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER MAIN. COST FOR EXCAVATING EXISTING WATER MAINS SHALL BE INCLUDED IN UNIT PRICE BID FOR SLEEVES. NO ADDITIONAL PAYMENT SHALL BE MADE.
13. FOR CONNECTING TO **OUT-OF-ROUND CIP**, SMITH-BLAIR 413 OR EQUAL.
14. CONTRACTOR IS REMINDED TO BACKFILL ALL TRENCHES EXCAVATED ACROSS ANY EXISTING OR PROPOSED DRIVING OR PARKING SURFACE WITH **1½ -IN TYPE A AGGREGATE BASE, PLACED IN 8-INCH MAXIMUM LIFTS AND COMPACTED TO 98% MODIFIED PROCTOR DENSITY.** COST TO BE INCLUDED IN COST OF EXCAVATION AND BACKFILL. NO ADDITIONAL PAYMENT SHALL BE MADE.
15. **WATER SERVICE CONNECTIONS** SHALL INCLUDE COST OF MATERIAL, LABOR AND EQUIPMENT TO REMOVE AND INSTALL SADDLES, SERVICE CLAMPS, CORPORATION STOPS, BENDS, 3-PART UNIONS, COUPLINGS, SETTERS AND ANY OTHER INCIDENTALS REQUIRED FOR A COMPLETE WATER SERVICE CONNECTION WITH EXCEPTION OF METER CANS, RIMS AND LIDS. NO ADDITIONAL PAYMENT SHALL BE MADE. METER CANS, LIDS AND RIMS SHALL BE PAID AS A SEPARATE BID ITEM.
    A. **SHORT SERVICE** SHALL BE ANY SERVICE LINE THAT IS 25- FEET OR LESS IN LENGTH. SHORT SERVICES DO NOT INCLUDE PAVEMENT REPLACEMENT. I.E. ¾-INCH WATER SERVICE CONNECTIONS (SHORT SERVICE)
    B. **LONG SERVICE** SHALL BE ANY SERVICE LINE THAT IS GREATER THAN 25-FEET UP TO 80-FEET IN LENGTH. LONG SERVICES INCLUDE PAVEMENT REPLACEMENT AND/ OR COST TO BORE. EXAMPLE: ¾-IN WATER SERVICE CONNECTIONS (LONG SERVICE)
    C. **SHORT AND LONG SERVICE LINES EXCEEDING THE ABOVE PARAMETERS** WILL BE COMPENSATED FOR LINEAR FOOTAGE ABOVE AND BEYOND. COMPENSATION SHALL BE PAID AS "SERVICE LINES, EXTENSION", PER LF
16. **SERVICE LINES ON NON-ARTERIALS** SHALL BE EITHER COPPER TUBING (TYPE K SOFT ANNEALED CONFORMING TO ASTM B 88) OR PEX TUBING (UPONOR AQUA PEX 5206 BLUE CONFORMING TO ASTM F876/F877/F2023). PEX TUBING IS NOT PERMITTED WITHIN ARTERIAL RIGHT OF WAY. WHEN CONTRACTOR ELECTS TO USE PEX TUBING:
    A. ¾-INCH WATER SERVICE CONNECTION SHALL USE 1-INCH PEX TUBING MINIMUM
    B. 1-INCH WATER SERVICE CONNECTION SHALL USE 1¼-INCH PEX TUBING MINIMUM
17. CONTRACTOR'S PLUMBER SHALL PROVIDE **AN INFORMATIONAL BROCHURE TO THE PROPERTY OWNERS** OUTLINING THE STEPS REQUIRED TO THOROUGHLY FLUSH THEIR WATERLINES AFTER CONNECTION TO THE NEW WATER MAIN. ALL COSTS TO PRODUCE AND DISTRIBUTE THE BROCHURE SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM.
18. THE "**OWNERS ALLOWANCE**" CAN BE USED FOR VARIOUS WORK AND MISCELLANEOUS ITEMS NOT IDENTIFIED IN THE CONTRACT DOCUMENTS WITH THE FOLLOWING PROVISIONS: THE ALLOWANCE SHALL BE USED FOR COST OF MATERIALS, LABOR, INSTALLATION AND OVERHEAD AND PROFIT FOR ADDITIONAL WORK AND MISCELLANEOUS ITEMS THAT ARE NOT IDENTIFIED IN THE CONSTRUCTION DOCUMENTS AND PLANS, AND NOT INCLUDED IN THE BID ITEMS OF THE CONTRACT.
    A. THE **ALLOWANCE** SHALL BE USED ONLY AT THE DISCRETION OF THE CITY. ANY ALLOWANCE BALANCE REMAINING AT THE COMPLETION OF THE PROJECT WILL BE CREDITED BACK TO THE CITY ON THE FINAL APPLICATION FOR PAYMENT SUBMITTED BY THE CONTRACTOR.
    B. THE CONTRACTOR SHALL PROVIDE, TO THE CITY, A **WRITTEN REQUEST FOR THE USE OF ANY ALLOWANCE**, WITH A SCHEDULE OF VALUES, AND ALL ASSOCIATED BACKUP INFORMATION, INCLUDING ANY TIME EXTENSIONS REQUIRED TO PERFORM THE WORK.
    C. THE CONTRACTOR SHALL PROCEED WITH THE WORK INCLUDED IN THE ALLOWANCE ONLY **AFTER RECEIVING A WRITTEN ORDER,** FROM THE ENGINEER AND CITY AUTHORIZING SUCH WORK. PROCEEDING WITH WORK IN THE ALLOWANCE WITHOUT A WRITTEN ORDER FROM THE CITY WILL BE AT THE CONTRACTOR'S EXPENSE.
19. WHERE PLANS IDENTIFY A 22.5-DEG OR 11.25-DEG VERTICAL OR HORIZONTAL BEND, HDPE WILL BE **DEFLECTED PER MANUFACTURER'S MINIMUM ALLOWABLE BEND RADIUS.**
20. WHERE PLANS **IDENTIFY A CROSS**, HDPE WILL USE TWO (2) TEE'S. NO ADDITIONAL PAYMENT SHALL BE MADE.
21. **TOP OF VALVE BOX** SHALL BE FLUSH WITH FINISHED GRADE.
22. THE CONTRACTOR **SHALL RESTORE ALL DISTURBED AREAS** TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING IMPROVEMENTS. LIMITS OF DISTURBANCE SHALL NOT EXCEED 9- FEET CENTERED ON THE WATERLINE. ANY DISTURBANCE OUTSIDE OF THIS AREA SHALL BE RESTORED AT THE CONTRACTORS EXPENSE. STREETS, DRIVEWAYS AND ASSOCIATED ITEMS SHALL BE PAID FOR UNDER OTHER ITEMS OF WORK.
23. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION. **THE CONTRACTOR SHALL REPLACE THE SOD TO MATCH IN-KIND AND QUALITY.** LIMITS OF DISTURBANCE SHALL NOT EXCEED 9-FEET CENTERED ON THE WATERLINE. ANY DISTURBANCE OUTSIDE OF THIS AREA SHALL BE RESTORED AT THE CONTRACTORS EXPENSE.
24. **SPOT ELEVATIONS ON THE MAIN WATER LINE** RELATIVE TO FINISHED GRADE SHALL BE PROVIDED AT EACH 100-FT INTERVAL, COMPLETE WITH STATION AND OFFSET. IN ADDITION, ALL VALVES, FITTINGS, FIRE HYDRANTS (TOP OF NUT) AND OTHER MAJOR APPURTENANT ITEMS SHALL BE SHOWN WITH THE PROPER DESCRIPTION, STATION, **OFFSET (NORTHING, EASTING) AND ELEVATION PER PLAN SURVEY CONTROL DATUM.**
25. **SPOT ELEVATIONS ON WATER METER CANS, VAULTS,** SHALL BE SHOWN WITH THE PROPER DESCRIPTION (METER TYPE, METER SIZE, METER NUMBER, SERVICE MATERIAL, SERVICE SIZE), STATION, OFFSET (NORTHING, EASTING) AND ELEVATION PER PLAN SURVEY CONTROL DATUM.
26. WORK UNDER THIS ITEM SHALL INCLUDE FURNISHING AND INSTALLING **HDPE WALL ANCHOR** AS SHOWN ON DRAWINGS OR AS DIRECTED BY THE ENGINEER. THE UNIT PRICE SHALL INCLUDE THE COST OF ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED. NO ADDITIONAL PAYMENT SHALL BE MADE FOR EXCAVATION, BACKFILLING, OR CONCRETE BLOCKING.
27. PRESSURE TESTING AND CHLORINATION OF WATER MAINS SHALL NOT BE PERFORMED UNTIL THE CITY INSPECTOR HAS RECEIVED REQUIRED **CONSTRUCTION RECORD DRAWINGS.**
28. NOT USED
29. **ROADWAY STRIPING DAMAGE** BY CONTRACTOR SHALL BE REPLACED IN FULL AND IN LIKE KIND COMPLETELY. UNDER THIS BID ITEM.
30. MUELLER SERVICE PLUGS, OR EQUAL. USE SIZE PLUG AS REQUIRED. As DIRECTED BY ENGINEER.
31. COST INCLUDES **VERTICAL FIRE HYDRANT SHOE** ON SHT 18 STA 83+59 TO PLACE FIRE HYDRANT IN VERTICAL POSITION.
32. **MATCH EXISTING SOD.** SUBMIT SCHEDULE FOR APPROVAL.
33. **REUSE SAFETY FENCE AS REQUIRED.**
34. ALL **TRAFFIC CONTROL** SHALL BE IN ACCORDANCE WITH LATEST MUTCD STANDARDS.
35. **BORING TO BE DONE UNDER ASPHALT AND CONCRETE STREETS** AND DRIVEWAYS AND WHERE INDICATED FOR TREE BORES UNDER DRIP LINES. STEEL CONDUIT FOR BORES NOT TO BE USED ON THIS BID ITEM. ADDITIONAL BORE PITS MAY BE PLACED IN TREE BORES FOR CONVENIENCE AS DIRECTED BY ENGINEER; NO ADDITIONAL PAYMENT SHALL BE MADE. ONLY 8" HDPE OR 6" DIP MAY BE BORED.
36. **SIDEWALKS THROUGH DRIVEWAY** SHALL BE 6" THICK AND PAID AS DRIVEWAY.
37. **REUSE SILT FENCE AS REQUIRED** BY SITE CONDITIONS IN ACCORDANCE COT STANDARD 126. MAXIMUM PAY QUANTITY 160LF.
38. ALL HDPE PIPE AND FITTING SHALL BE **PE 4710 DR11 IPS.**
39. **FITTING CONNECTING HDPE TO DIP** SHALL BE INCLUDED IN THE COST OF HDPE PIPE.
40. COST OF HDPE WALL ANCHOR FITTING, REINFORCEMENT STEEL, CONCRETE AND ALL LABOR AND MARIALS TO INSTALL THESE ITEMS ARE TO BE INCLUDED IN THE **PRICE OF THE HDPE ANCHOR** (EACH). NO ADDITIONAL PAYMENT SHALL BE MADE. REFER TO DETAIL ON SHEET 40.
41. INCLUDES CONCRETE COLLAR IN ASPHALT AND GRASS SURFACES PER DETAILS SHEET 18.
42. INCLUDES **COSTS OF LICENSED PLUMBER** TO REPAIR ANY DAMAGED ONG SERVICE LINE.
43. COST INCLUDES EBAA MEGASTOPS , OR EQUAL, INSTALLED ON ALL PVC JOINTS THRU BORES TO **PREVENT OVERBELLING.**
44. FOR CONNECTING TO **OUT-OF-ROUND CIP. SMITH-BLAIR 413** OR EQUAL, IF CONNECTIONS TO OUT-OF-ROUND CIP PIPE IS ENCOUNTERED.
45. THE CONTRATOR SHALL BE RESPONSIBLE TO **REMOVE ALL TRAFFIC SIGNS AS REQUIRED TO PERFORM WORK.** ALL SIGNS SHALL BE REINSTALLED ASAP AFTER PIPE WORK IS COMPLETE. COST SHALL BE INCLUDED IN RIGHT-OF-WAY CLEARING AND RESTORATION.
46. **MARKER BALLS** SHALL BE INSTALLED ABOVE ALL FITTINGS, BLIND FLANGES, SERVICE TAPS, AND EVERY 100 FEET IF THE DISTANCE BETWEEN FITTINGS IS GREATER THAN 100 FEET AS SHOWN ON THE ATTACHED SPECIAL DRAWING, DATED NOVEMBER 2019. **COST OF MARKER BALLS SHALL BE INCLUDED IN UNIT PRICE BID FOR EACH PIPE TYPE.** MARKERS SHALL BE VIVAX WATER MARKER BALLS OR EQUAL THAT WORK WITH THE VIVAX VLOC3 PRO RECEIVER AND LOC3-10TX TRANSMITTER. LOCATOR BALL INSTALLATIONS ARE ATTACHED.THE CONTRACTOR SHALL PROVIDE THE CITY INSPECTOR, AT THE BEGINNING OF THE PROJECT, THE LOCATOR EQUIPMENT AS SPECIFIED BELOW. THE LOCATOR EQUIPMENT SHALL BE PAID BY THE CONTRACTOR UNDER BID ITEM 3, PROCURED IN CITY OF TULSA'S NAME, EQUIPMENT RETAINED BY TULSA INSPECTION AND WARRANTY IN TULSA NAME AFTER PROJECT IS COMPLETE. THE EQUIPMENT WILL BECOME THE PROPERTY OF THE CITY AND IS NOT RETURNABLE. THE LOCATOR EQUIPMENT TO LOCATE THE MARKER BALLS (ITEM 1) ARE AS FOLLOWS:
    i. RTK-Pro Receiver with Tx-Link, Order Code: 1.226.01.00001
    ii. Bag, Lcc3 Series Transmitters, Order Code: 2.219.02.00011
47. **CONNECTIONS BETWEEN NEW DIP AND NEW PVC** SHALL UTILIZE NEW DIP / NEW PVC BELLS AND SPIGOTS. UNLESS OTHERWISE DIRECTED, SOLID SLEEVES ARE FOR CONNECTIONS TO EXISTING DIP.
48. CONTRACTOR MAY **DIVIDE LONG BORES INTO SHORTER BORES** TO FACILITATE CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE.
49. CONTRACTOR, AS ALLOWED BY ENGINEER, MAY **EXTEND BORES TO FACILITATE CONSTRUCTION.** NO ADDITIONAL PAYMENT SHALL BE MADE. PLAN QUANTITIES TO PERFORM OPEN-CUT PIPE INSTALLATION SHALL BE PAID.
50. COST INCLUDES LABOR, MATERIALS, AND EQUIPMENT TO **REMOVE AND DISPOSE OF EXISTING 24" OAK TREE** AT STA 92+73 ON SHT 20 CONFLICTING WITH PROPOSED WATER MAIN.

WATER CONSTRUCTION NOTES

1. THE CITY OF TULSA FIELD ENGINEERING DEPARTMENT **SHALL INSPECT ALL** TRENCHING, BEDDING, PIPE INSTALLATION, BACKFILL AND COMPACTION.
2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH **CURRENT STANDARD SPECIFICATIONS AND STANDARD DETAILS**, CITY OF TULSA ENGINEERING SERVICES DEPARTMENT.
3. EXISTING SERVICE CONNECTIONS ARE TO BE KEPT IN SERVICE UNTIL CONNECTIONS TO NEW MAIN ARE MADE. ALL SERVICE LINE RECONNECTIONS SHALL BE MADE BY THE CONTRACTOR. **SERVICE RECONNECTIONS** SHALL BE INSTALLED AS PER CITY OF TULSA STANDARD SPECIFICATIONS AND STANDARD DETAILS.
4. **MINIMUM COVER OVER WATER LINES** SHALL BE AS NOTED ON PLANS.
5. **CONTRACTOR SHALL REPLACE EXISTING GRASS WITH SEED/SOD OF SAME TYPE AND VARIETY** OR AS NOTED ON PLANS.
6. CONTRACTOR SHALL **BORE EXISTING TREES UNDER DRIP LINE,** UNLESS DIRECTED OTHERWISE BY ENGINEER.
7. CONTRACTOR SHALL **BORE EXISTING DRIVEWAYS**, UNLESS DIRECTED OTHERWISE BY ENGINEER.
8. WATER OPERATIONS **SHALL OPERATE ALL VALVES ON TRANSMISSION MAINS (16" AND LARGER).** CONTRACTOR SHALL OPERATE ALL VALVES ON DISTRIBUTION MAINS (SMALLER THAN 16") WITH THE COORDINATION OF FIELD ENGINEERING AND WATER OPERATIONS AND IN THE PRESENCE OF A FIELD ENGINEERING INSPECTOR.
   A. ATTEMPTS WILL BE MADE WITH ASSISTANCE FROM THE CONTRACTOR TO **NOTIFY ALL AFFECTED CUSTOMERS 48- HOURS IN ADVANCE,** PARTICULARLY IF COMMERCIAL OR INDUSTRIAL CUSTOMERS ARE INVOLVED. PRIOR TO SHUTDOWN, FIELD ENGINEERING WILL NOTIFY WATER OPERATIONS, AT 918-596-9488, GIVING AN ESTIMATED DOWNTIME. WATER OPERATIONS WILL NOTIFY THE FIRE DEPARTMENT OF ALL FIRE HYDRANTS OUT OF SERVICE AND WHEN THEY ARE BACK IN SERVICE, BY STREET ADDRESS OR INTERSECTION.
   B. WHERE COMMERCIAL, INDUSTRIAL, OR CRITICAL CUSTOMERS ARE AFFECTED, AND FOR ALL LINES 16-INCH AND LARGER IN SIZE, **FIELD ENGINEERING WILL REQUEST WATER OPERATIONS TO SHUT DOWN THE MAIN.** THERE WILL BE A MINIMUM OF 48-HOUR NOTICE TO WATER OPERATIONS.
9. **CONTRACTOR** SHALL PROVIDE AT LEAST 48 HOUR NOTICE TO ALL RESIDENTS OR BUSINESSES AFFECTED BEFORE TURNING OFF ANY WATER. CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING DOOR HANGERS ON AFFECTED HOMES AND BUSINESSES.
10. **CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER** OF THE OKLAHOMA ONE-CALL SYSTEM, INC, NOTICE OF ANY EXCAVATION NO SOONER THAN 48 HOURS OR LATER THAN 10 DAYS, EXCLUDING SATURDAYS, SUNDAYS, LEGAL HOLIDAYS PRIOR TO COMMENCEMENT OF WORK, PHONE 1-800-522-6543.
11. LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH PROJECT AT ALL TIMES. **OPEN CUT STREET CROSSINGS** REQUIRE AN APPROVED TRAFFIC CONTROL PLAN WITH **TRAFFIC CONTROL DEVICES** IN ACCORDANCE WITH CURRENT MUTCD REQUIREMENTS.1
12. ANY DAMAGE CAUSED BY CONTRACTOR TO ADJACENT TRAFFIC SIGNAL INFRASTRUCTURE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE TRAFFIC ENGINEER.
13. PRIOR TO PAVEMENT SAWING AND EXCAVATION NEAR SIGNALIZED INTERSECTION, CONTRACTOR SHALL CONTACT ENGINEERING SERVICES, TRAFFIC OPERATIONS, 918-596-9766, FOR SITE SPECIFIC, UNDERGROUND TRAFFIC UTILITY LOCATES.
14. CONSTRUCTION FOR ALL ENGINEERING SERVICES **FACILITIES SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF TITLE 252**, DEPARTMENT OF ENVIRONMENTAL QUALITY, CHAPTER 626, PUBLIC WATER SUPPLY CONSTRUCTION STANDARDS, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ).
15. **ALL EXCAVATED MATERIAL** NOT REQUIRED IN OTHER AREAS OF THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER ACCEPTABLE TO THE ENGINEER WITHOUT COST TO THE CITY. THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN AN EARTH CHANGE PERMIT IF ANY EXCESS MATERIAL IS TO BE DISPOSED OF WITHIN THE CITY LIMITS OF TULSA.
16. **ANY CHANGES FROM APPROVED PLANS** SHALL BE SUBMITTED TO THE CITY OF TULSA FOR WRITTEN APPROVAL PRIOR TO INSTALLATION.

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

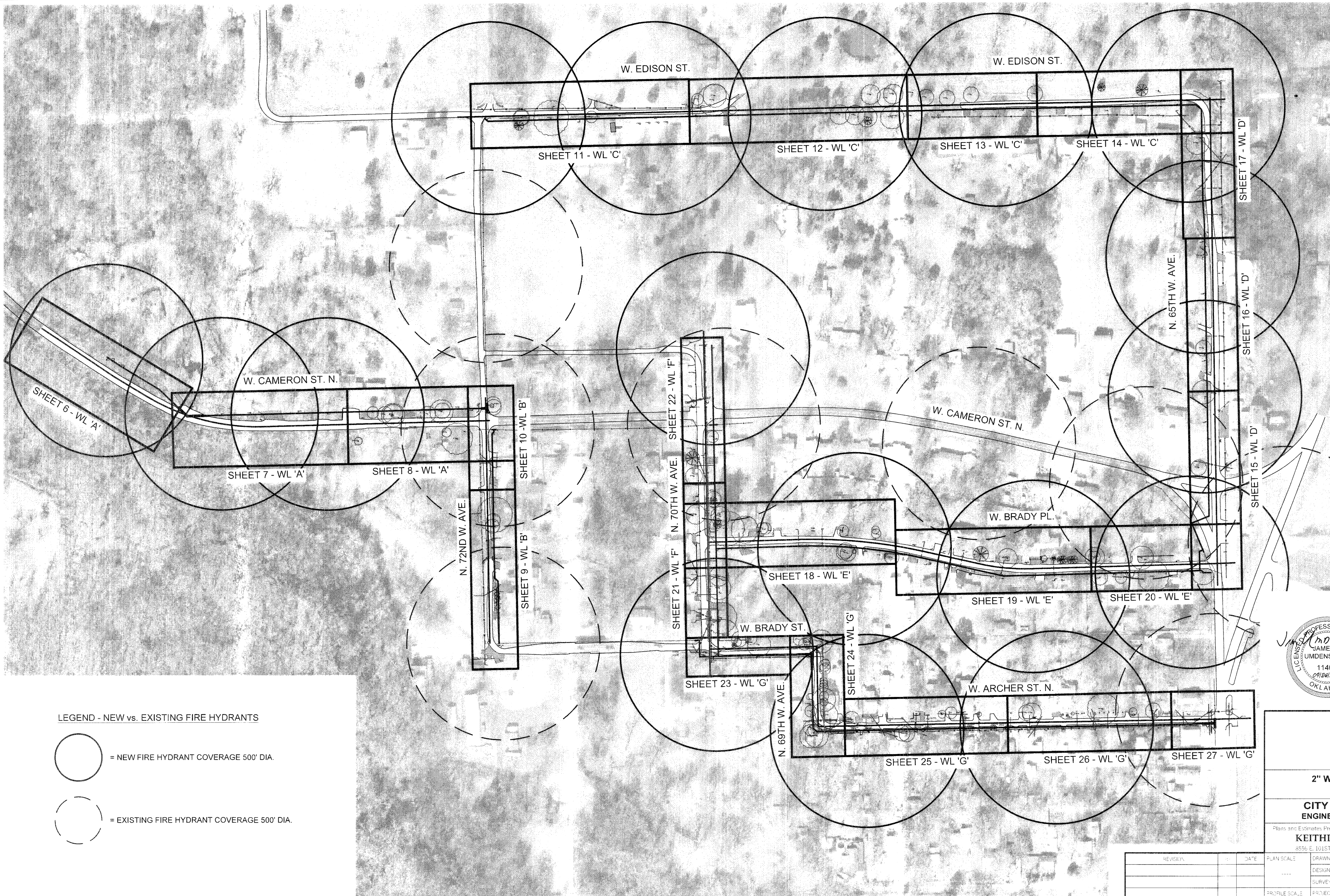
NOTES

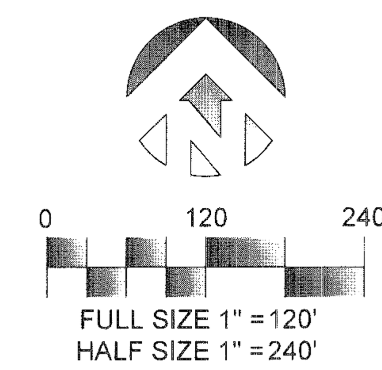
2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	LMW	10/2020	
			HORIZONTAL:	LEAD ENGINEER	CEW	10/20	
			----	FIELD MGR	ZLW	11/20	
			VERTICAL: ----	RECOMMENDED: HAS 11·20 DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 03 OF 36 SHEETS





LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE 811

PROJECT OVERVIEW

2" WATERLINE REPLACEMENT
TMUA-W 18-14

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ENGINEERING SERVICES DEPARTMENT

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TMUA-W 18-14 Water Meters	
WATERLINE 'A'	
SERVICE ADDRESS	SIZE
6503 W CAMERON ST N	5/8
6901 W CAMERON ST N	5/8
7210 W CAMERON ST N	5/8
7237 W CAMERON ST N	3/4
7247 W CAMERAN ST N	5/8
7301 W CAMERON ST N	5/8
7303 W CAMERON ST N	5/8
WATERLINE 'B'	
SERVICE ADDRESS	SIZE
105 N 72ND WEST AVE	5/8
107 N 72ND WEST AVE	5/8
121 N 72ND WEST AVE	5/8
125 N 72ND WEST AVE	5/8
502 N 72ND WEST AVE	5/8
WATERLINE 'C'	
SERVICE ADDRESS	SIZE
6402 W EDISON ST	5/8
6418 W EDISON ST	5/8
6508 W EDISON ST	1
6534 W EDISON ST	5/8
6540 W EDISON ST	5/8
6969 W EDISON ST	5/8
WATERLINE 'D'	
SERVICE ADDRESS	SIZE
28 N 65TH WEST AVE	5/8
122 N 65TH WEST AVE	5/8
311 N 65TH WEST AVE	5/8
330 N 65TH WEST AVE	5/8
410 N 65TH WEST AVE	5/8
414 N 65TH WEST AVE	5/8
415 N 65TH WEST AVE	1
WATERLINE 'E'	
SERVICE ADDRESS	SIZE
6504 W BRADY PL	5/8
6509 W BRADY PL	5/8
6520 W BRADY PL	5/8
6532 W BRADY PL	5/8
6533 W BRADY PL	5/8
6540 W BRADY PL	5/8
6543 W BRADY PL	5/8
6548 W BRADY PL	5/8
6556 W BRADY PL	5/8
6568 W BRADY PL	5/8
6571 W BRADY PL	5/8
6575 W BRADY PL	5/8
6593 W BRADY PL	5/8
6594 W BRADY PL	5/8
6940 W BRADY PL	5/8
7002 W BRADY PL	5/8

WATERLINE 'F'	
SERVICE ADDRESS	SIZE
110 N 70TH WEST AVE	5/8
124 N 70TH WEST AVE	5/8
128 N 70TH WEST AVE	5/8
204 N 70TH WEST AVE	5/8
205 N 70TH WEST AVE	5/8
208 N 70TH WEST AVE	5/8
518 N 70TH WEST AVE	5/8
WATERLINE 'G'	
SERVICE ADDRESS	SIZE
6506 W ARCHER ST	5/8
6508 W ARCHER ST	5/8
6517 W ARCHER ST	3/4
6521 W ARCHER ST	5/8
6531 W ARCHER ST	5/8
6534 W ARCHER ST	5/8
6535 W ARCHER ST	5/8
6537 W ARCHER ST	5/8
6538 W ARCHER ST	5/8
6540 W ARCHER ST	5/8
6708 W ARCHER ST	5/8
6709 W ARCHER ST	5/8
6710 W ARCHER ST	5/8
6711 W ARCHER ST	5/8
6712 W ARCHER ST	5/8
6730 W ARCHER ST	5/8
6731 W ARCHER ST	5/8
6733 W ARCHER ST	5/8
6737 W ARCHER ST	5/8
6738 W ARCHER ST	5/8
6742 W ARCHER ST	5/8

Total 5/8"-3/4" Meters	68
Total 1" Meters	2

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

WATER METER
SUMMARY

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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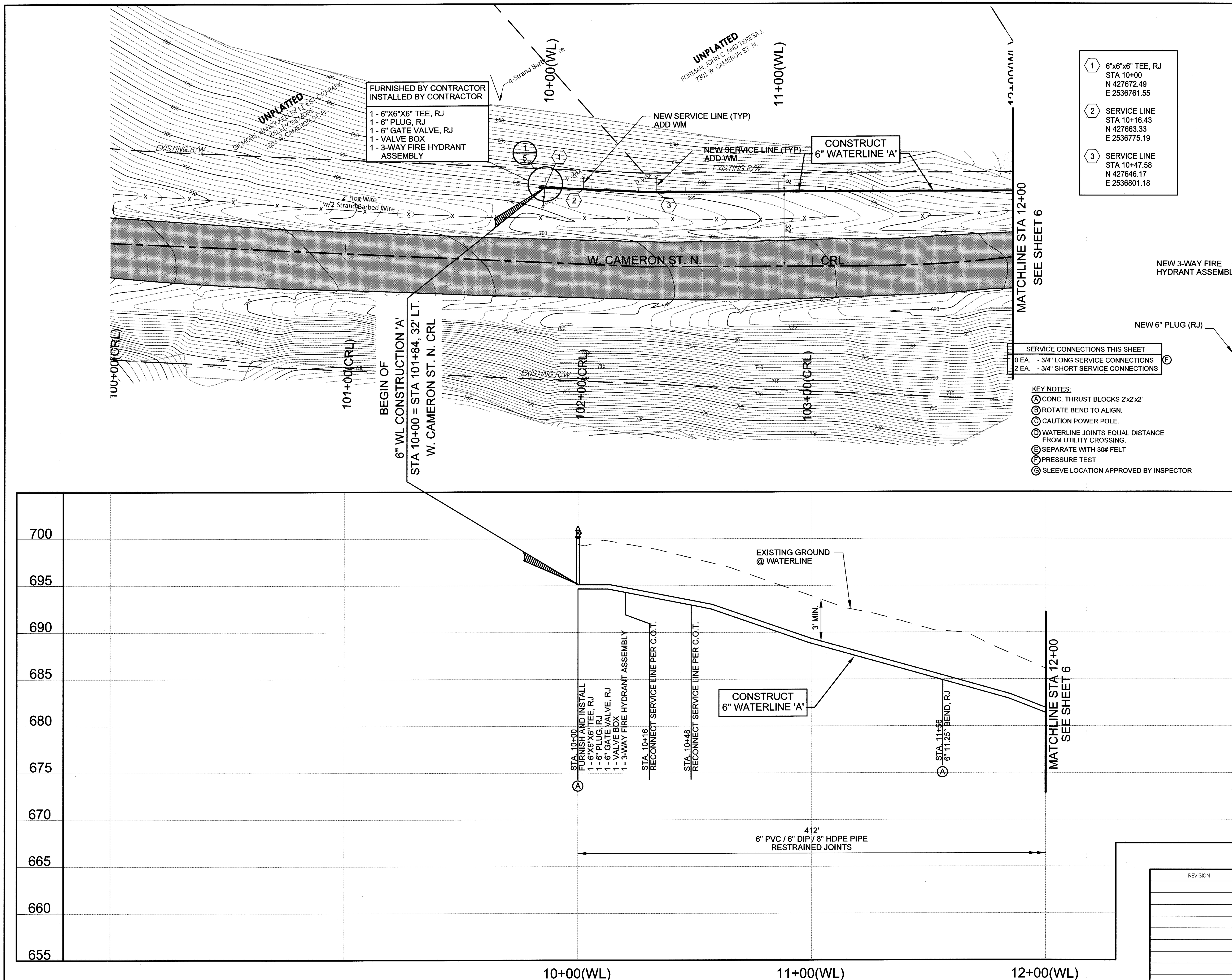
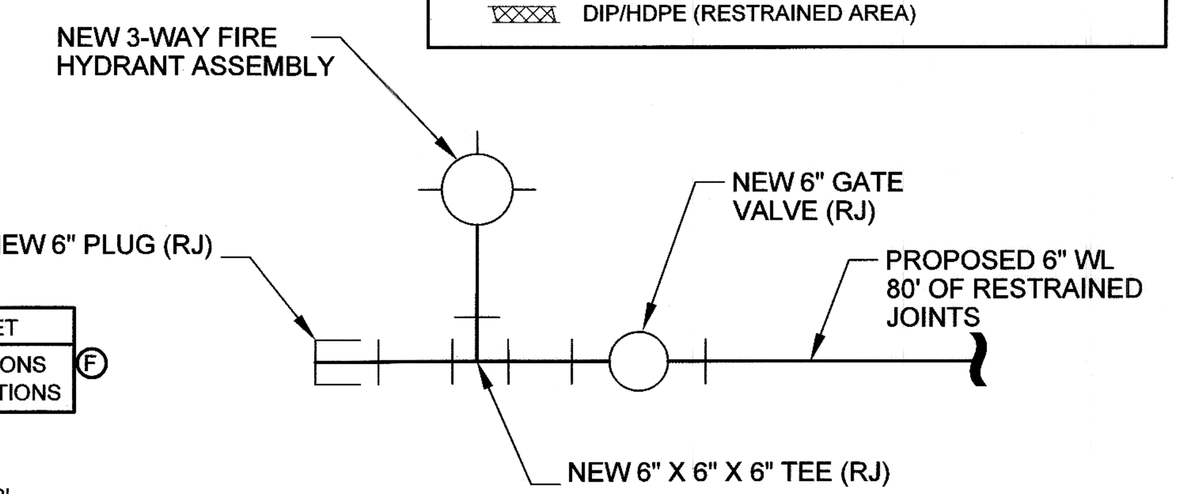


1	6"x6"x6" TEE, RJ STA 10+00 N 427672.49 E 2536761.55
2	SERVICE LINE STA 10+16.43 N 427663.33 E 2536775.19
3	SERVICE LINE STA 10+47.58 N 427646.17 E 2536801.18

N

0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

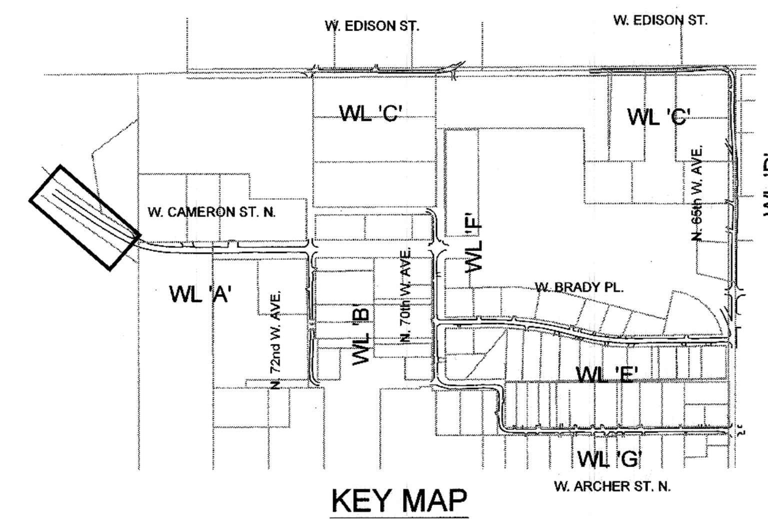
SURFACE LEGEND REPLACEMENT SURFACE
① CONCRETE PAVEMENT (STD 731) BID # 24
② ASPHALT PAVEMENT (STD 730) BID # 23
③ CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)



DETAIL 1 (1/5)
NTS

SERVICE CONNECTIONS THIS SHEET	
0 EA.	- 3/4" LONG SERVICE CONNECTIONS (F)
2 EA.	- 3/4" SHORT SERVICE CONNECTIONS

KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR



KEY MAP

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE 811

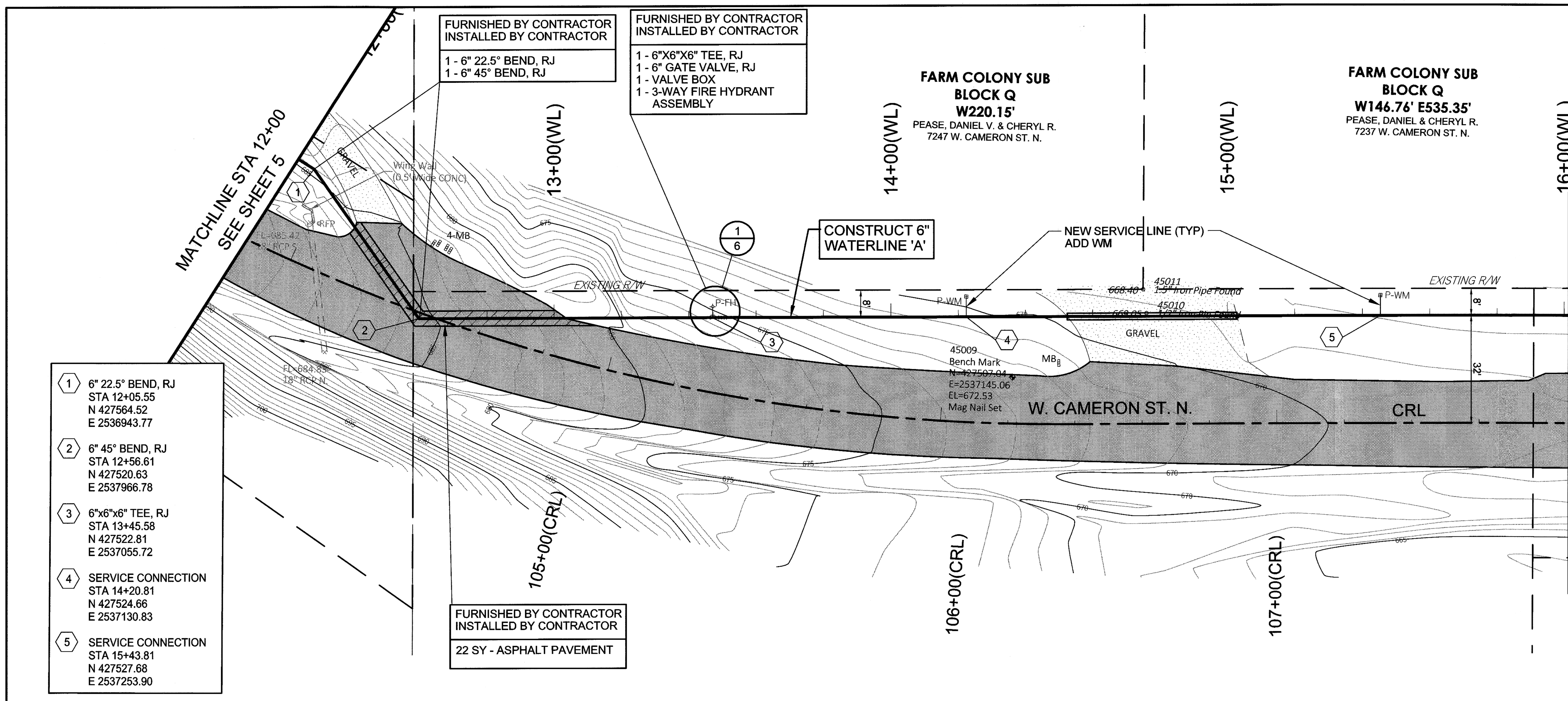
PLAN & PROFILE
WATERLINE 'A'
STA. 10+00 TO 12+00

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	RMW	10/2020	
			HORIZONTAL: ----	LEAD ENGINEER	EEW	10/2020	
				FIELD MGR	EEW	11/20	
			VERTICAL: ----	RECOMMENDED: HAS 11-20 DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 06 OF 36 SHEETS



FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6" 22.5° BEND, RJ
1 - 6" 45° BEND, RJ

FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
1 - 3-WAY FIRE HYDRANT ASSEMBLY

FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
22 SY - ASPHALT PAVEMENT

1. 6" 22.5° BEND, RJ
STA 12+05.55
N 427564.52
E 2536943.77
2. 6" 45° BEND, RJ
STA 12+56.61
N 427520.63
E 2537966.78
3. 6"x6"x6" TEE, RJ
STA 13+45.58
N 427522.81
E 2537055.72
4. SERVICE CONNECTION
STA 14+20.81
N 427524.66
E 2537130.83
5. SERVICE CONNECTION
STA 15+43.81
N 427527.68
E 2537253.90

SURFACE LEGEND
REPLACEMENT SURFACE
1. CONCRETE PAVEMENT (STD 731) BID # 24
2. ASPHALT PAVEMENT (STD 730) BID # 23
3. CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)

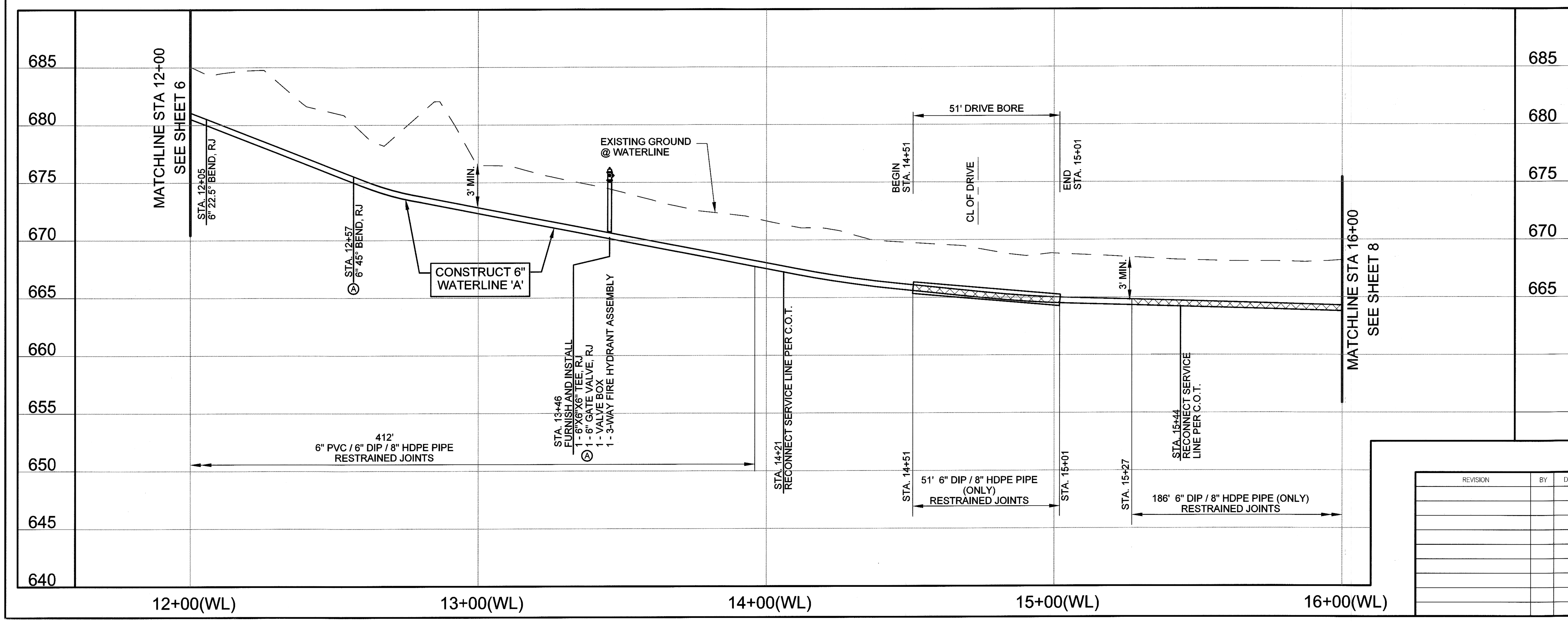
N
0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

NEW 3-WAY FIRE HYDRANT ASSEMBLY
NEW 6" GATE VALVE (RJ)
NEW 6" WL
NEW 6" WL
NEW 6" X 6" X 6" TEE (RJ)
DETAIL 1
NTS

SERVICE CONNECTIONS THIS SHEET
0 EA. - 3/4" LONG SERVICE CONNECTIONS (F)
2 EA. - 3/4" SHORT SERVICE CONNECTIONS

KEY NOTES:
(A) CONC. THRUST BLOCKS 2'x2'x2'
(B) ROTATE BEND TO ALIGN.
(C) CAUTION POWER POLE.
(D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
(E) SEPARATE WITH 30# FELT
(F) PRESSURE TEST
(G) SLEEVE LOCATION APPROVED BY INSPECTOR

KEY MAP



JAMES R. UMDENSTOCK
LICENSED PROFESSIONAL ENGINEER
11407
OKLAHOMA

OKIE 811

PLAN & PROFILE
WATERLINE 'A'
STA. 12+00 TO 16+00

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR		10/2020	
			HORIZONTAL: ----	LEAD ENGINEER		10/2020	
				FIELD MGR		11/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HMS	11.20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 07 OF 36 SHEETS

PLAN & PROFILE
WATERLINE 'A'
STA. 16+00 TO 20+35

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	EJHW	10/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CJSW	10/2020	
				FIELD MGR		11/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	11-20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 08 OF 36 SHEETS


SURFACE LEGEND
REPLACEMENT SURFACE
1 CONCRETE PAVEMENT (STD 731) BID # 24
2 ASPHALT PAVEMENT (STD 730) BID # 23
3 CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)
KEY NOTES:
A CONC. THRUST BLOCKS 2'x2'x2'
B ROTATE BEND TO ALIGN.
C CAUTION POWER POLE.
D WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
E SEPARATE WITH 30# FELT
F PRESSURE TEST
G SLEEVE LOCATION APPROVED BY INSPECTOR
200+00(CRL)
201+00(CRL)
202+00(CRL)
203+00(CRL)
30+00(WL)
31+00(WL)
32+00(WL)
33+00(WL)
N. 72ND W. AVE.
CRL
EXISTING R/W
PROPOSED 8" HDPE WATERLINE HORIZONTAL DIRECTIONAL DRILL
MATCHLINE STA 34+00 - SEE SHEET 10
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'
EX 2" GATE VALVE
NEW 6" PLUG
EXISTING 2" WL ABANDON IN PLACE
NEW 6" X 6" X 6" TEE (RJ)
NEW 6" WL
NEW 6" SLEEVE, (RJ)
NEW 6" GATE VALVE (RJ)
NEW 6" SLEEVE, (RJ)
EXISTING 6" WL
DETAIL 1
NTS
CONSTRUCT 6" WATERLINE 'B'
FARM COLONY SUB BLOCK H W120' S140' LESS W20' S7.5'
LINDSTROM, JEFFREY 105 N. 72nd AVE. W.
FARM COLONY SUB BLOCK H N44.3' W270' LESS W20'
SNOWDEN, DORA ANNE WILSON SIMS 107 N. 72nd AVE. W.
FARM COLONY SUB BLOCK J S150' W270' BLOCK Z N75' W270' LESS W10'
121 N 72 AV W TULSA 74127
BROWN, KEVIN THOMAS AND JUDY F. 121 N. 72nd AVE. W.
BEGIN OF 6" WL CONSTRUCTION 'B' STA 30+00 = STA 199+99, 32' RT. N. 72nd W. AVE. CRL
1 6"x6"x6" TEE, RJ STA 30+00 N 426928.46 E 2537775.39
2 SERVICE CONNECTION STA 31+32.20 N 427060.64 E 2537772.93
3 6" 45° BEND, RJ STA 31+61.13 N 427089.57 E 2537772.39
4 6" 45° BEND, RJ STA 31+73.88 N 427098.41 E 2537763.21
5 SERVICE CONNECTION STA 33+73.21 N 427297.71 E 2537759.52
FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
2 - 6" SLEEVES, RJ
1 - 6" PLUG
SERVICE CONNECTIONS THIS SHEET
0 EA. - 3/4" LONG SERVICE CONNECTIONS
2 EA. - 3/4" SHORT SERVICE CONNECTIONS
FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
2 - 6" 45° BENDS, RJ
1 - 6" 11.25° BEND, RJ
FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
1 - 6" 11.25° BEND, RJ
NOTE: OFFSET DISTANCE IS MEASURED FROM CRL TO SERVICE CONNECTION ON PROPOSED 6" WATERLINE
KEY MAP
90' TREE & DRIVE BORE
181' - 8" HDPE ONLY HORIZONTAL DIRECTIONAL DRILL
BEGIN STA. 30+66
END STA. 31+56
BEGIN STA. 31+80
END STA. 33+60
EXISTING GROUND @ WATERLINE
CL OF DRIVE
CL OF BIG HEART CREEK
11.25° DEFLECT
3' MIN.
MIN. 150' R
10' MIN.
CONSTRUCT 6" WATERLINE 'B'
STA. 30+00 FURNISH AND INSTALL 1 - 6"X6"X6" TEE, RJ 1 - 6" GATE VALVE, RJ 1 - VALVE BOX 1 - 6" SLEEVE, RJ 1 - 6" PLUG
STA 31+32 RECONNECT SERVICE LINE PER C.O.T.
STA. 31+61 6" 45° BEND, RJ
STA. 31+74 6" 45° BEND, RJ
STA. 31+79 (BEGIN 8" HDPE) FURNISH AND INSTALL 1 - 8" X 6" TRANSITION COUPLER HDPE TO DIP(PVC) TRANSITION 1 - 6" 11.25° BEND, RJ
PROPOSED 8" HDPE WATERLINE HORIZONTAL DIRECTIONAL DRILL
STA. 33+60 (END 8" HDPE) FURNISH AND INSTALL 1 - 8" X 6" TRANSITION COUPLER HDPE TO DIP(PVC) TRANSITION 1 - 6" 11.25° BEND, RJ
STA. 33+73 RECONNECT SERVICE LINE PER C.O.T.
202' 6" DIP / 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
179' 6" DIP / 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
181' 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
STA. 31+79
MATCHLINE STA 34+00 - SEE SHEET 10
34+00(WL)
670
665
660
655
650
645
640
635
630
625
JAMES R. UMDENSTOCK 11407 LICENSED PROFESSIONAL ENGINEER OKLAHOMA
OKIE811
PLAN & PROFILE
WATERLINE 'B'
STA. 30+00 TO 34+00
2" WATERLINE REPLACEMENT
TMUA-W 18-14
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911
REVISION BY DATE
PLAN SCALE
PROFILE SCALE
HORIZONTAL:
VERTICAL:
DRAWN
DESIGNED
SURVEY
PROJECT MGR
LEAD ENGINEER
FIELD MGR
RECOMMENDED:
DESIGN MANAGER
APPROVED:
CITY ENGINEER
FILE:
ATLAS PAGE NO: 107
DATE:
SHEET 09 OF 36 SHEETS

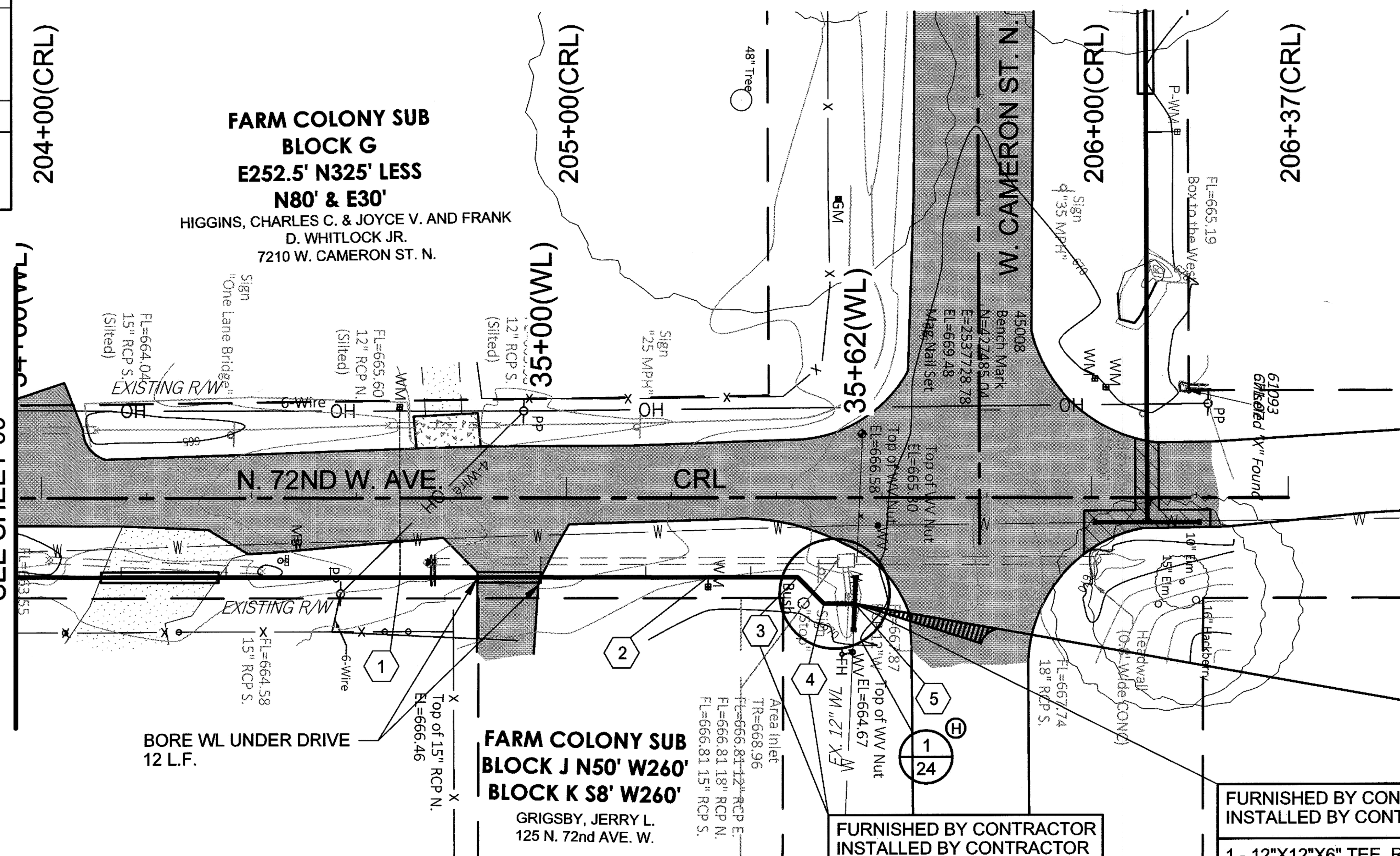
SURFACE LEGEND
REPLACEMENT SURFACE

1. CONCRETE PAVEMENT (STD 731) BID # 24
2. ASPHALT PAVEMENT (STD 730) BID # 23
3. CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL

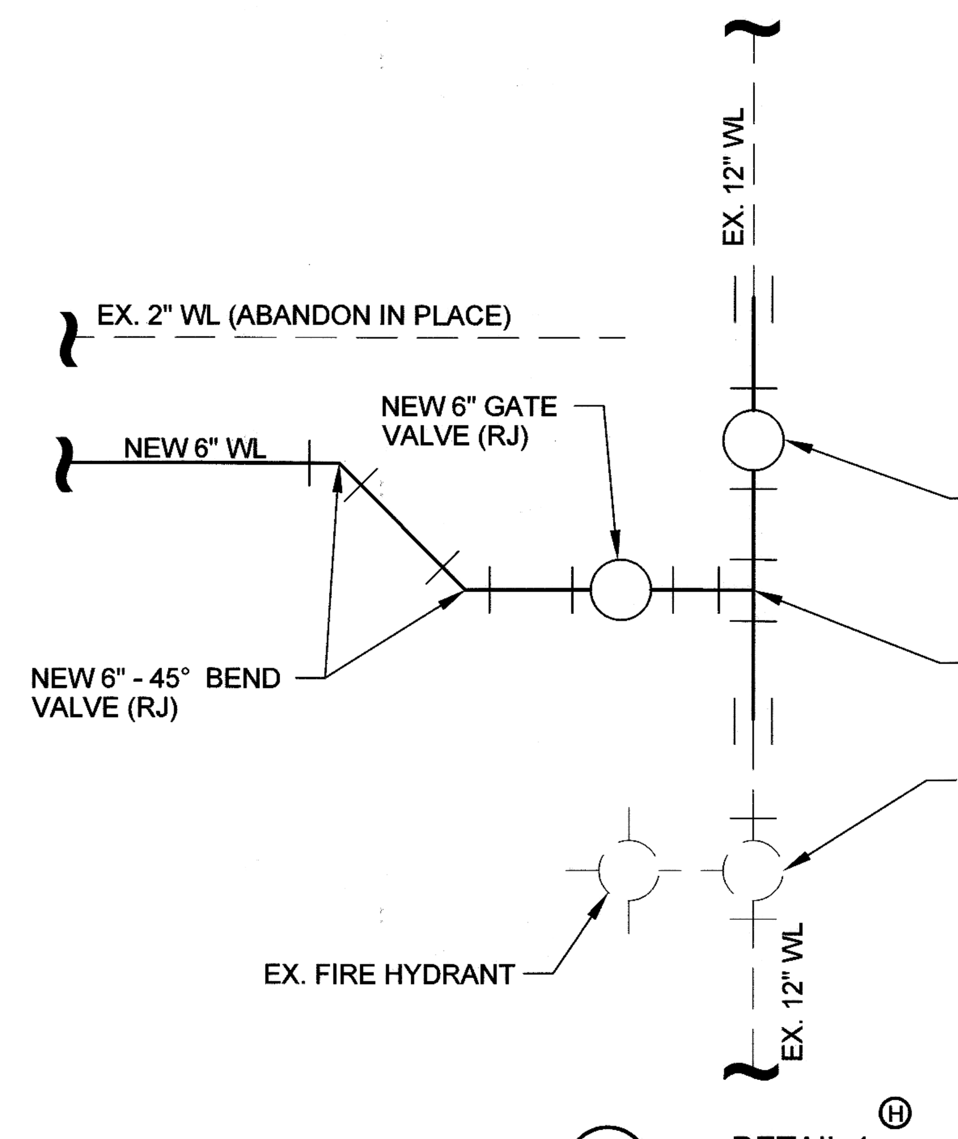
- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)

1. SERVICE CONNECTION
   STA 34+73.24
   N 427397.73
   E 2537757.65
2. SERVICE CONNECTION
   STA 35+31.90
   N 427456.37
   E 2537756.56
3. 6" 45° BEND, RJ
   STA 35+48.93
   N 427473.40
   E 2537756.28
4. 6" 45° BEND, RJ
   STA 35+56
   N 427478.49
   E 2537761.19
5. 6"x12"x12" TEE, RJ
   STA 35+61.80
   N 427484.29
   E 2537761.08

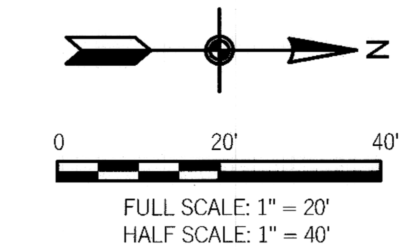


FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
2 - 6" - 45° BENDS, RJ

FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
1 - 12"X12"X6" TEE, RJ 1 - 6" GATE VALVE, RJ 1 - 12" GATE VALVE, RJ 2 - VALVE BOXES 2 - 12" SOLID SLEEVE, RJ



DETAIL 1 (H)
NTS

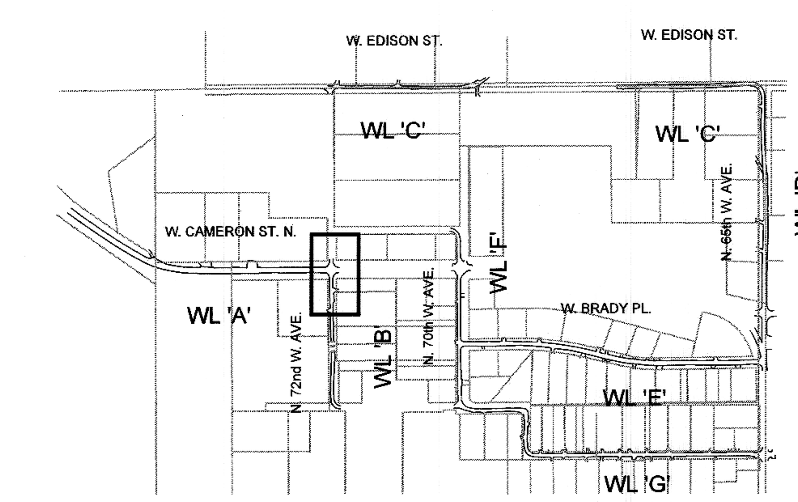


KEY NOTES:

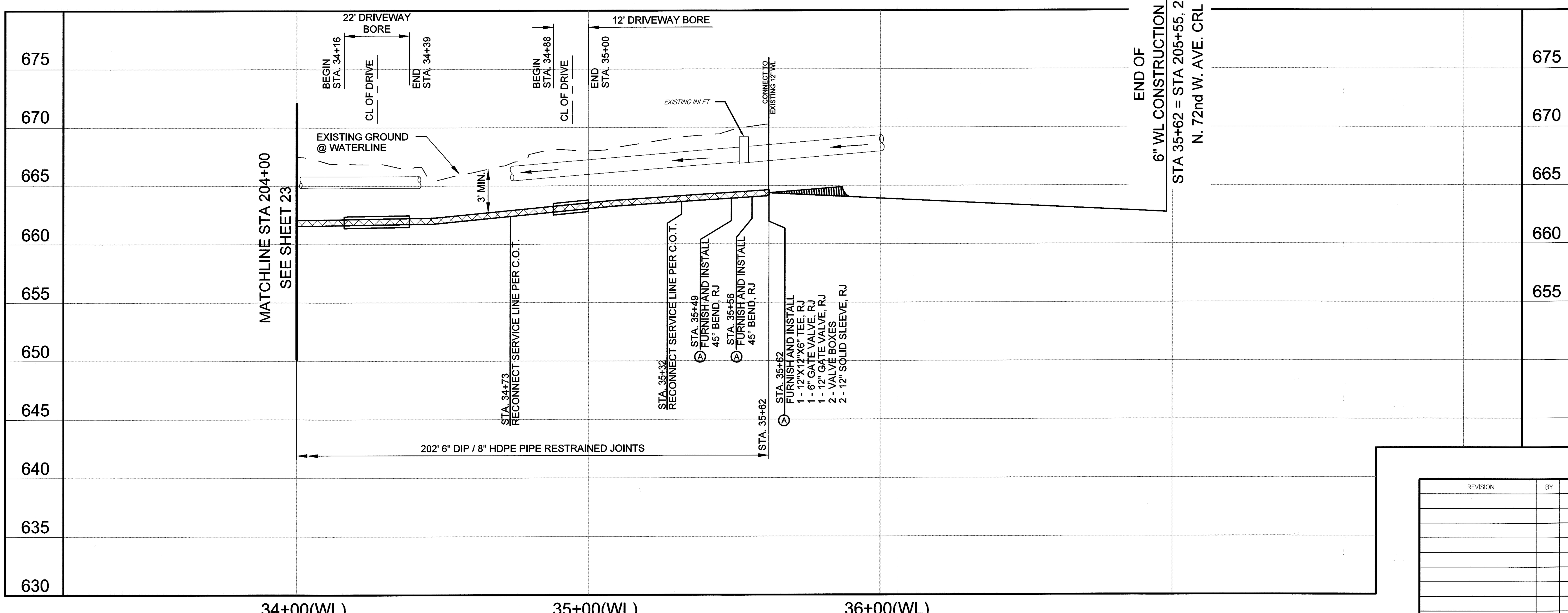
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR
- (H) OPTIMIZE CONNECTION

SERVICE CONNECTIONS THIS SHEET	
1 EA.	- 3/4" LONG SERVICE CONNECTIONS
1 EA.	- 3/4" SHORT SERVICE CONNECTIONS

(F)



KEY MAP



JAMES R. UMDENSTOCK
LICENSED PROFESSIONAL ENGINEER
11407
09/24/2020
OKLAHOMA

OKIE 811

PLAN & PROFILE
WATERLINE 'B'
STA 34+00 TO 35+62

2" WATERLINE REPLACEMENT
TMUA-W 18-14

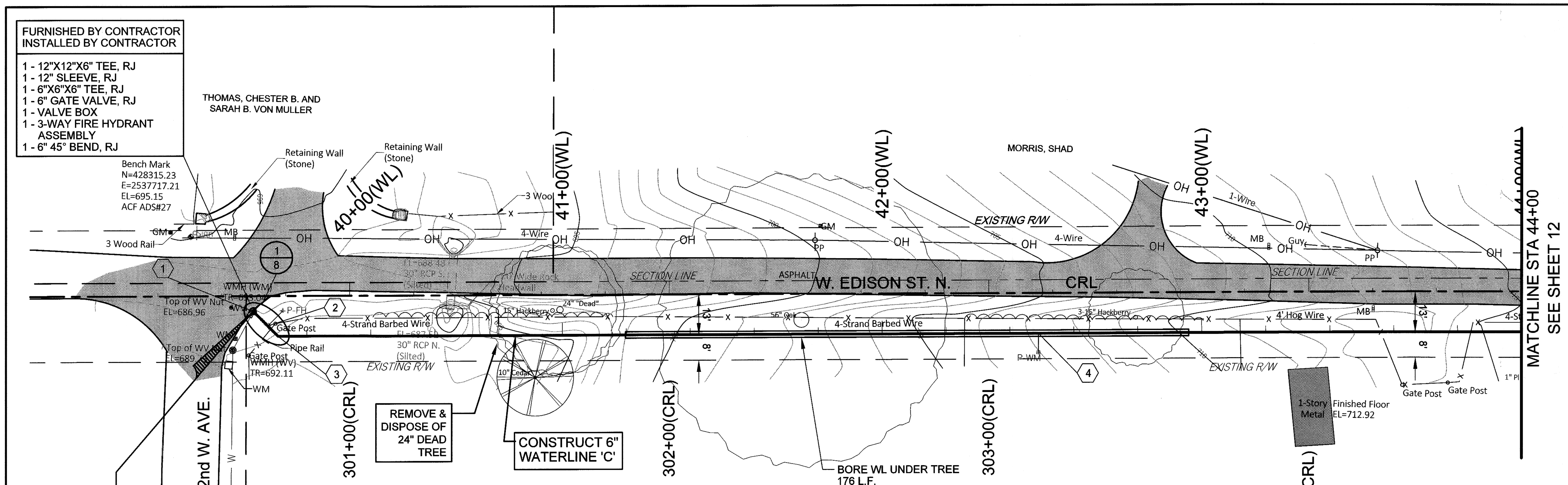
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE

PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
----	DESIGNED	---	XX-XX-XX	
	SURVEY	---	XX-XX-XX	
PROFILE SCALE	PROJECT MGR	RMW	09/2020	
HORIZONTAL:	LEAD ENGINEER	LEW	10/2020	
----	FIELD MGR		9/20	
VERTICAL:	RECOMMENDED:	HAS	9-20	
----	DESIGN MANAGER			CITY ENGINEER
FILE:				DATE:
ATLAS PAGE NO: 107				SHEET 10 OF 36 SHEETS

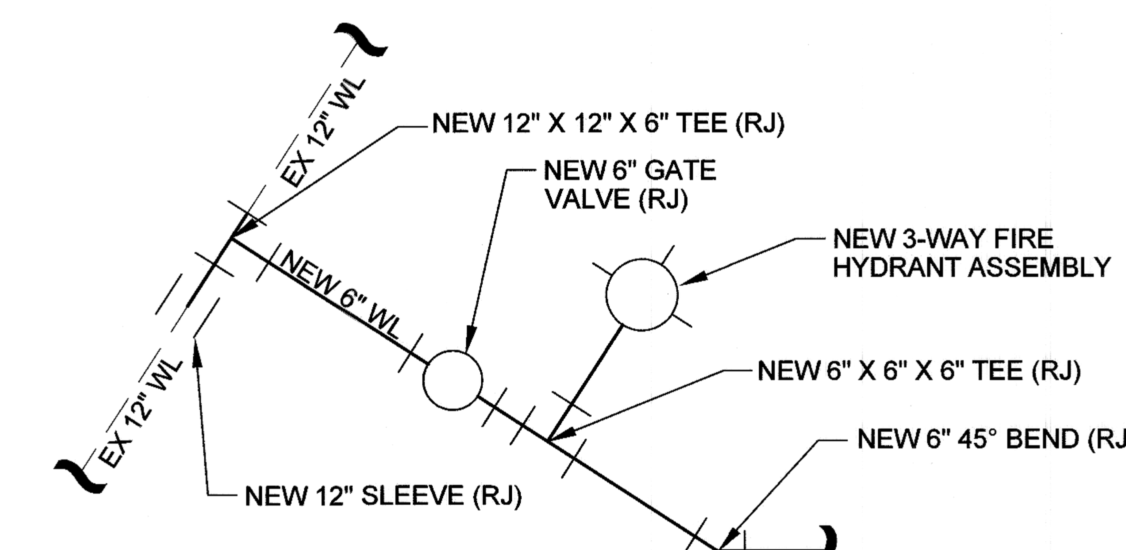
FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
1 - 12"X12"X6" TEE, RJ 1 - 12" SLEEVE, RJ 1 - 6"X6"X6" TEE, RJ 1 - 6" GATE VALVE, RJ 1 - VALVE BOX 1 - 3-WAY FIRE HYDRANT ASSEMBLY 1 - 6" 45° BEND, RJ



1. 12"x12"x6" TEE, RJ — STA 40+00, N 428292.16, E 2537737.22
2. 6"x6"x6" TEE, RJ — STA 40+06.43, N 428287.70, E 2537741.85
3. 6" 45° BEND, RJ — STA 40+11.03, N 428284.50, E 2537745.16
4. SEVICE CONNECTION — STA 42+48.92, N 428289.77, E 2537982.99

N

0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'



DETAIL 1 (1/8)
NTS

SURFACE LEGEND
REPLACEMENT SURFACE

1	CONCRETE PAVEMENT (STD 731) BID # 24
2	ASPHALT PAVEMENT (STD 730) BID # 23
3	CONCRETE CURB & GUTTER (STD 726) BID # 25

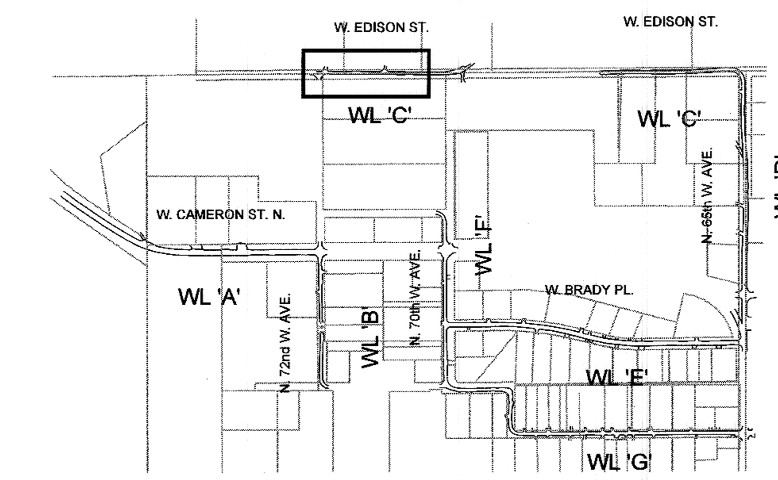
PIPE MATERIAL

- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)

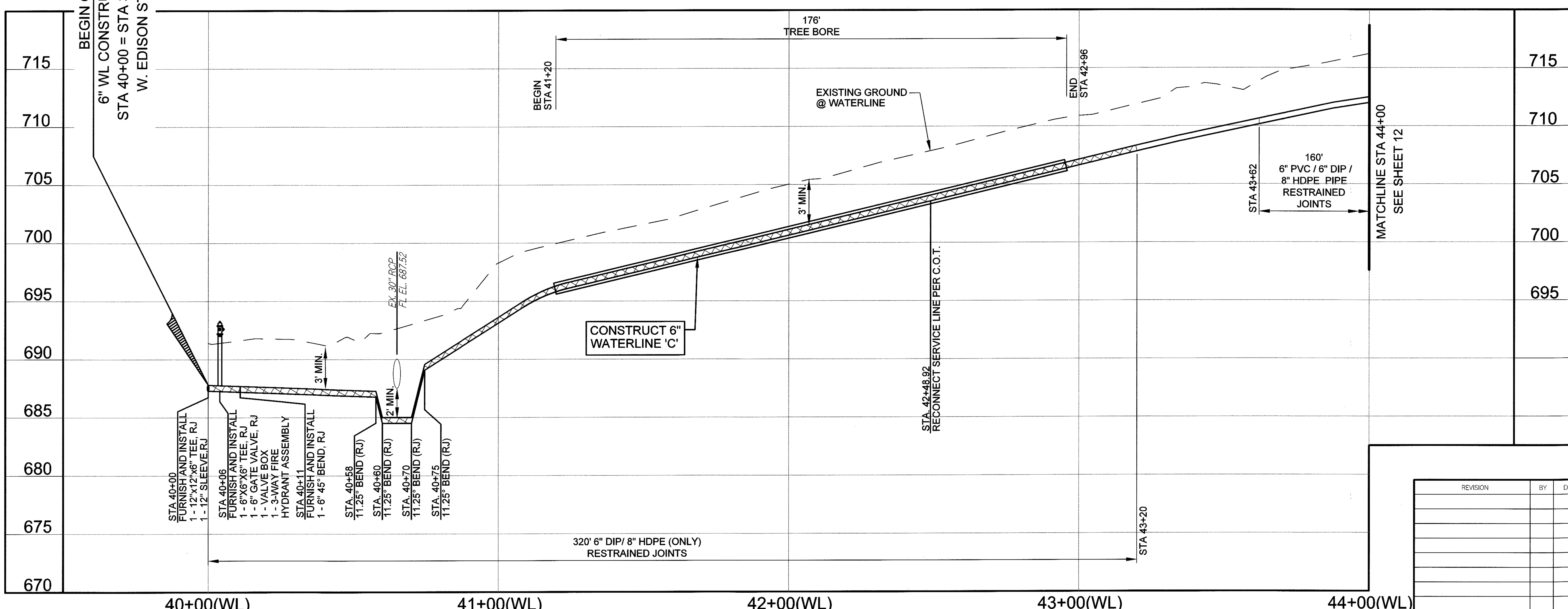
KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

FARM COLONY SUB
BLOCK N
GOLDMAN, ROBERT G. & BARBARA J. TTEES
ROBERT G. & BARBARA J. GOLDMAN TRUST
518 N. 70th AVE. W.

SERVICE CONNECTIONS THIS SHEET
0 EA. - 3/4" LONG SERVICE CONNECTIONS (F)
1 EA. - 3/4" SHORT SERVICE CONNECTIONS



KEY MAP



LICENSED PROFESSIONAL ENGINEER JAMES R. UMDENSTOCK 11407 09/24/2020 OKLAHOMA

OKIE811

PLAN & PROFILE
WATERLINE 'C'
STA 40+00 TO 44+00

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE

PLAN SCALE ----	DRAWN	---	XX-XX-XX
	DESIGNED	---	XX-XX-XX
	SURVEY	---	XX-XX-XX
PROFILE SCALE	PROJECT MGR		09/2020
HORIZONTAL: ----	LEAD ENGINEER		10/2020
	FIELD MGR		9/20
VERTICAL: ----	RECOMMENDED: HAS 9-20		
	DESIGN MANAGER		

APPROVED:
CITY ENGINEER
DATE:

FILE:
ATLAS PAGE NO: 107

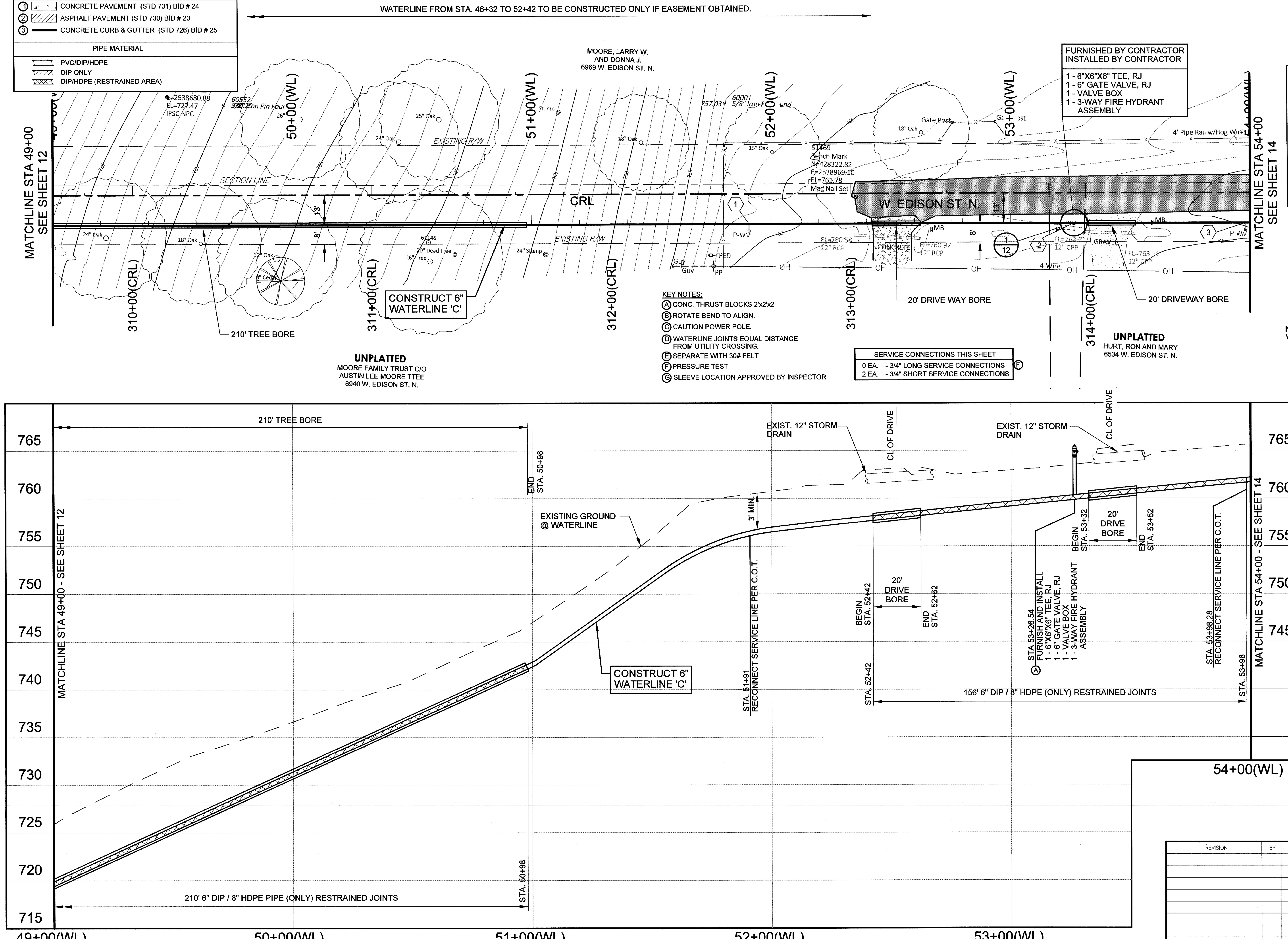

WATERLINE FROM STA. 46+32 TO 52+42 TO BE CONSTRUCTED ONLY IF EASEMENT OBTAINED.
MOORE, LARRY W. AND DONNA J.
FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
1 - 3-WAY FIRE HYDRANT ASSEMBLY
45+00(WL)
46+00(WL)
47+00(WL)
48+00(WL)
GRAVEL DRIVEWAY
2 Wood Rail
24" Tree
14" Tree
2-Wood Rail
32" Tree
Post (5" STL)
Bush
Guy
36" Stump
MB
2-Guy
7-Wire
OH
W. EDISON ST. N.
CRL
SECTION LINE
16.5' STATUTORY R/W
EXISTING R/W
24.75' STATUTORY R/W
Barbed Wire
1" Peach
1" Plum
45015
Bench Mark
N=428304.36
E=2538298.29
EL=721.87
Mag Nail Set
MATCHLINE STA 44+00
SEE SHEET 11
MATCHLINE STA 49+00
SEE SHEET 13
305+00(CRL)
306+00(CRL)
307+00(CRL)
308+00(CRL)
309+00(CRL)
FARM COLONY SUB
BLOCK N
GOLDMAN, ROBERT G. & BARBARA J. TTEES
ROBERT G. & BARBARA J. GOLDMAN TRUST
518 N. 70th AVE. W.
CONSTRUCT 6" WATERLINE 'C'
BORE WL UNDER DRIVE 10 L.F.
NEW 6" X 6" X 6" TEE (RJ)
NEW 6" WL
NEW 3-WAY FIRE HYDRANT ASSEMBLY
NEW 6" GATE VALVE (RJ)
DETAIL 1
210' TREE BORE
N
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'
1 6"x6"x6" TEE, RJ STA 44+42.06 N 428291.06 E 2538176.08
2 6"x6"x6" TEE, RJ STA 48+84.30 N 428303.86 E 2538618.21
SURFACE LEGEND
REPLACEMENT SURFACE
1 CONCRETE PAVEMENT (STD 731) BID # 24
2 ASPHALT PAVEMENT (STD 730) BID # 23
3 CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)
KEY NOTES:
A CONC. THRUST BLOCKS 2'x2'x2'
B ROTATE BEND TO ALIGN.
C CAUTION POWER POLE.
D WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
E SEPARATE WITH 30# FELT
F PRESSURE TEST
G SLEEVE LOCATION APPROVED BY INSPECTOR
SERVICE CONNECTIONS THIS SHEET
0 EA. - 3/4" LONG SERVICE CONNECTIONS
0 EA. - 3/4" SHORT SERVICE CONNECTIONS
KEY MAP
W. EDISON ST.
WL 'C'
WL 'D'
W. CAMERON ST. N.
WL 'A'
WL 'B'
WL 'F'
W. BRADY PL.
WL 'E'
WL 'G'
W. ARCHER ST. N.
10' DRIVEWAY BORE
BEGIN STA 46+22
END STA 46+32
CL OF DRIVE
EXISTING GROUND @ WATERLINE
3' MIN.
98' PVC / DIP / HDPE PIPE RESTRAINED JOINTS
STA 48+88
10' 6" DIP / 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
STA 46+22
STA 46+32
STA. 47+90
STA 44+42 FURNISH AND INSTALL 1 - 6"X6"X6" TEE, RJ 1 - 6" GATE VALVE, RJ 1 - VALVE BOX 1 - 3-WAY FIRE HYDRANT ASSEMBLY
STA 48+84 FURNISH AND INSTALL 1 - 6"X6"X6" TEE, RJ 1 - 6" GATE VALVE, RJ 1 - VALVE BOX 1 - 3-WAY FIRE HYDRANT ASSEMBLY
STA. 48+29 45° BEND (RJ)
STA. 48+40 11.25° BEND (RJ)
210' DIP / HDPE PIPE RESTRAINED JOINTS
160' 6" PVC / 6" DIP / 8" HDPE PIPE RESTRAINED JOINTS
STA. 45+22
730
725
720
715
710
705
700
695
690
685
44+00(WL)
45+00(WL)
46+00(WL)
47+00(WL)
48+00(WL)
49+00(WL)
JAMES R. UMDENSTOCK
11407
OKLAHOMA
OKIE811
PLAN & PROFILE
WATERLINE 'C'
STA 44+00 TO 49+00
2" WATERLINE REPLACEMENT
TMUA-W 18-14
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911
REVISION
BY
DATE
PLAN SCALE
DRAWN
DESIGNED
SURVEY
PROJECT MGR
LEAD ENGINEER
FIELD MGR
RECOMMENDED:
DESIGN MANAGER
PROFILE SCALE
HORIZONTAL:
VERTICAL:
APPROVED:
CITY ENGINEER
FILE:
ATLAS PAGE NO: 107
DATE:
SHEET 12 OF 36 SHEETS

SURFACE LEGEND
REPLACEMENT SURFACE

①		CONCRETE PAVEMENT (STD 731) BID # 24
②		ASPHALT PAVEMENT (STD 730) BID # 23
③		CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL

- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)



FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR

- 1 - 6"X6"X6" TEE, RJ
- 1 - 6" GATE VALVE, RJ
- 1 - VALVE BOX
- 1 - 3-WAY FIRE HYDRANT ASSEMBLY

① SERVICE CONNECTION
STA51+90.86
N 428310.65
E 2538924.69

② 6"x6"x6" TEE, RJ
STA 53+26.54
N 428313.65
E 2,539,060.41

③ SERVICE CONNECTION
STA 53+98.28
N 428315.24
E 2539132.06

N

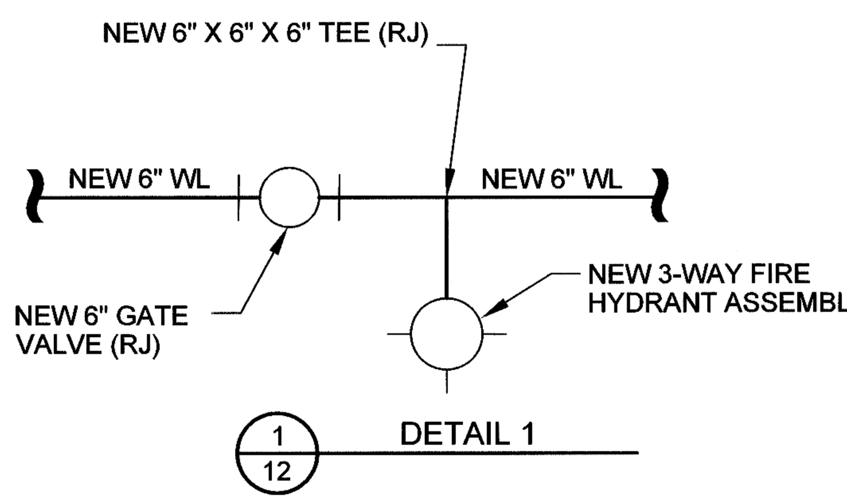
0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

KEY NOTES:

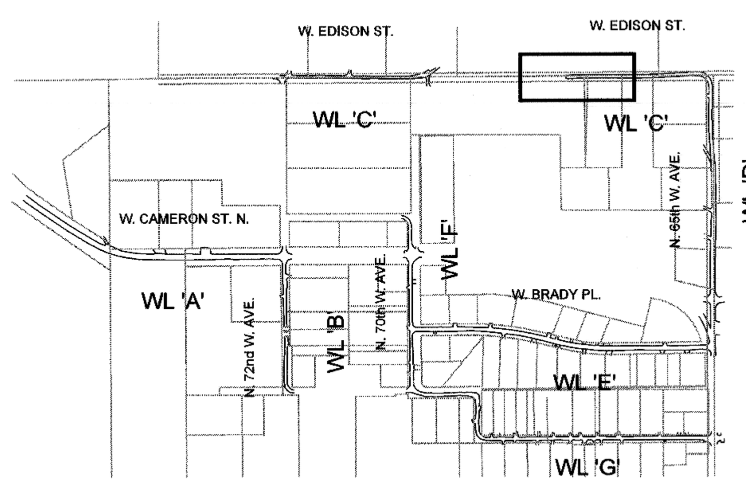
- Ⓐ CONC. THRUST BLOCKS 2'x2'x2'
- Ⓑ ROTATE BEND TO ALIGN.
- Ⓒ CAUTION POWER POLE.
- Ⓓ WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- Ⓔ SEPARATE WITH 30# FELT
- Ⓕ PRESSURE TEST
- Ⓖ SLEEVE LOCATION APPROVED BY INSPECTOR

SERVICE CONNECTIONS THIS SHEET

0 EA.	- 3/4" LONG SERVICE CONNECTIONS Ⓕ
2 EA.	- 3/4" SHORT SERVICE CONNECTIONS



1/12 DETAIL 1



KEY MAP

LICENSED PROFESSIONAL ENGINEER JAMES R. UMDENSTOCK 11407 OKLAHOMA

OKIE811

PLAN & PROFILE
WATERLINE 'C'
STA 49+00 TO 54+00

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR		10/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR			
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	11-20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 13 OF 36 SHEETS


FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1- 2" ARV ASSEMBLY (STD 327)
FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" G.V., RJ
1 - VALVE BOX
1 - 3-WAY FIRE HYDRANT ASSEMBLY
FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6" 90° BEND, RJ
2 - 6" 45° BENDS, RJ
11 SY. - ASPHALT PAVEMENT
N
0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'
MOORE, LARRY W. AND DONNA J. 6969 W. EDISON ST. N.
MATCHLINE STA 54+00 SEE SHEET 13
55+00(WL)
56+00(WL)
57+00(WL)
58+00(WL)
58+59(WL)
EXISTING R/W
W. EDISON ST. N.
CRL
315+00(CRL)
316+00(CRL)
317+00(CRL)
318+00(CRL)
319+00(CRL)
BORE WL UNDER DRIVE 21 L.F.
BORE WL UNDER DRIVE 31 L.F.
CONSTRUCT 6" WATERLINE 'C'
400A Bench Mark N=428323.56 E=2539320.57 EL=769.86 Mag Nail Set
UNPLATTED
AWALT, BERNARD B. AND COLLETTE A. 6508 W. EDISON ST. N.
UNPLATTED
WALKUP, CYNTHIA K. 414 N. 65th AVE. W.
NEW 6" WL
END OF 6" WL CONSTRUCTION 'C'
STA 58+59 = STA 319+25, 13' RT.
W. EDISON ST. N. CRL =
STA 72+52 WL 'D' END
1 SERVICE CONNECTION STA 55+49.39 N 428318.59 E 2539283.14
2 6"x6"x6 TEE, RJ STA 58+24.35 N 428324.69 E 2539558.03
3 6" 45° BEND, RJ STA 58+32.34 N 428324.86 E 2539565.68
4 6" 45° BEND, RJ STA 58+38.87 N 428325.01 E 2539572.68
5 6" 90° BEND, RJ STA 58+58.87 N 428325.45 E 2539592.54
SURFACE LEGEND
REPLACEMENT SURFACE
1 CONCRETE PAVEMENT (STD 731) BID # 24
2 ASPHALT PAVEMENT (STD 730) BID # 23
3 CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)
KEY NOTES:
A CONC. THRUST BLOCKS 2'x2'x2'
B ROTATE BEND TO ALIGN.
C CAUTION POWER POLE.
D WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
E SEPARATE WITH 30# FELT
F PRESSURE TEST
G SLEEVE LOCATION APPROVED BY INSPECTOR
NEW 6" X 6" X 6" TEE (RJ)
NEW 6" WL
NEW 6" WL
NEW 6" GATE VALVE (RJ)
NEW 3-WAY FIRE HYDRANT ASSEMBLY
DETAIL 1
NTS
SERVICE CONNECTIONS THIS SHEET
0 EA. - 3/4" LONG SERVICE CONNECTIONS
1 EA. - 3/4" SHORT SERVICE CONNECTIONS
KEY MAP
21' DRIVEWAY BORE
BEGIN STA. 54+83
CL OF DRIVE
END STA. 55+04
31' DRIVEWAY BORE
BEGIN STA. 56+83
CL OF DRIVE
END STA. 57+14
EXISTING GROUND @ WATERLINE
EXIST. 8" STORM DRAIN
3' MIN.
3' MIN.
CONSTRUCT 6" WATERLINE 'C'
STA 56+55 ARV
21' 6" DIP / 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
31' 6" DIP / 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
STA. 55+49.39 RECONNECT SERVICE LINE PER C.O.T.
STA 58+24.35 FURNISH AND INSTALL 1 - 6"X6"X6" TEE, RJ 1 - 6" G.V., RJ 1 - VALVE BOX 1 - 3-WAY FIRE HYDRANT ASSEMBLY
STA. 58+32 45° BEND, RJ
STA. 58+39 45° BEND, RJ
WL 'C' STA 58+58.87 = WL 'D' STA 72+51.57 CONNECT @ 6" 90° BEND, RJ
EL. 751.48
STA. 57+49
STA. 58+59
109' 6" PVC / 6" DIP / 8" HDPE PIPE RESTRAINED JOINTS
775 770 765 760 755 750 745 740 735 730
54+00(WL) 55+00(WL) 56+00(WL) 57+00(WL) 58+00(WL)
JAMES R. UMDENSTOCK 11407 OKLAHOMA
OKIE811
PLAN & PROFILE
WATERLINE 'C'
STA 54+00 TO 58+45
2" WATERLINE REPLACEMENT
TMUA-W 18-14
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911
REVISION BY DATE
PLAN SCALE
PROFILE SCALE
HORIZONTAL:
VERTICAL:
DRAWN
DESIGNED
SURVEY
PROJECT MGR
LEAD ENGINEER
FIELD MGR
RECOMMENDED:
DESIGN MANAGER
APPROVED:
CITY ENGINEER
FILE:
ATLAS PAGE NO: 107
DATE:
SHEET 14 OF 36 SHEETS

SURFACE LEGEND
REPLACEMENT SURFACE

1	CONCRETE PAVEMENT (STD 731) BID # 24
2	ASPHALT PAVEMENT (STD 730) BID # 23
3	CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL
- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)

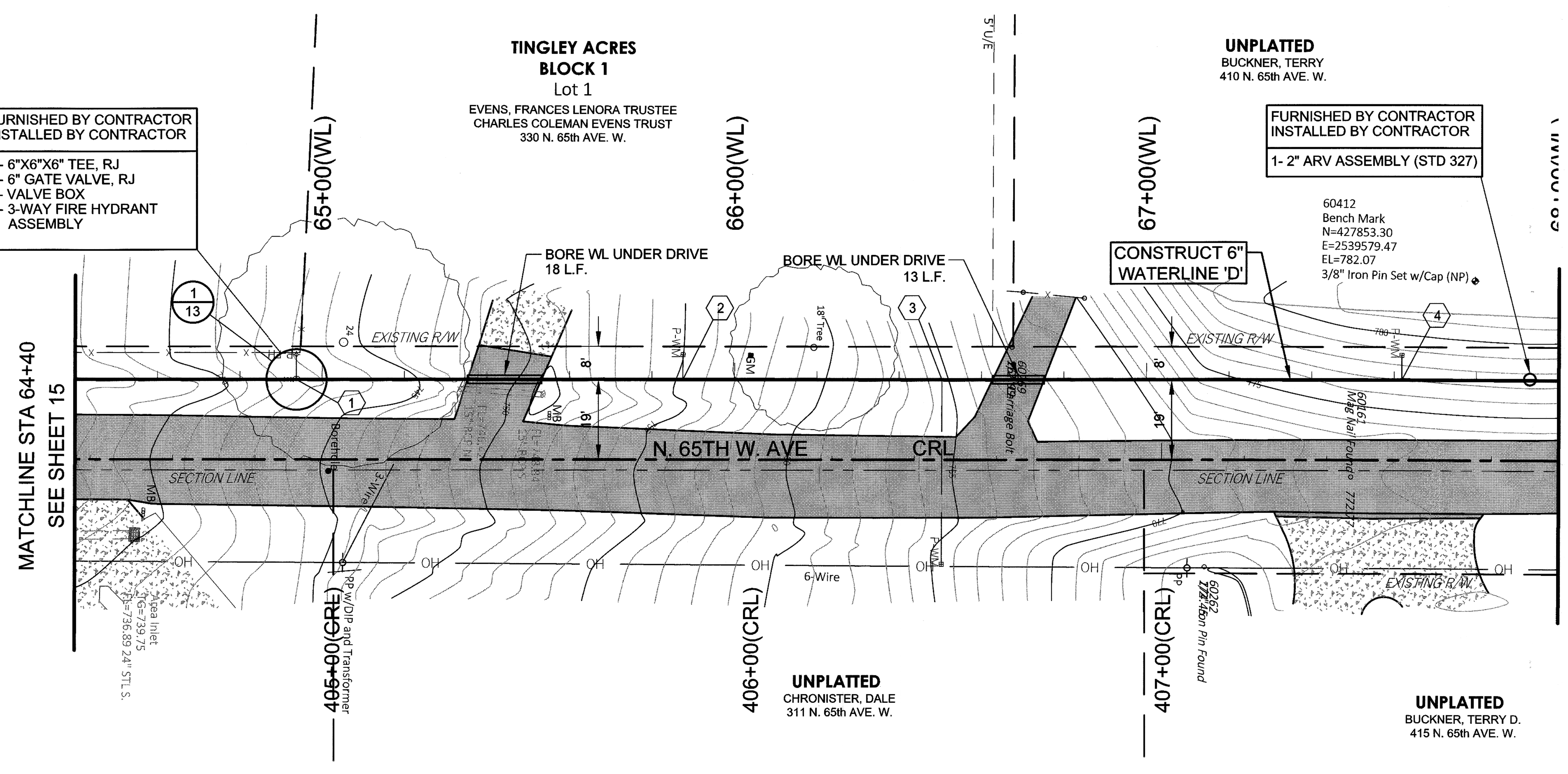
PLAN & PROFILE
WATERLINE 'D'
STA 60+00 TO 64+40

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

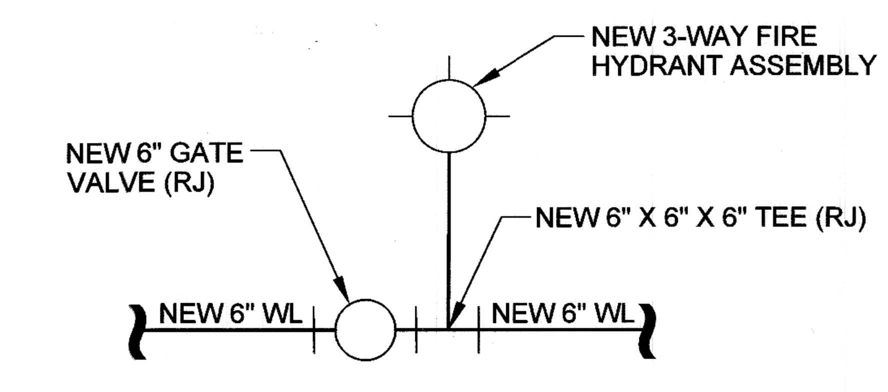
REVISION | BY | DATE
PLAN SCALE ---- | DRAWN --- XX-XX-XX | DESIGNED --- XX-XX-XX | SURVEY --- XX-XX-XX
PROFILE SCALE | PROJECT MGR | HORIZONTAL: ---- | LEAD ENGINEER | FIELD MGR | VERTICAL: ---- | RECOMMENDED: DESIGN MANAGER
APPROVED: CITY ENGINEER
FILE: | DATE:
ATLAS PAGE NO: 107
SHEET 15 OF 36 SHEETS



1	6"x6"x6" TEE, RJ STA 64+93.78 N 427567.90 E 2539608.42
2	SERVICE CONNECTION STA 65+87.47 N 427661.58 E 2539606.82
3	SERVICE CONNECTION STA 66+50.39 N 427724.49 E 2539605.76
4	SERVICE CONNECTION STA 67+61.84 N 427835.93 E 2539603.86

KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

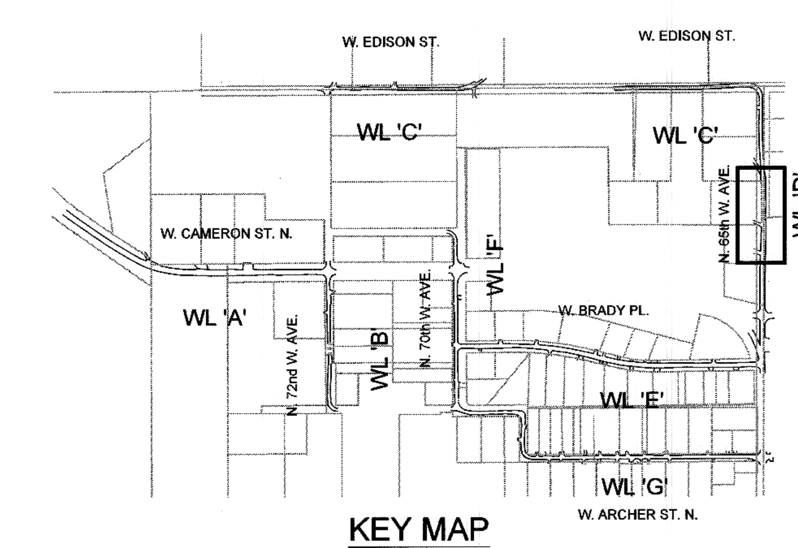


DETAIL 1 (1/13)
NTS

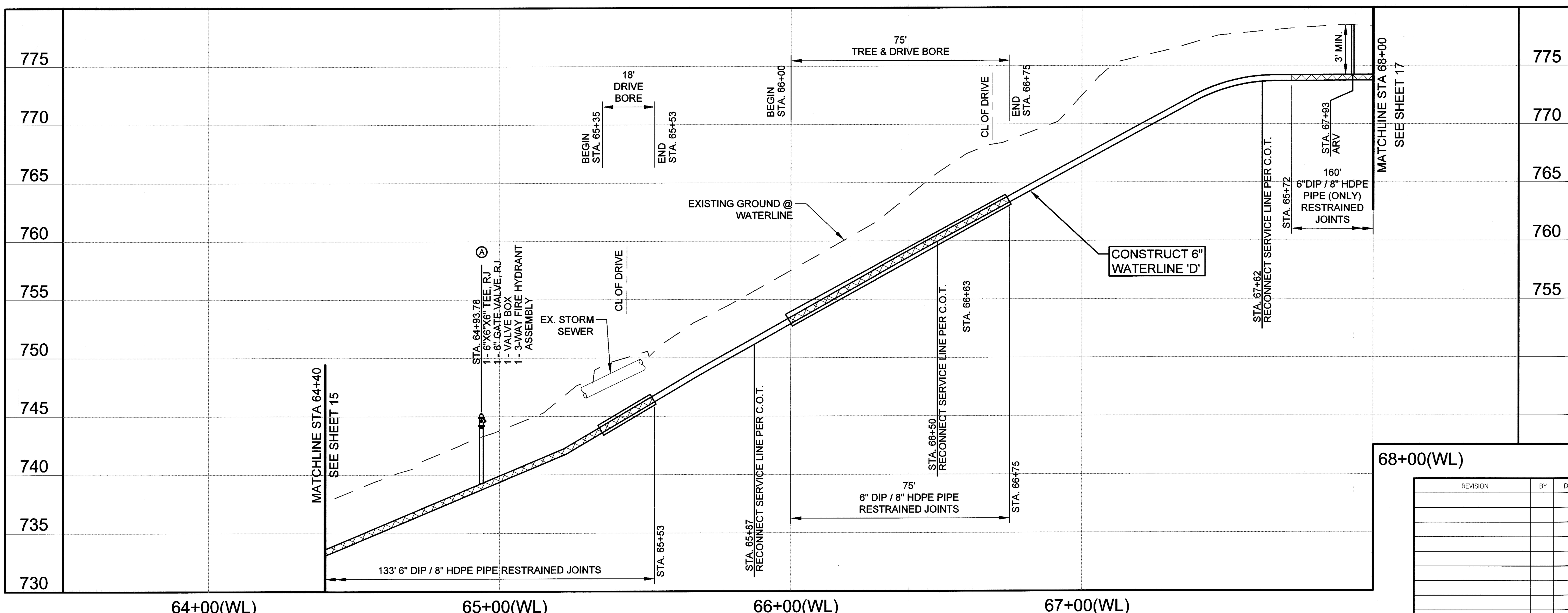
SURFACE LEGEND REPLACEMENT SURFACE
(1) CONCRETE PAVEMENT (STD 731) BID # 24
(2) ASPHALT PAVEMENT (STD 730) BID # 23
(3) CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)

SERVICE CONNECTIONS THIS SHEET	
1 EA.	- 3/4" LONG SERVICE CONNECTIONS
2 EA.	- 3/4" SHORT SERVICE CONNECTIONS

(F)



KEY MAP



LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE 811

PLAN & PROFILE
WATERLINE 'D'
STA 64+40 TO 68+00

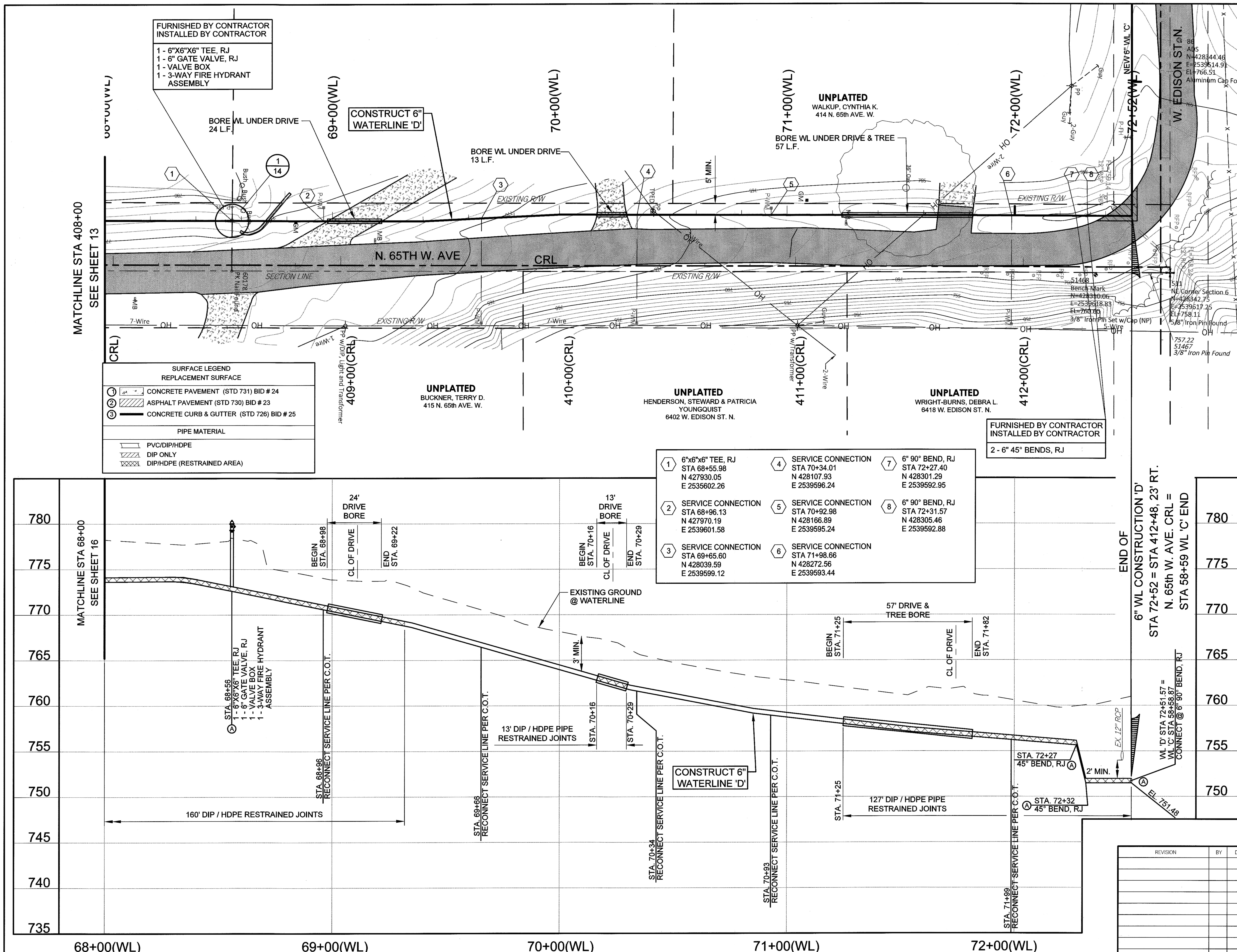
2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE

PLAN SCALE ----	DRAWN	---	XX-XX-XX	APPROVED:
	DESIGNED	---	XX-XX-XX	
	SURVEY	---	XX-XX-XX	
PROFILE SCALE	PROJECT MGR	EMW	09/2020	
HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
	FIELD MGR		9/20	
VERTICAL: ----	RECOMMENDED: HRS 9-20 DESIGN MANAGER			CITY ENGINEER
FILE:				DATE:
ATLAS PAGE NO. 107				SHEET 16 OF 36 SHEETS



1 6"x6"x6" TEE, RJ STA 68+55.98 N 427930.05 E 2535602.26	4 SERVICE CONNECTION STA 70+34.01 N 428107.93 E 2539596.24	7 6" 90° BEND, RJ STA 72+27.40 N 428301.29 E 2539592.95
2 SERVICE CONNECTION STA 68+96.13 N 427970.19 E 2539601.58	5 SERVICE CONNECTION STA 70+92.98 N 428166.89 E 2539595.24	8 6" 90° BEND, RJ STA 72+31.57 N 428305.46 E 2539592.88
3 SERVICE CONNECTION STA 69+65.60 N 428039.59 E 2539599.12	6 SERVICE CONNECTION STA 71+98.66 N 428272.56 E 2539593.44	

FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

NEW 3-WAY FIRE HYDRANT ASSEMBLY
NEW 6" GATE VALVE (RJ)
NEW 6" X 6" X 6" TEE (RJ)
NEW 6" WL 'D'
NEW 6" WL 'D'

DETAIL 1
NTS

KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

SERVICE CONNECTIONS THIS SHEET	
1 EA.	- 3/4" LONG SERVICE CONNECTIONS (F)
2 EA.	- 3/4" SHORT SERVICE CONNECTIONS

KEY MAP

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/29/2020
OKLAHOMA

OKIE811

PLAN & PROFILE
WATERLINE 'D'
STA 68+00 TO 72+39

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE				APPROVED:
			----	DRAWN	---	XX-XX-XX	
				DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	RMW	10/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR	BW	11/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	11-20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 17 OF 36 SHEETS

KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
- 2 - 6" 45° BEND, RJ
- 1 - 6" 22.5° BEND, RJ
- 1 - 6" 11.25° BEND,RJ

FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
- 2 - 6"X6"X6" TEE, RJ
- 1 - 6" GATE VALVE, RJ
- 1 - VALE BOX
- 1 - 3-WAY FIRE HYDRANT ASSEMBLY

FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
- 1 - 6"X6"X6" TEE, RJ
- 1 - 6" G.V., RJ
- 1 - 3-WAY FIRE HYDRANT ASSEMBLY

SURFACE LEGEND
REPLACEMENT SURFACE
- (1) CONCRETE PAVEMENT (STD 731) BID # 24
- (2) ASPHALT PAVEMENT (STD 730) BID # 23
- (3) CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL
- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)

SERVICE CONNECTIONS THIS SHEET (F)
- 2 EA. - 3/4" LONG SERVICE CONNECTIONS
- 2 EA. - 3/4" SHORT SERVICE CONNECTIONS

(1) 6"x6"x6" TEE, RJ STA 80+00 N 427173.40 E 2538330.21	(6) SERVICE CONNECTION STA 82+74.83 N 427179.62 E 2538611.94
(2) 6"x6"x6" TEE, RJ STA 80+05.1 N 427173.73 E 2538342.30	(7) 6"x6"x6" TEE, RJ STA 83+58.59 N 427,175.15 E 2,538,695.58
(3) SERVICE CONNECTION STA 80+39.75 N 427174.69 E 2538376.94	(8) SERVICE CONNECTION STA 83+85.84 N 427172.54 E 2538722.68
(4) SERVICE CONNECTION STA 80+59.84 N 427175.24 E 2538397.02	(9) SERVICE CONNECTION STA 84+67.61 N 427161.31 E 2538803.68
(5) SERVICE CONNECTION STA 82+13.65 N 427179.48 E 2538550.78	

PLAN & PROFILE
WATERLINE 'E'
STA 80+00 TO 84+73

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE

PLAN SCALE ----	DRAWN ---	XX-XX-XX
	DESIGNED ---	XX-XX-XX
	SURVEY ---	XX-XX-XX
PROFILE SCALE	PROJECT MGR	RMW 10/2020
HORIZONTAL: ----	LEAD ENGINEER	LEW 10/2020
	FIELD MGR	DW 11/20
VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS 11-20
FILE:		
ATLAS PAGE NO: 107		

APPROVED: CITY ENGINEER
DATE:
SHEET 18 OF 36 SHEETS

SURFACE LEGEND
REPLACEMENT SURFACE

1. CONCRETE PAVEMENT (STD 731) BID # 24
2. ASPHALT PAVEMENT (STD 730) BID # 23
3. CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL

- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)

(1) SERVICE CONNECTION STA 85+32.41 N 427148.82 E 2538867.26	(6) SERVICE CONNECTION STA 87+47.43 N 427101.98 E 2539077.12
(2) SERVICE CONNECTION STA 85+55.30 N 427143.83 E 2538889.60	(7) 6" 11.25° BEND, RJ STA 87+51.96 N 427100.99 E 2539081.54
(3) SERVICE CONNECTION STA 86+36.79 N 427126.08 E 2538969.13	(8) 6"x6"x6" TEE, RJ STA 88+28.64 N 427103.25 E 2539158.18
(4) SERVICE CONNECTION STA 86+75.52 N 427117.64 E 2539006.93	(9) SERVICE CONNECTION STA 88+82.56 N 427104.83 E 2539212.08
(5) SERVICE CONNECTION STA 87+44.33 N 427102.65 E 2539074.09	(10) SERVICE CONNECTION STA 88+84.22 N 427104.88 E 2539213.74

KEY NOTES:

- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

SERVICE CONNECTIONS THIS SHEET	
0 EA.	- 3/4" LONG SERVICE CONNECTIONS
2 EA.	- 3/4" SHORT SERVICE CONNECTIONS

JAMES R. UMDENSTOCK
11407
LICENSED PROFESSIONAL ENGINEER
OKLAHOMA

OKIE 811

PLAN & PROFILE
WATERLINE 'E'
STA 84+73 TO 89+73

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
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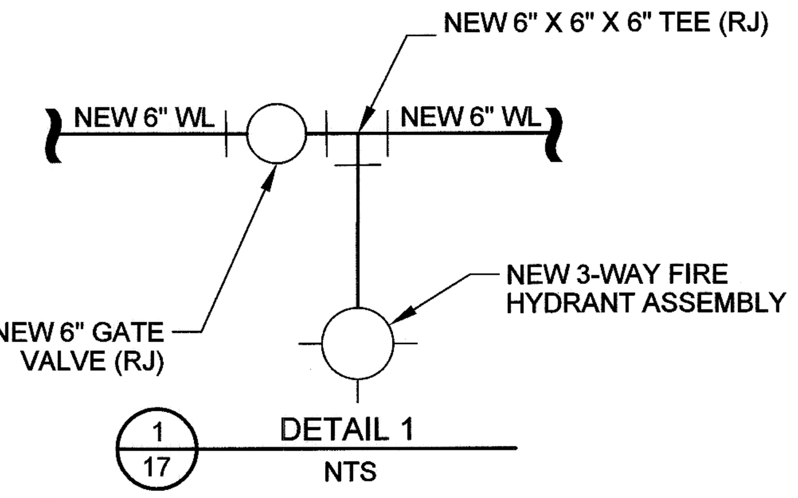
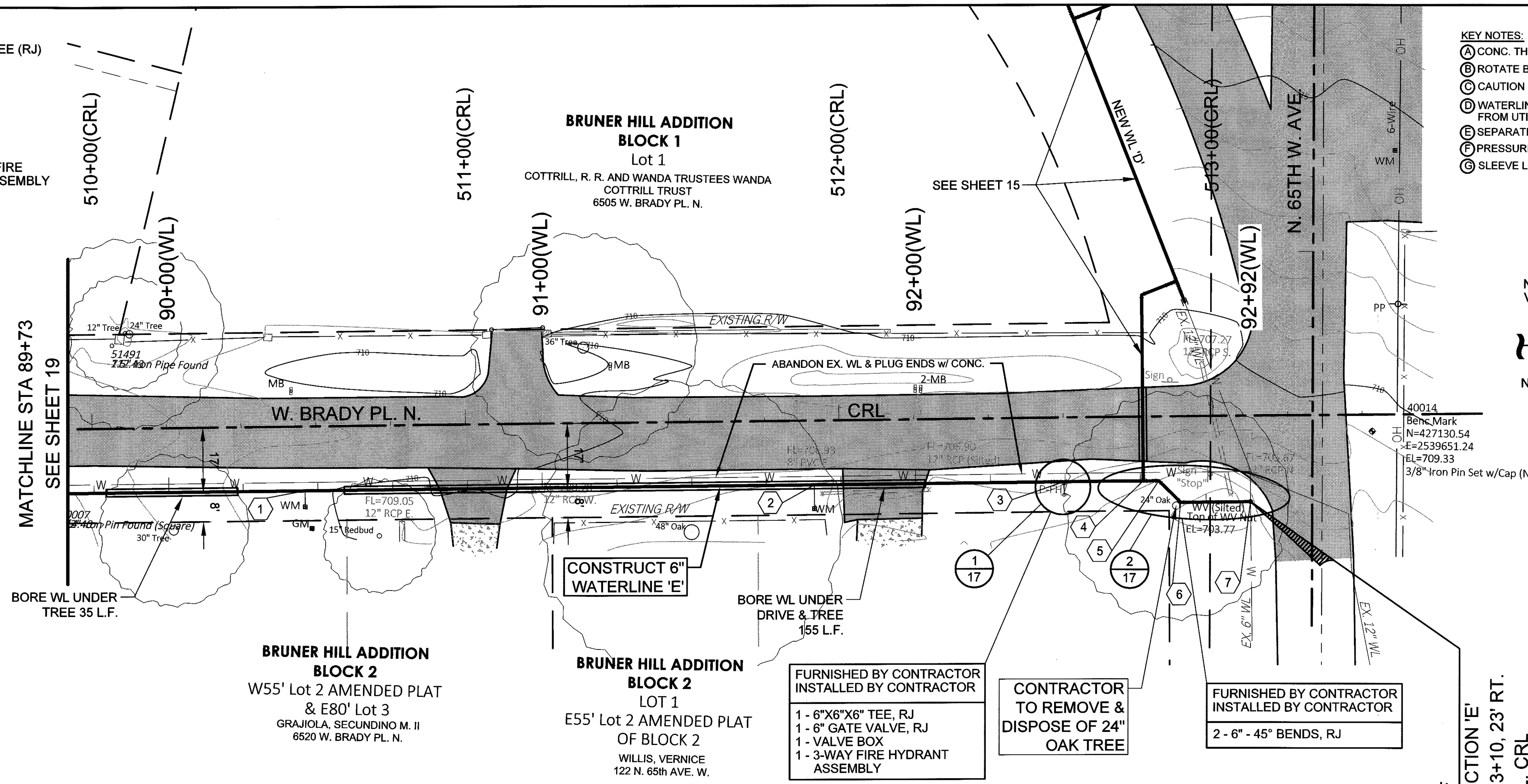
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR		10/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	11/2020	
				FIELD MGR		11/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	11-20	CITY ENGINEER
FILE:							DATE:
ATLAS PAGE NO: 107							SHEET 19 OF 36 SHEETS



DETAIL 1 (1/17)
NTS

1	SERVICE CONNECTION STA 90+36.57 N 427109.36 E 2539366.03
2	SERVICE CONNECTION STA 91+72.84 N 427113.37 E 2539502.24
3	6"x6"x6" TEE, RJ STA 92+39.68 N 427115.34 E 2539569.04
4	6"x6"x6" TEE, RJ STA 92+60.79 N 427115.95 E 2539590.15
5	6" 45° BEND, RJ STA 92+64.96 N 427116.08 E 2539594.31
6	6" 45° BEND, RJ STA 92+73.17 N 427110.45 E 2539600.28
7	EX. 6" GATE VALVE STA 92+91.87 N 427111.00 E 2539618.98

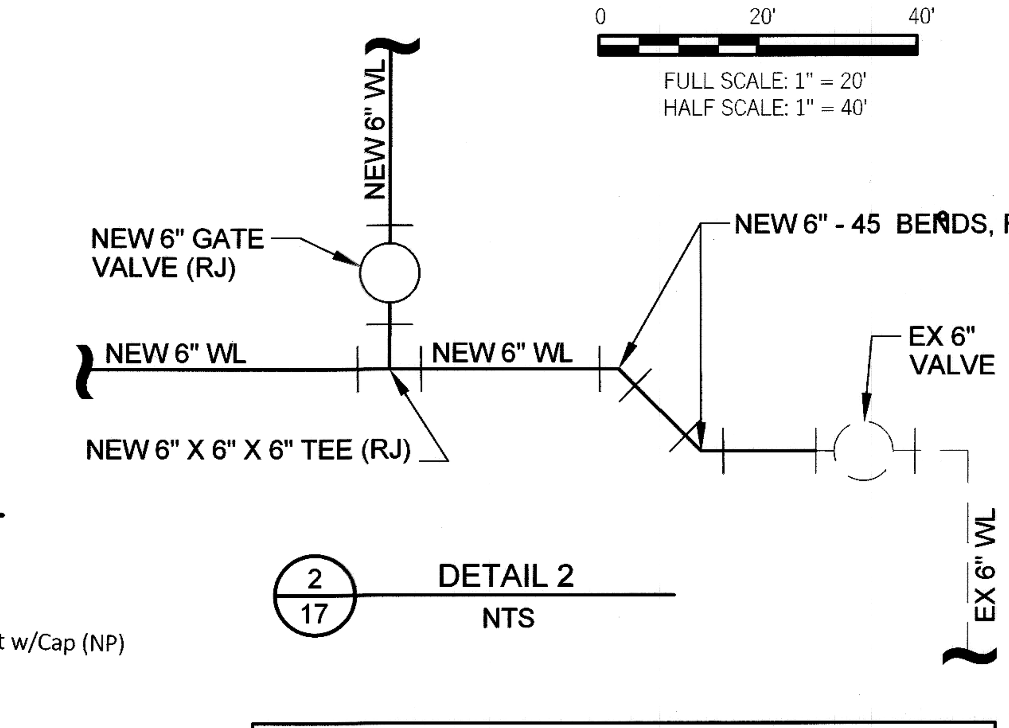


KEY NOTES:

- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

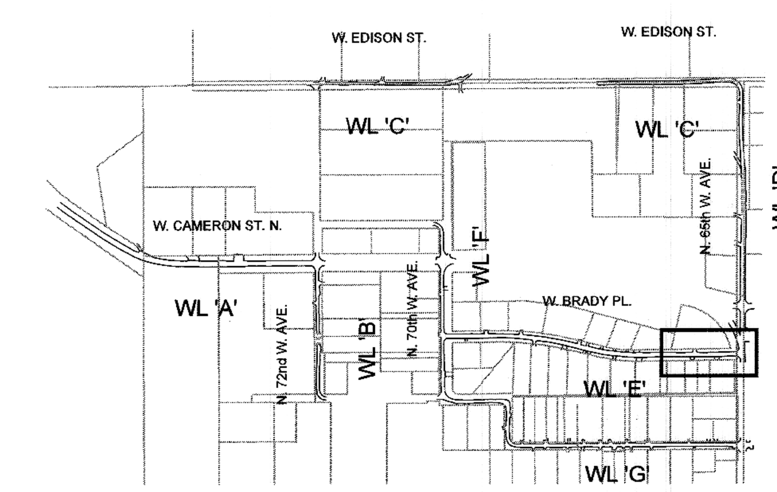
N

0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'



DETAIL 2 (2/17)
NTS

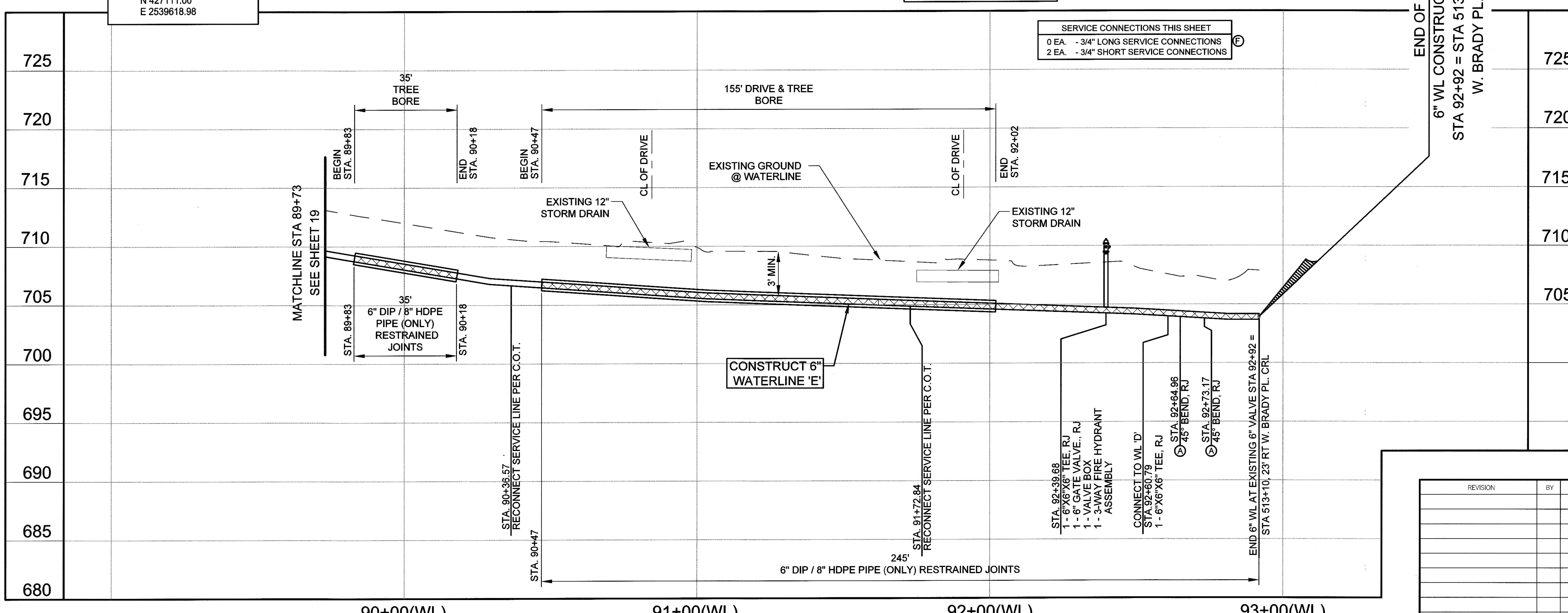
SURFACE LEGEND REPLACEMENT SURFACE	
1	CONCRETE PAVEMENT (STD 731) BID # 24
2	ASPHALT PAVEMENT (STD 730) BID # 23
3	CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL	
	PVC/DIP/HDPE
	DIP ONLY
	DIP/HDPE (RESTRAINED AREA)



KEY MAP

SERVICE CONNECTIONS THIS SHEET	
0 EA.	3/4" LONG SERVICE CONNECTIONS
2 EA.	3/4" SHORT SERVICE CONNECTIONS

(F)



LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE811

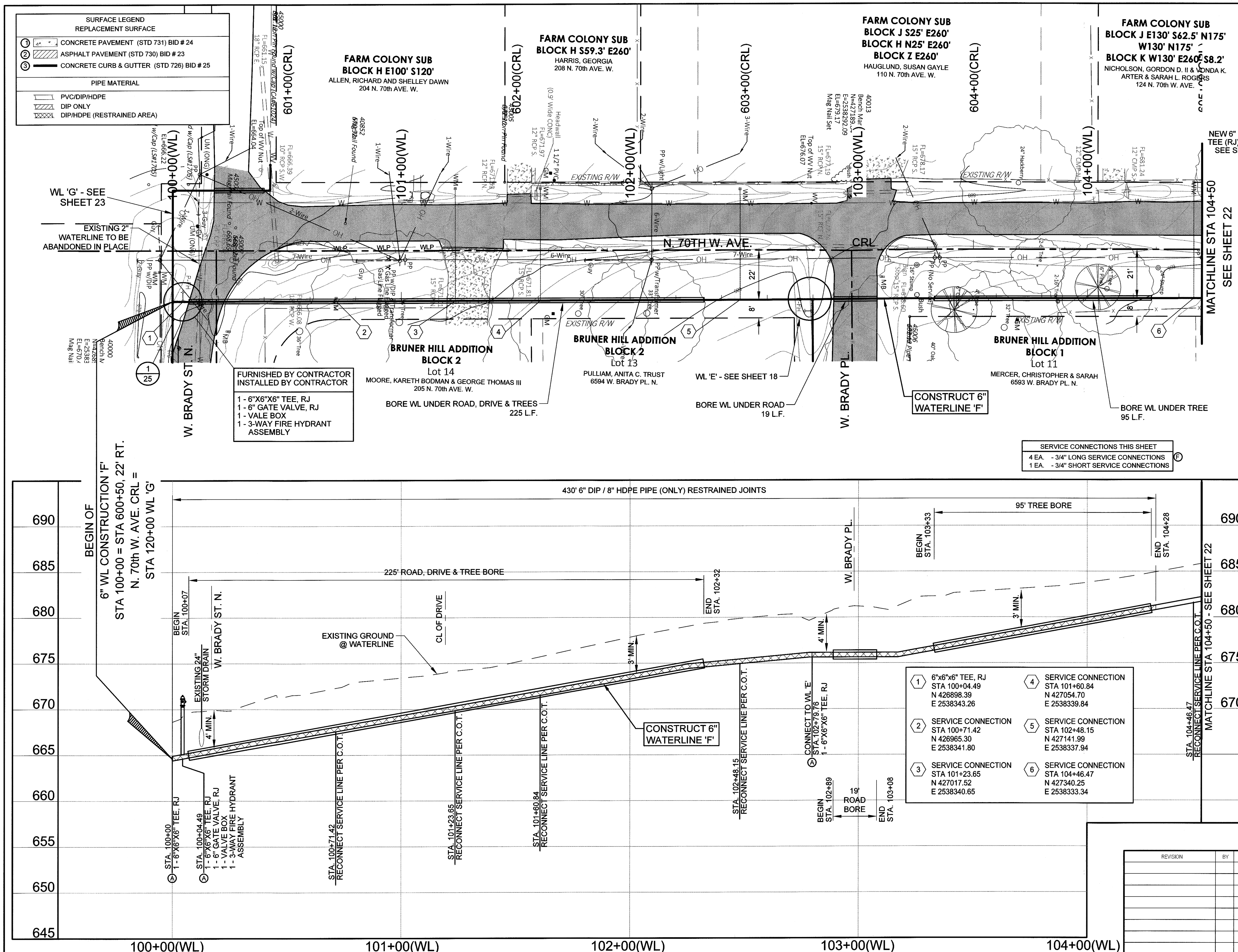
PLAN & PROFILE
WATERLINE 'E'
STA 89+73 TO 92+92

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR		10/2020	
			HORIZONTAL: ----	LEAD ENGINEER		10/2020	
				FIELD MGR		11/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER		11.20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 20 OF 36 SHEETS



KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

SERVICE CONNECTIONS THIS SHEET	
4 EA.	- 3/4" LONG SERVICE CONNECTIONS
1 EA.	- 3/4" SHORT SERVICE CONNECTIONS

(1) 6"x6"x6" TEE, RJ STA 100+04.49 N 426898.39 E 2538343.26	(4) SERVICE CONNECTION STA 101+60.84 N 427054.70 E 2538339.84
(2) SERVICE CONNECTION STA 100+71.42 N 426965.30 E 2538341.80	(5) SERVICE CONNECTION STA 102+48.15 N 427141.99 E 2538337.94
(3) SERVICE CONNECTION STA 101+23.65 N 427017.52 E 2538340.65	(6) SERVICE CONNECTION STA 104+46.47 N 427340.25 E 2538333.34

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE 811

PLAN & PROFILE
WATERLINE 'F'
STA 100+00 TO 104+50

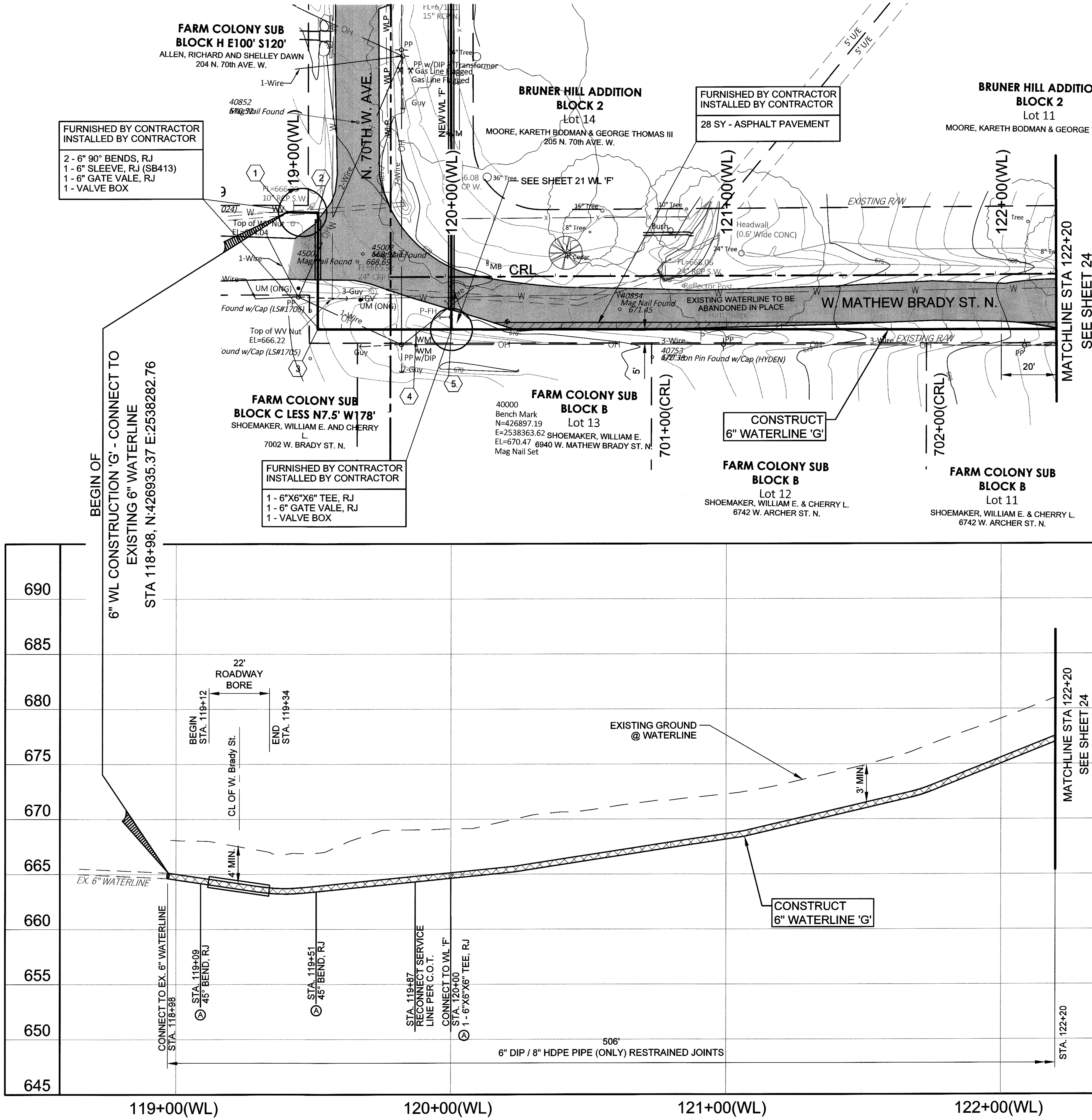
2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	RMW	09/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR		9/20	
			VERTICAL: ----	RECOMMENDED: HAS 9.20 DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 21 OF 36 SHEETS


SURFACE LEGEND
REPLACEMENT SURFACE
1 CONCRETE PAVEMENT (STD 731) BID # 24
2 ASPHALT PAVEMENT (STD 730) BID # 23
3 CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)
FARM COLONY SUB
BLOCK J N112.5' E130'
BLOCK K E130' S8.2'
NICHOLSON, GORDON II & VONDA K.
ARTER & SARAH L. ROGERS
128 N. 70th AVE. W.
FARM COLONY SUB
BLOCK K
E88' N111.8'
SNOWDEN, DORA ANNE
6901 W. CAMERON ST. N.
606+00(CRL)
607+00(CRL)
608+00(CRL)
105+00(WL)
106+00(WL)
107+00(WL)
108+00(WL)
108+08(WL)
EX. 12" WL
N. 70TH W. AVE.
CRL
W. CAMERON ST.
EXISTING R/W
MATCHLINE STA 104+50
SEE SHEET 21
21'
8'
BORE WL UNDER TREE
29 L.F.
BORE WL UNDER DRIVE
16 L.F.
BORE WL UNDER ROAD
41 L.F.
CONSTRUCT 6" WATERLINE 'F'
FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 12"X12"X6"X6" CROSS, RJ
2 - 12" SLEEVES, RJ
1 - 6" GATE VALVE, RJ
1 - 12' GATE VALVE, RJ
2 - VALVE BOXES
20 LF - 12" WATERLINE
KEY NOTES:
A CONC. THRUST BLOCKS 2'x2'x2'
B ROTATE BEND TO ALIGN.
C CAUTION POWER POLE.
D WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
E SEPARATE WITH 30# FELT
F PRESSURE TEST
G SLEEVE LOCATION APPROVED BY INSPECTOR
SERVICE CONNECTIONS THIS SHEET
1 EA. - 3/4" LONG SERVICE CONNECTIONS
0 EA. - 3/4" SHORT SERVICE CONNECTIONS
1 SERVICE CONNECTION STA 104+96.82 N 427390.60 E 2538332.24
2 12"x12"x6"x6" CROSS, RJ STA 106+01.81 N 427495.56 E 2538329.95
3 6"x6"x6" TEE, RJ STA 108+00 N 427693.70 E 2538325.62
FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
1 - 3-WAY FIRE HYDRANT ASSEMBLY
1 - 6" PLUG
END OF CONSTRUCTION 6" WL 'F'
STA 108+08 = STA 608+58, 21' RT.
N. 70th W. AVE. CRL
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'
NEW 12" X 12" X 6" X 6" CROSS (RJ)
NEW 6" WL 'F'
NEW 6" GATE VALVE (RJ)
NEW 12" GATE VALVE (RJ)
NEW 12" SLEEVE (RJ), TYP.
20' - 12" WL
DETAIL 1
NTS
NEW 6" X 6" X 6" TEE (RJ)
6" PLUG
NEW 3-WAY FIRE HYDRANT ASSEMBLY
DETAIL 2
NTS
KEY MAP
16' DRIVE BORE
29' TREE BORE
41' ROAD BORE
BEGIN STA. 105+02
END STA. 105+18
BEGIN STA. 105+57
END STA. 105+86
BEGIN STA. 106+15
END STA. 106+56
EXISTING GROUND @ WATERLINE
CL OF DRIVE
EX. 18" RCP FL EL=690.05
3' MIN.
4' MIN.
CONNECT TO EX. 12 WL STA. 106+01.81
1 - 12"X12"X6"X6" CROSS, RJ
2 - 12" SLEEVES, RJ
1 - 6" GATE VALVE, RJ
1 - 12" GATE VALVE, RJ
2 - VALVE BOXES
20 LF - 12" WATERLINE
STA. 108+00
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
1 - 3-WAY FIRE HYDRANT ASSEMBLY
STA. 108+08
1 - 6" PLUG
STA. 104+96.82 RECONNECT SERVICE LINE PER C.O.T.
STA. 105+02
STA. 105+56
STA. 107+28
154'
6" DIP / 8" HDPE PIPE (ONLY) RESTRAINED JOINTS
80'
6" DIP / 8" HDPE PIPE RESTRAINED JOINTS
705
700
695
690
685
680
675
670
665
660
JAMES R. UMDENSTOCK
11407
LICENSED PROFESSIONAL ENGINEER
OKLAHOMA
OKIE 811
PLAN & PROFILE
WATERLINE 'F'
STA 104+50 TO 108+80
2" WATERLINE REPLACEMENT
TMUA-W 18-14
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911
REVISION
BY
DATE
PLAN SCALE
PROFILE SCALE
HORIZONTAL:
VERTICAL:
DRAWN
DESIGNED
SURVEY
PROJECT MGR
LEAD ENGINEER
FIELD MGR
RECOMMENDED:
DESIGN MANAGER
APPROVED:
CITY ENGINEER
FILE:
DATE:
ATLAS PAGE NO: 107
SHEET 22 OF 36 SHEETS



1	EX. WATER VALVE STA 118+98 N 426935.37 E 2538282.76
2	6" 90° BEND, RJ STA 119+09 N 426935.51 E 2538293.91
3	6" 90° BEND, RJ STA 119+51 N 426982.99 E 2538294.70
4	SERVICE CONNECTION STA 119+87 N 426893.66 E 2538330.49
5	6"x6"x6" TEE, RJ STA 120+00 N 426893.90 E 2538343.36

0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

SURFACE LEGEND REPLACEMENT SURFACE
① CONCRETE PAVEMENT (STD 731) BID # 24
② ASPHALT PAVEMENT (STD 730) BID # 23
③ CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL
PVC/DIP/HDPE
DIP ONLY
DIP/HDPE (RESTRAINED AREA)

KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE PIPE TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

SERVICE CONNECTIONS THIS SHEET
0 EA. - 3/4" LONG SERVICE CONNECTIONS
1 EA. - 3/4" SHORT SERVICE CONNECTIONS

KEY MAP

JAMES R. UMDENSTOCK 11407 OKLAHOMA

OKIE 811

PLAN & PROFILE
WATERLINE 'G'
STA 120+00 TO 122+20

2" WATERLINE REPLACEMENT
TMUA-W 18-14

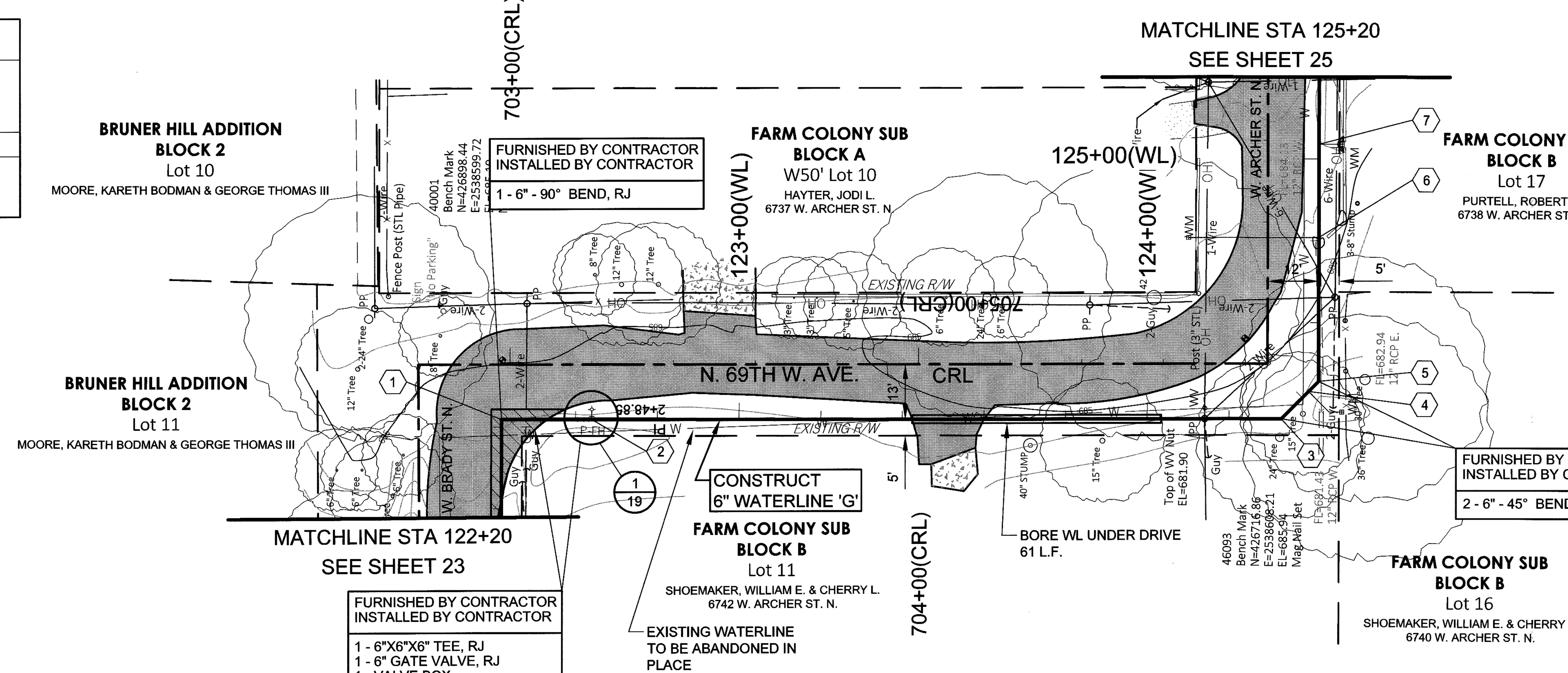
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR		09/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR		9/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	9-20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 23 OF 36 SHEETS

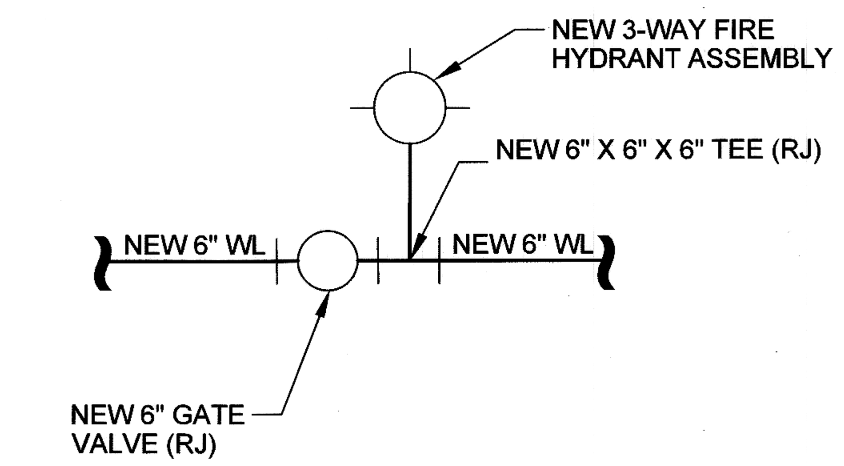
SURFACE LEGEND REPLACEMENT SURFACE	
1	CONCRETE PAVEMENT (STD 731) BID # 24
2	ASPHALT PAVEMENT (STD 730) BID # 23
3	CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL	
	PVC/DIP/HDPE
	DIP ONLY
	DIP/HDPE (RESTRAINED AREA)

1. 6" 90° BEND, RJ
   STA 122+41.85
   N 426898.41
   E 2538585.16
2. 6"x6"x6" TEE, RJ
   STA 122+63.94
   N 426876.32
   E 2538585.57
3. 6" 45° BEND, RJ
   STA 124+32.67
   N 426707.62
   E 2538588.68
4. SERVICE CONNECTION
   STA 124+42.15
   N 426701.04
   E 2538595.50
5. 6" 45° BEND, RJ
   STA 124+45.64
   N 426698.61
   E 2538598.02
6. SERVICE CONNECTION
   STA 124+80.79
   N 426699.27
   E 2538633.15
7. SERVICE CONNECTION
   STA 125+03.56
   N 426699.70
   E 2538655.93



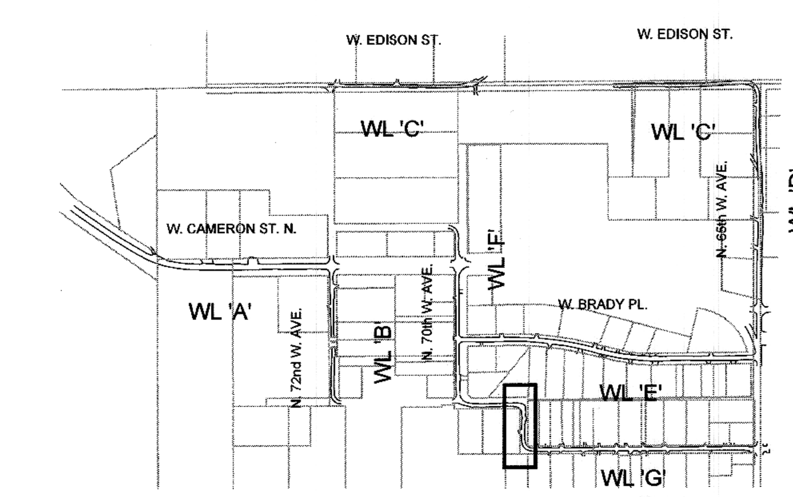
KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

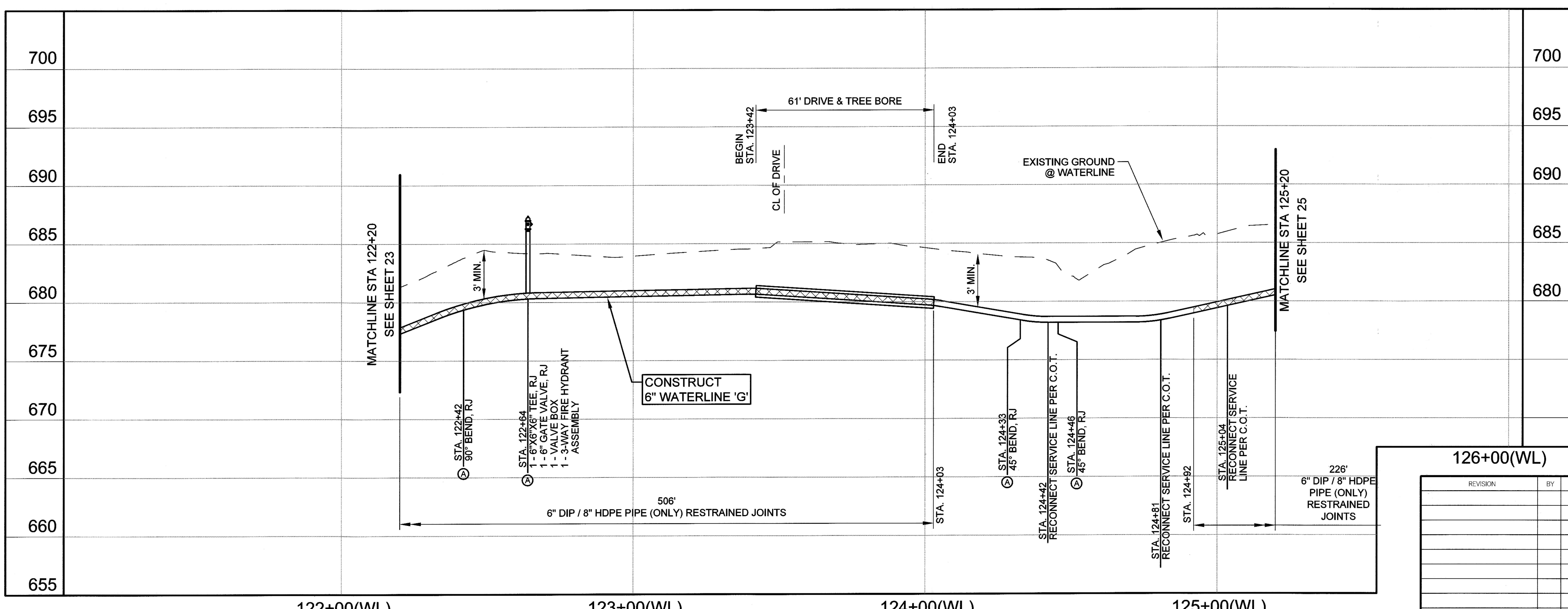


DETAIL 1 (1/16)
NTS

SERVICE CONNECTIONS THIS SHEET (F)
1 EA. - 3/4" LONG SERVICE CONNECTIONS
1 EA. - 3/4" SHORT SERVICE CONNECTIONS



KEY MAP



JAMES R. UMDENSTOCK
11407
LICENSED PROFESSIONAL ENGINEER
OKLAHOMA

OKIE811

PLAN & PROFILE
WATERLINE 'G'
STA 122+20 TO 125+20

2" WATERLINE REPLACEMENT
TMUA-W 18-14

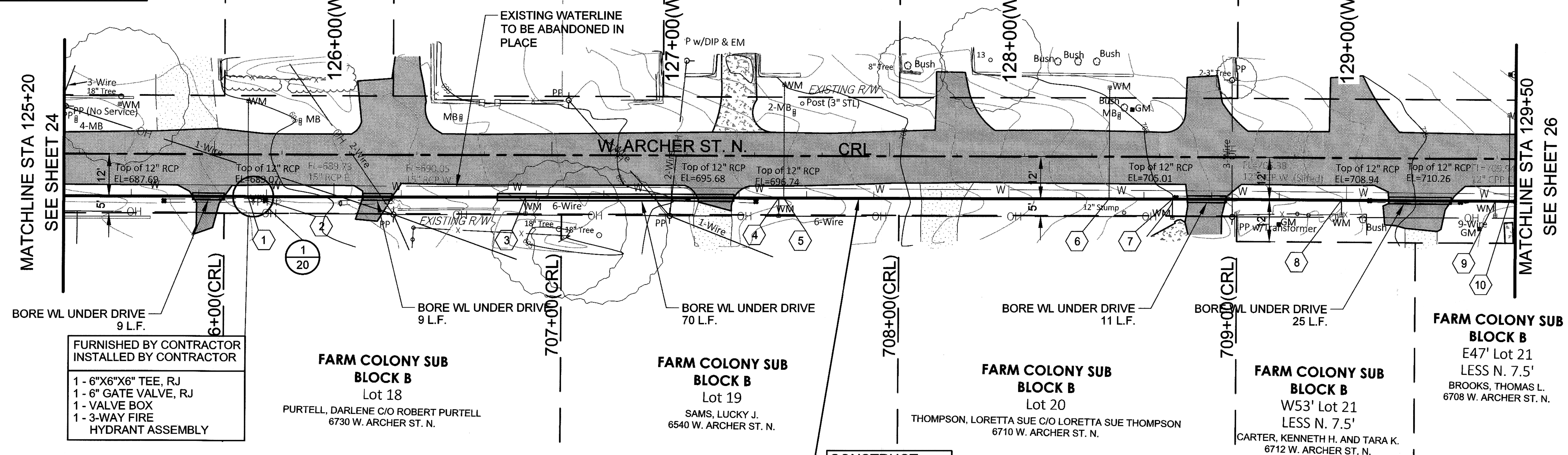
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE

PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
----	DESIGNED	---	XX-XX-XX	
	SURVEY	---	XX-XX-XX	
PROFILE SCALE	PROJECT MGR	RMW	09/2020	
HORIZONTAL: ----	LEAD ENGINEER	[illegible]	10/2020	
	FIELD MGR	[illegible]	9/20	
VERTICAL: ----	RECOMMENDED:	HBS	9.20	CITY ENGINEER
	DESIGN MANAGER			
FILE:				DATE:
ATLAS PAGE NO: 107				SHEET 24 OF 36 SHEETS

SURFACE LEGEND	
REPLACEMENT SURFACE	
1	CONCRETE PAVEMENT (STD 731) BID # 24
2	ASPHALT PAVEMENT (STD 730) BID # 23
3	CONCRETE CURB & GUTTER (STD 726) BID # 25
PIPE MATERIAL	
	PVC/DIP/HDPE
	DIP ONLY
	DIP/HDPE (RESTRAINED AREA)



FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
1 - 3-WAY FIRE HYDRANT ASSEMBLY

FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

NEW 6" WL 'G'
NEW 6" X 6" X 6" TEE (RJ)
NEW 6" GATE VALVE (RJ)
NEW 3-WAY FIRE HYDRANT ASSEMBLY

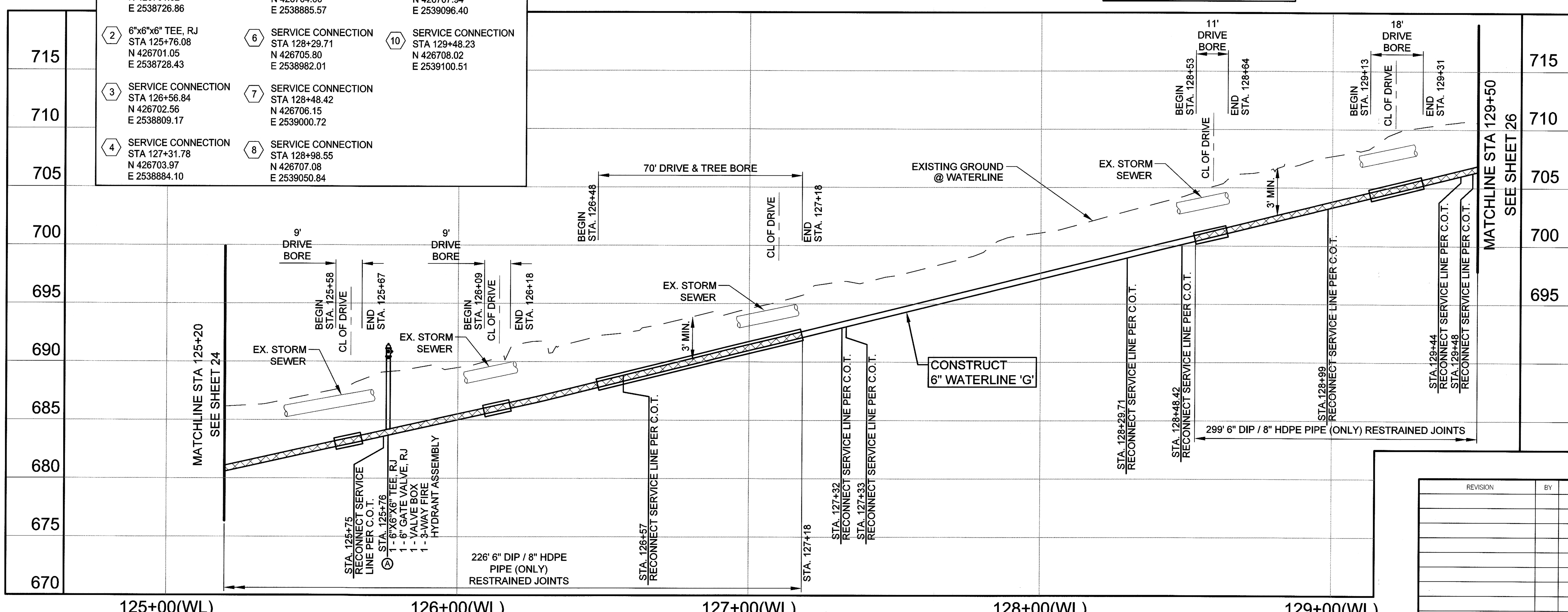
DETAIL 1
NTS

KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

SERVICE CONNECTIONS THIS SHEET (F)
4 EA. - 3/4" LONG SERVICE CONNECTIONS
4 EA. - 3/4" SHORT SERVICE CONNECTIONS

KEY MAP

1 SERVICE CONNECTION STA 125+74.51 N 426701.02 E 2538726.86	5 SERVICE CONNECTION STA 127+33.25 N 426704.00 E 2538885.57	9 SERVICE CONNECTION STA 129+44.1 N 426707.94 E 2539096.40
2 6"x6"x6" TEE, RJ STA 125+76.08 N 426701.05 E 2538728.43	6 SERVICE CONNECTION STA 128+29.71 N 426705.80 E 2538982.01	10 SERVICE CONNECTION STA 129+48.23 N 426708.02 E 2539100.51
3 SERVICE CONNECTION STA 126+56.84 N 426702.56 E 2538809.17	7 SERVICE CONNECTION STA 128+48.42 N 426706.15 E 2539000.72	
4 SERVICE CONNECTION STA 127+31.78 N 426703.97 E 2538884.10	8 SERVICE CONNECTION STA 128+98.55 N 426707.08 E 2539050.84	



JAMES R. UMDENSTOCK
11407
LICENSED PROFESSIONAL ENGINEER
OKLAHOMA

OKIE811

PLAN & PROFILE
WATERLINE 'G'
STA 125+20 TO 129+50

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

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			PROFILE SCALE	PROJECT MGR	RMW	09/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR		9/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	9.20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 25 OF 36 SHEETS

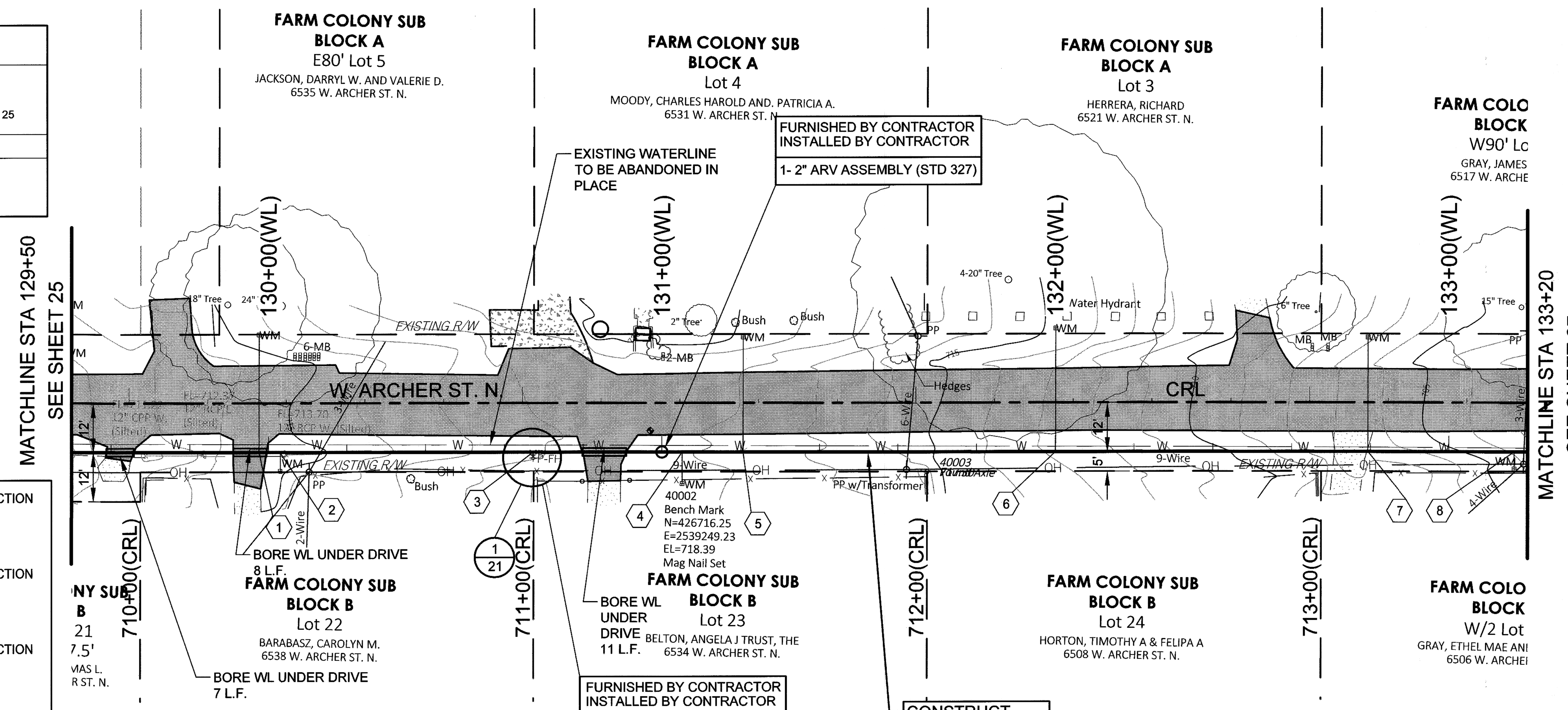
SURFACE LEGEND
REPLACEMENT SURFACE

1. CONCRETE PAVEMENT (STD 731) BID # 24
2. ASPHALT PAVEMENT (STD 730) BID # 23
3. CONCRETE CURB & GUTTER (STD 726) BID # 25

PIPE MATERIAL

- PVC/DIP/HDPE
- DIP ONLY
- DIP/HDPE (RESTRAINED AREA)

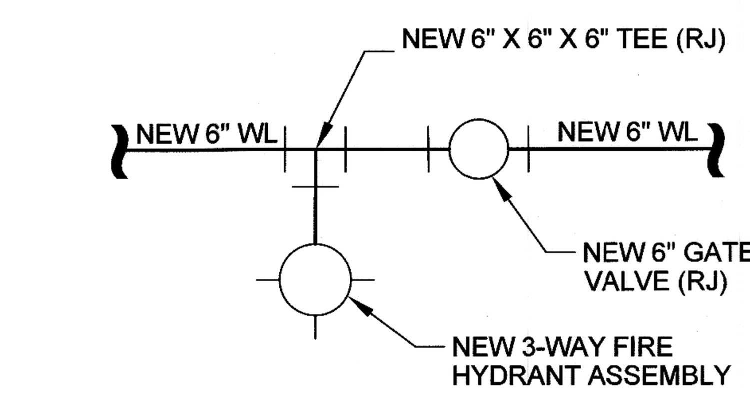
1 SERVICE CONNECTION STA 129+97.60 N 426708.94 E 2539149.87	5 SERVICE CONNECTION STA 131+20.61 N 426711.25 E 2539272.86
2 SERVICE CONNECTION STA 130+03.02 N 42670905 E 2539155.29	6 SERVICE CONNECTION STA 132+00.09 N 426712.73 E 2539352.33
3 6"x6"x6" TEE, RJ STA 130+67.32 N 426710.25 E 2539219.58	7 SERVICE CONNECTION STA 132+79.35 N 426714.22 E 2539431.58
4 SERVICE CONNECTION STA 131+05.14 N 426710.96 E 2539257.40	8 SERVICE CONNECTION STA 133+16.58 N 426714.91 E 2539468.80



KEY NOTES:
- (A) CONC. THRUST BLOCKS 2'x2'x2'
- (B) ROTATE BEND TO ALIGN.
- (C) CAUTION POWER POLE.
- (D) WATERLINE JOINTS EQUAL DISTANCE FROM UTILITY CROSSING.
- (E) SEPARATE WITH 30# FELT
- (F) PRESSURE TEST
- (G) SLEEVE LOCATION APPROVED BY INSPECTOR

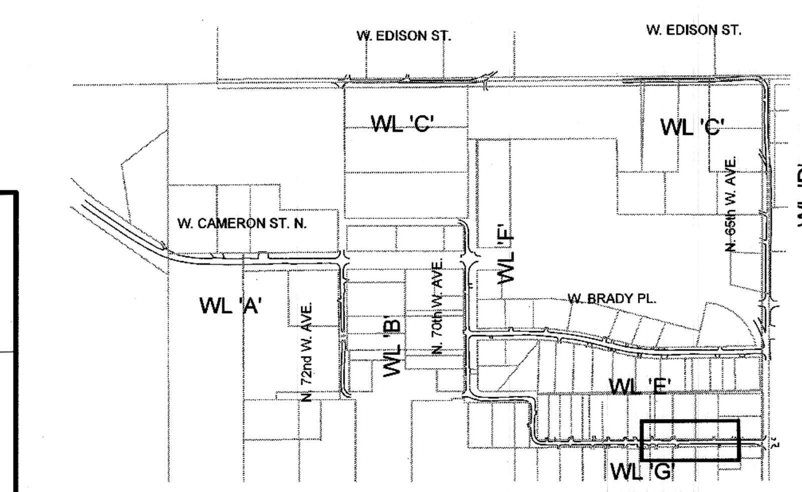
N

0 20' 40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

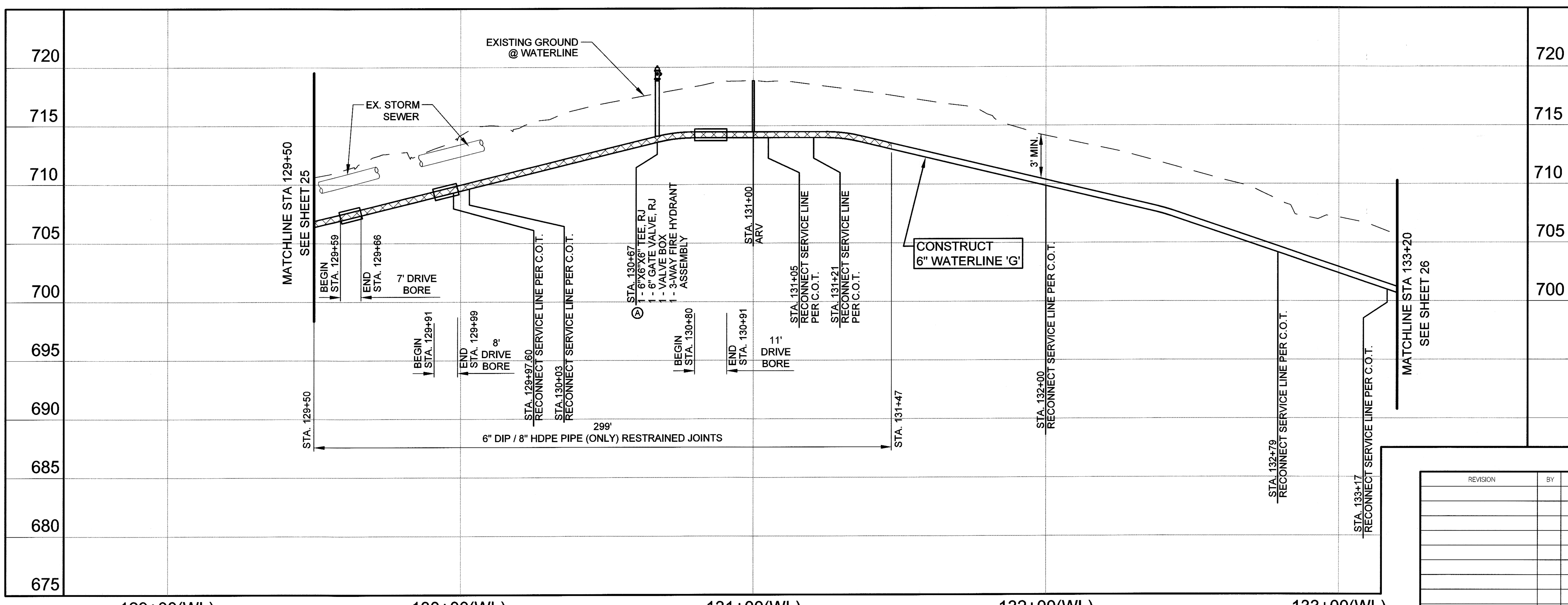


DETAIL 1 (1/21)
NTS

SERVICE CONNECTIONS THIS SHEET
4 EA. - 3/4" LONG SERVICE CONNECTIONS (F)
3 EA. - 3/4" SHORT SERVICE CONNECTIONS



KEY MAP



LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/04/2020
OKLAHOMA

OKIE811

PLAN & PROFILE
WATERLINE 'G'
STA 1259+50 TO 133+20

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE

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	DESIGNED	---	XX-XX-XX
	SURVEY	---	XX-XX-XX
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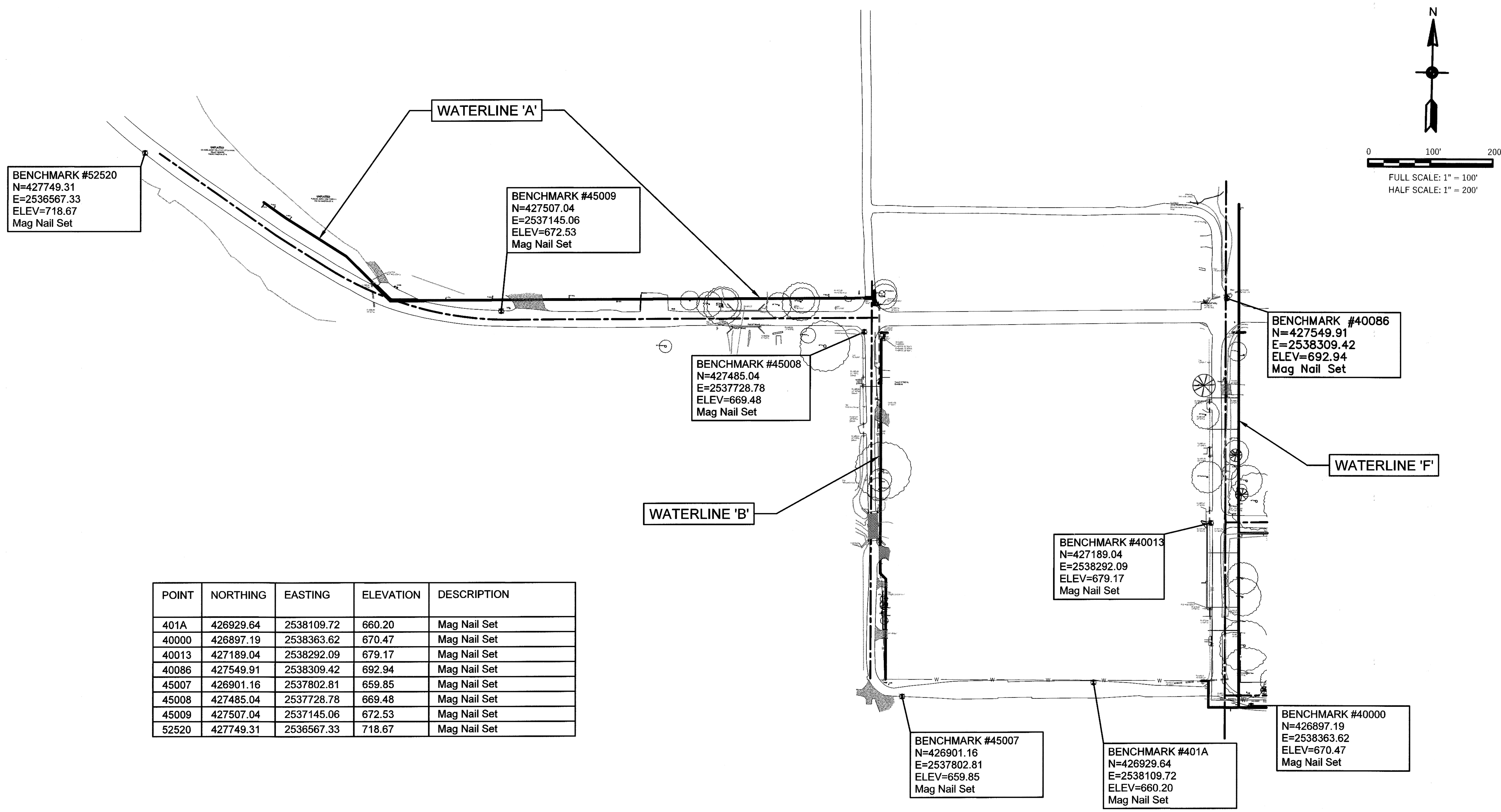
HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020
	FIELD MGR	RCW	9/20
VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HMS	9-20

APPROVED:
CITY ENGINEER
DATE:

FILE:
ATLAS PAGE NO: 107

SHEET 26 OF 36 SHEETS


N
0
20'
40'
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'
FARM COLONY SUB
BLOCK A
LESS W90' Lot 2
MULLINS, GABRIEL A.
100 N. 65th AVE. W.
FARM COLONY SUB
BLOCK B
N50' E/2 Lot 25
CHRONISTER, DALE
28 N. 65th AVE. W.
715+00(CRL)
716+00(CRL)
714+00(CRL)
134+00(WL)
134+78(WL)
MATCHLINE STA 133+20
SEE SHEET 26
ABANDON EX. WL &
PLUG ENDS w/ CONC.
W. ARCHER ST. N.
CRL
DEFLECT
CONSTRUCT
6" WATERLINE 'G'
10' Wide CONC Headwall
w/0.85' Wide CONC Wingwalls
(No Visible Pipe to the West)
Sign (4" Wood)
"Family Life Center"
Top of WV Nut
EL=692.30
Brass Cap Found
FL=691.24
18" RCP S
40004
Bench Mark
N=426717.81
E=2539677.49
EL=692.91
Mag Nail Set
Top of WV Nut
EL=691.12
Top of WV Nut
EL=689.97
18" RCP N
Sign
"No Parking"
Iron Pin Found
EX. 6" WL
1 SERVICE CONNECTION
STA 133+95.97
N 426717.23
E 2539548.15
2 6"x6"x6" TEE, RJ
STA 134+78
N 42671993
E 2539629.84
FURNISHED BY CONTRACTOR
INSTALLED BY CONTRACTOR
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
3 - 6" SLEEVES, RJ
12 SY - ASPHALT PAVEMENT
NEW 6" SLEEVE, (RJ)
NEW 6" WL
NEW 6" GATE
VALVE (RJ)
NEW 6" X 6" X 6" TEE (RJ)
NEW 6" SLEEVE, (RJ)
20' DIP / HDPE, RJ
EX. 6" WL
DETAIL 1
1/22
SERVICE CONNECTIONS THIS SHEET
1 EA. - 3/4" LONG SERVICE CONNECTIONS
0 EA. - 3/4" SHORT SERVICE CONNECTIONS
KEY MAP
W. EDISON ST.
W. CAMERON ST. N.
W. BRADY PL.
W. ARCHER ST. N.
WL 'A'
WL 'B'
WL 'C'
WL 'D'
WL 'E'
WL 'F'
WL 'G'
720
715
710
705
700
695
690
685
680
675
MATCHLINE STA 713+60
SEE SHEET 22
EXISTING GROUND
@ WATERLINE
3' MIN.
CONSTRUCT
6" WATERLINE 'G'
END OF
6" WL CONSTRUCTION 'G'
STA 134+78 = STA 715+13, 11' RT.
W. ARCHER ST. N. CRL
STA. 133+96
RECONNECT SERVICE LINE PER C.O.T.
20'
6" PVC / 6" DIP / 8" HDPE
RESTRAINED
JOINTS
STA. 134+58
STA. 134+78
1 - 6"X6"X6" TEE, RJ
1 - 6" GATE VALVE, RJ
1 - VALVE BOX
3 - 6" SLEEVES, RJ
133+00(WL)
134+00(WL)
LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
OKLAHOMA
OKIE811
PLAN & PROFILE
WATERLINE 'G'
STA 133+20 TO 134+78
2" WATERLINE REPLACEMENT
TMUA-W 18-14
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911
REVISION
BY
DATE
PLAN SCALE
PROFILE SCALE
HORIZONTAL:
VERTICAL:
DRAWN
DESIGNED
SURVEY
PROJECT MGR
LEAD ENGINEER
FIELD MGR
RECOMMENDED:
DESIGN MANAGER
APPROVED:
CITY ENGINEER
DATE:
FILE:
ATLAS PAGE NO: 107
SHEET 27 OF 36 SHEETS



POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
401A	426929.64	2538109.72	660.20	Mag Nail Set
40000	426897.19	2538363.62	670.47	Mag Nail Set
40013	427189.04	2538292.09	679.17	Mag Nail Set
40086	427549.91	2538309.42	692.94	Mag Nail Set
45007	426901.16	2537802.81	659.85	Mag Nail Set
45008	427485.04	2537728.78	669.48	Mag Nail Set
45009	427507.04	2537145.06	672.53	Mag Nail Set
52520	427749.31	2536567.33	718.67	Mag Nail Set

I, NATHANIEL J. REED OF NATIVE PLAINS SURVEYING,LLC, BEING A LICENSED PROFESSIONAL LAND SURVEYOR IN THE STATE OF OKLAHOMA, DO HEREBY CERTIFY THAT THE SURVEY PERFORMED WAS MADE UPON THE GROUND UNDER MY DIRECT SUPERVISION AND THAT THE INFORMATION SHOWN HEREON FOR ALL HORIZONTAL AND VERTICAL CONTROL POINTS IS A TRUE AND CORRECT REPRESENTATION OF THAT SAME SURVEY.

EXECUTED THIS 24th DAY OF SEPTEMBER, 2020

Nathaniel J Reed

NATHANIEL J. REED
LICENSED PROFESSIONAL LAND SURVEYOR
OKLAHOMA LS 1744

LICENSED PROFESSIONAL LAND SURVEYOR
NATHANIEL J. REED
P.L.S. 1744
STATE OF OKLAHOMA

PERMANENT BENCHMARK USED ON THIS PROJECT:
ADS #27 - 3" BRASS CAP-SET IN CONCRETE-FLUSH
SET NW OF THE INTERSECTION OF N. 72nd W Ave and W Edison Pl

OKLAHOMA STATE PLANE COORDINATES:
NORTHING: 42815.23 USFT
EASTING: 2537717.21 USFT
NAVD '88 ELEVATION: 695.15'

VERTICAL CONTROL
NAVD '88

HORIZONTAL CONTROL
OKLAHOMA STATE PLANE COORDINATE SYSTEM
NORTH ZONE 3501

OKIE 811

SURVEY DATA

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

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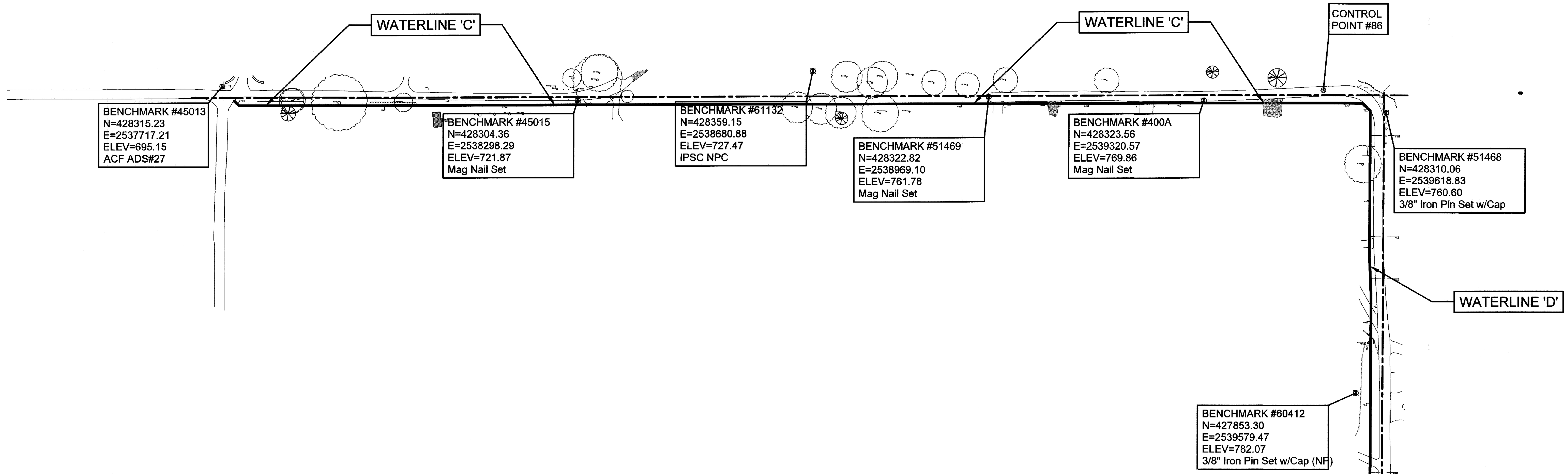
				DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	RMW	09/2020	
			HORIZONTAL:	LEAD ENGINEER	CEW	10/2020	
			----	FIELD MGR		9/20	
			VERTICAL:	RECOMMENDED:	HAS	9-20	
			----	DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 28 OF 36 SHEETS

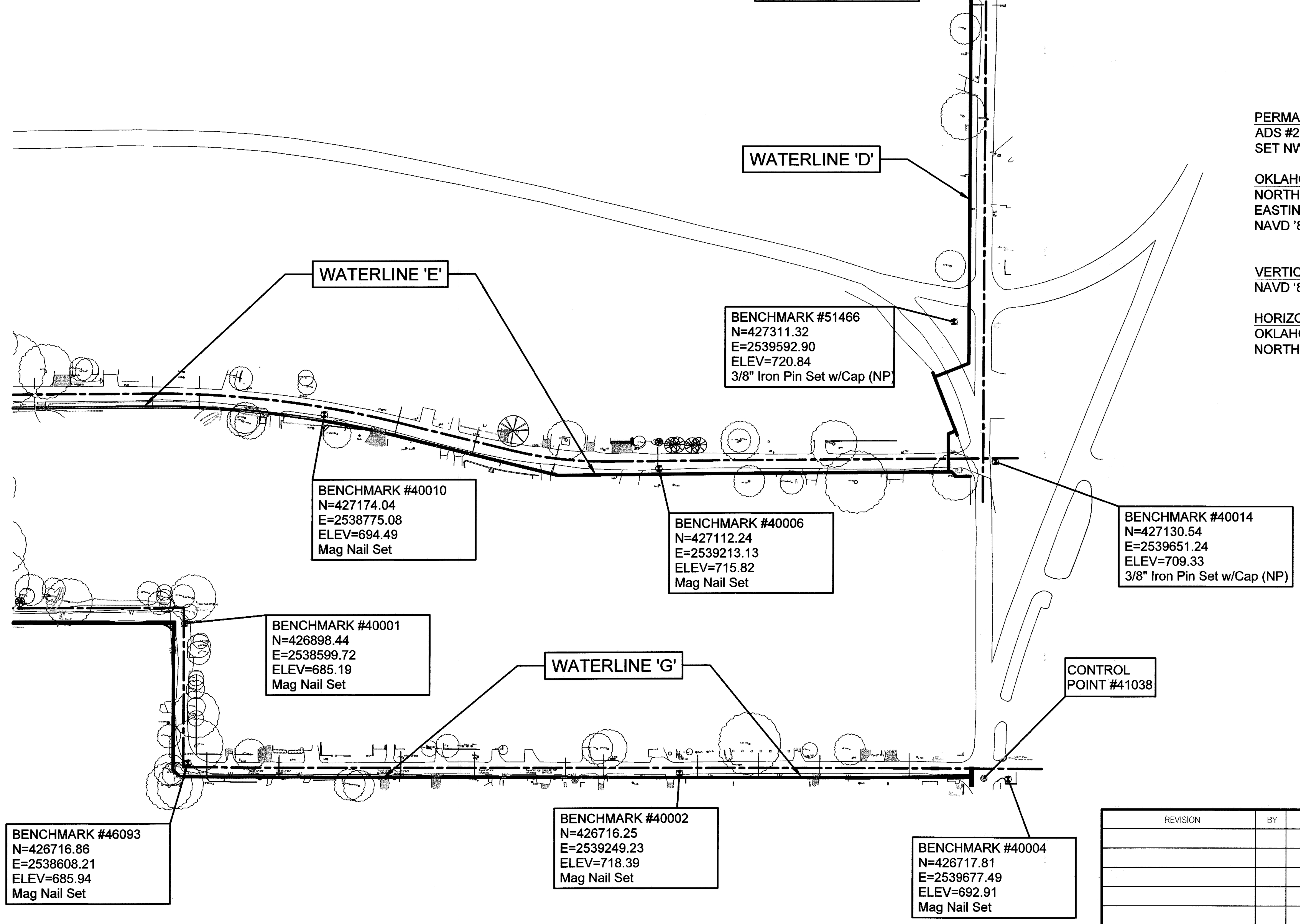


N

0 100' 200'

FULL SCALE: 1" = 100'
HALF SCALE: 1" = 200'

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
400A	428323.56	2539320.57	769.86	Mag Nail Set
40001	426898.44	2538599.72	685.19	Mag Nail Set
40002	426716.25	2539249.23	718.39	Mag Nail Set
40004	426717.81	2539677.49	692.91	Mag Nail Set
40006	427112.24	2539213.13	715.82	Mag Nail Set
40010	427174.04	2538775.08	694.49	Mag Nail Set
40014	427130.54	2539651.24	709.33	3/8" Iron Pin Set w/Cap (NP)
45013	428315.23	2537717.21	695.15	ACF ADS#27
45015	428304.36	2538298.29	721.87	Mag Nail Set
46093	426716.86	2538608.21	685.94	Mag Nail Set
51466	427311.32	2539592.90	720.84	3/8" Iron Pin Set w/Cap (NP)
51468	428310.06	2539618.83	760.60	3/8" Iron Pin Set w/Cap
51469	428322.82	2538969.10	761.78	Mag Nail Set
60412	427853.30	2539579.47	782.07	3/8" Iron Pin Set w/Cap (NP)
61132	428359.15	2538680.88	727.47	IPSC NPC



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LICENSED PROFESSIONAL LAND SURVEYOR
OKLAHOMA LS 1744

LICENSED PROFESSIONAL LAND SURVEYOR NATHANIEL J. REED P.L.S. 1744 STATE OF OKLAHOMA

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OKLAHOMA STATE PLANE COORDINATES:

NORTHING:	42815.23 USFT
EASTING:	2537717.21 USFT
NAVD '88 ELEVATION:	695.15'

VERTICAL CONTROL
NAVD '88

HORIZONTAL CONTROL
OKLAHOMA STATE PLANE COORDINATE SYSTEM
NORTH ZONE 3501

OKIE811

SURVEY DATA

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

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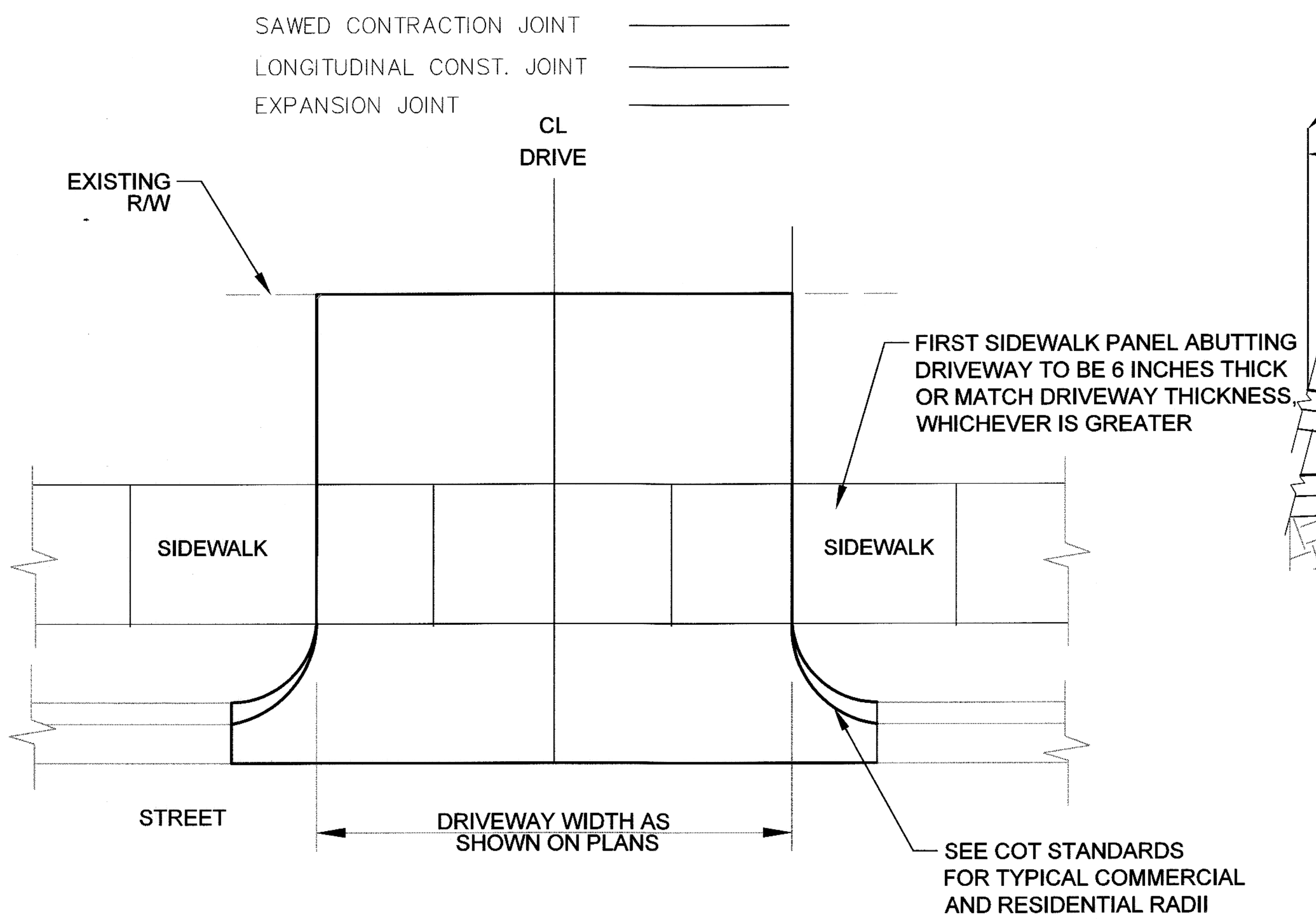
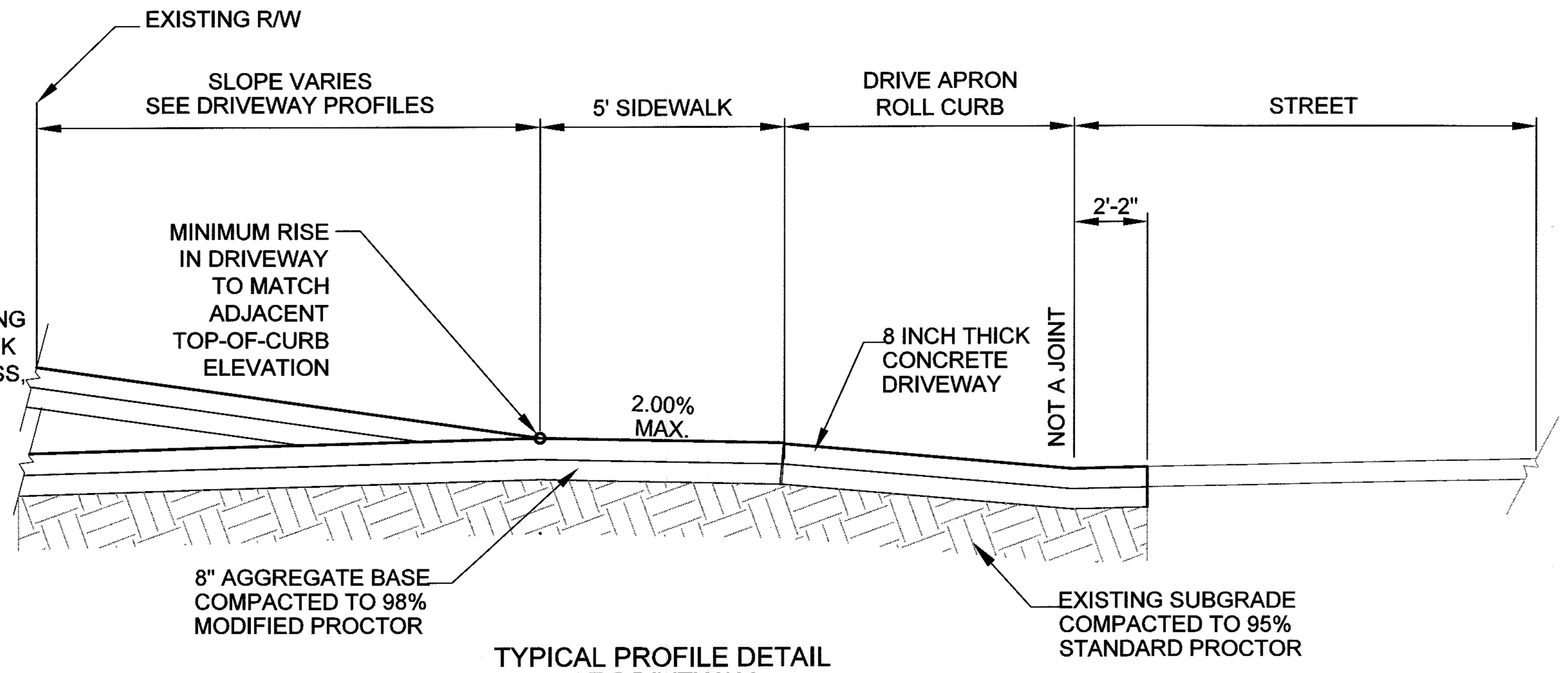


DRIVEWAY JOINT LAYOUT NOTES:

1. MATCH EXISTING JOINT PATTERNS OF EXISTING DRIVEWAY.
2. PROVIDE CONSTRUCTION JOINTS IN LINE WITH SIDEWALK IF REQUIRED TO MAINTAIN 2% ADA CROSS SLOPE.
3. PROVIDE MAXIMUM JOINT SPACING OF 12 FEET IN DRIVES.
4. MAINTAIN AS NEAR AS POSSIBLE A UNIFORM SQUARE JOINT PATTERN. ONE SIDE OF SLAB SHOULD BE NO GREATER THAN 25% LONGER THAN OTHER SIDE OF SLAB.

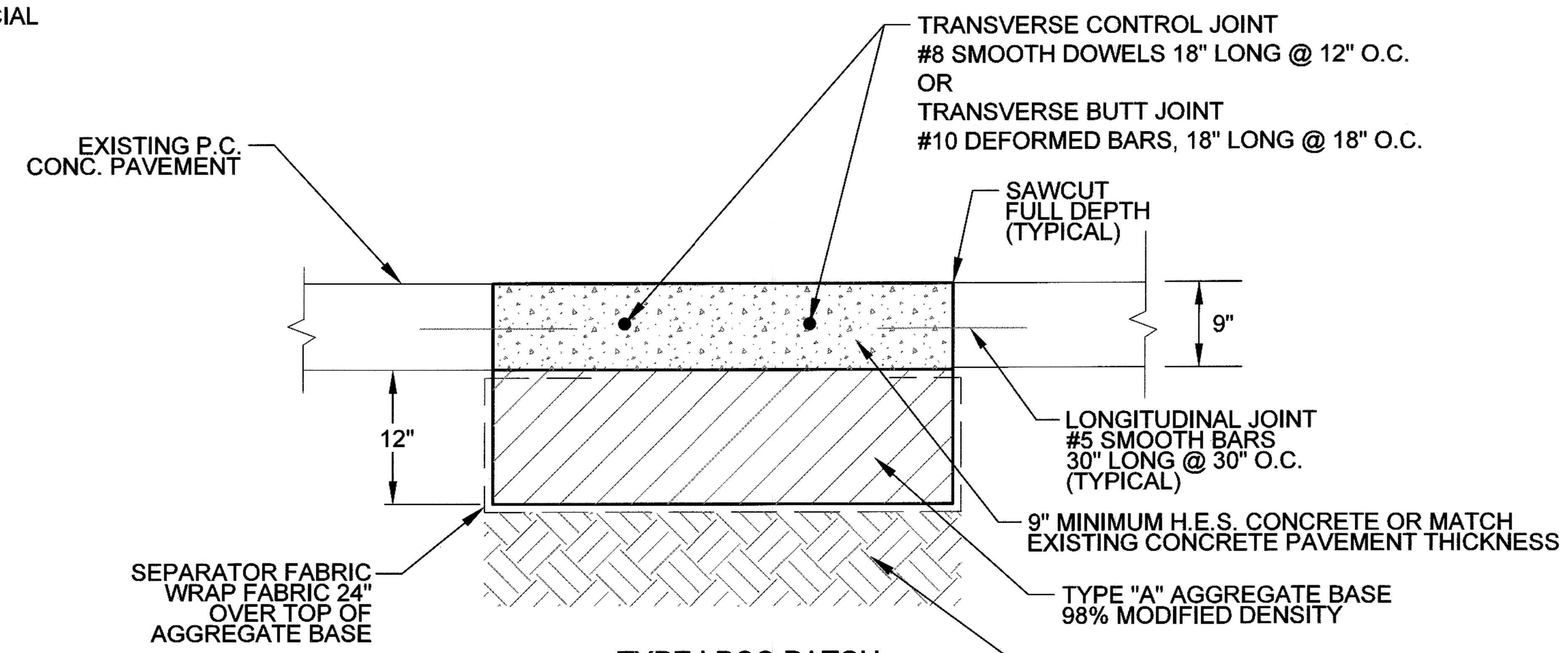
DRIVEWAY REPAIR PLAN

N.T.S.



TYPICAL PROFILE DETAIL AT DRIVEWAY

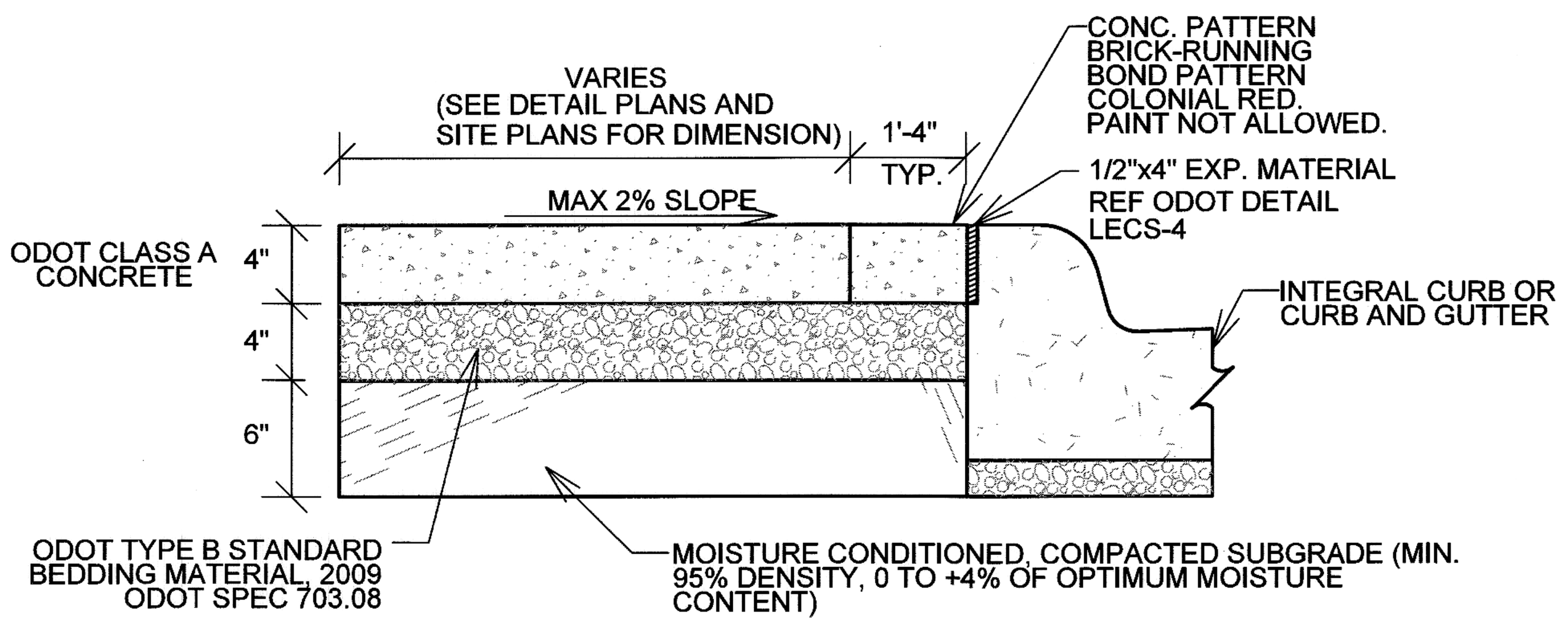
N.T.S.



TYPE I PCC PATCH

N.T.S.

NOTE: SEE PLAN SHEETS FOR TYPE I PORTLAND CEMENT CONCRETE PATCH LOCATIONS



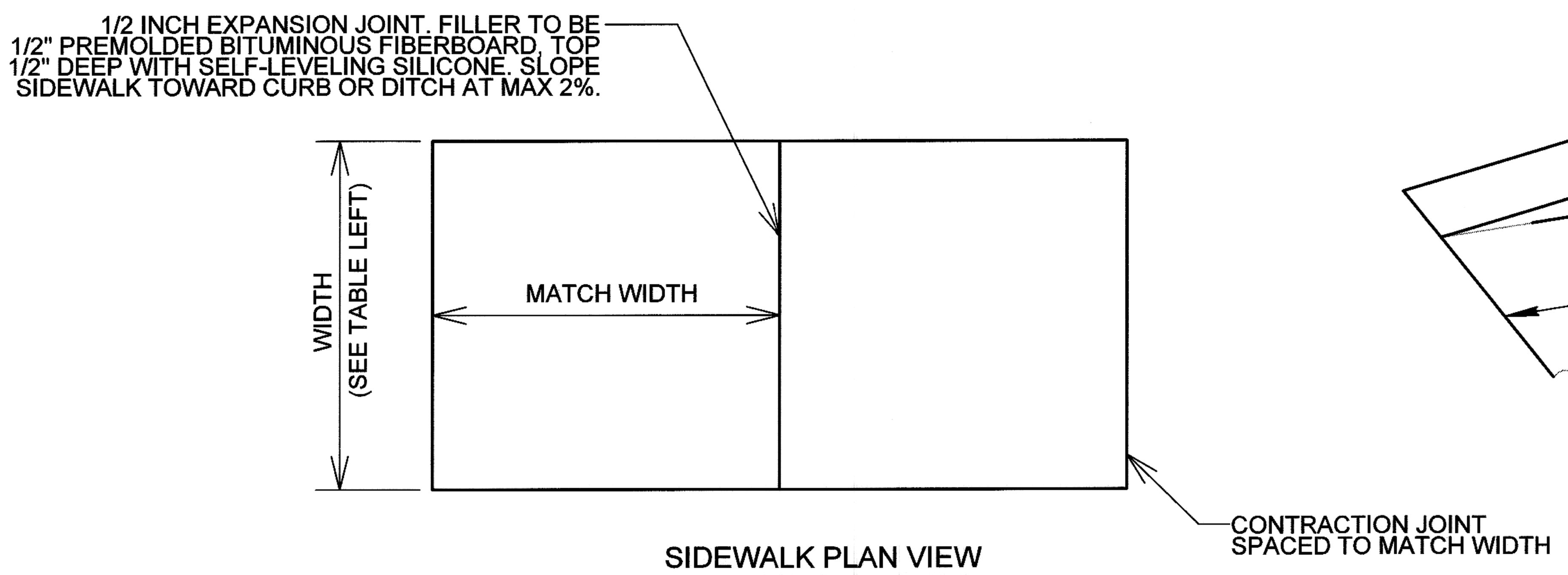
TYPICAL SECTION

N.T.S.

JOINT SPACING FOR STRAIGHT RUNS			
WALK WIDTH	CONTRACTION JOINT SPACING		EXPANSION JOINT SPACING
	TRANSVERSE	LONGITUDINAL	
4'-0"	4'-0"	NOT REQUIRED	24'-0"
5'-0"	5'-0"	NOT REQUIRED	25'-0"
6'-0"	6'-0"	NOT REQUIRED	24'-0"

4" CONCRETE SIDEWALK

SCALE: NONE

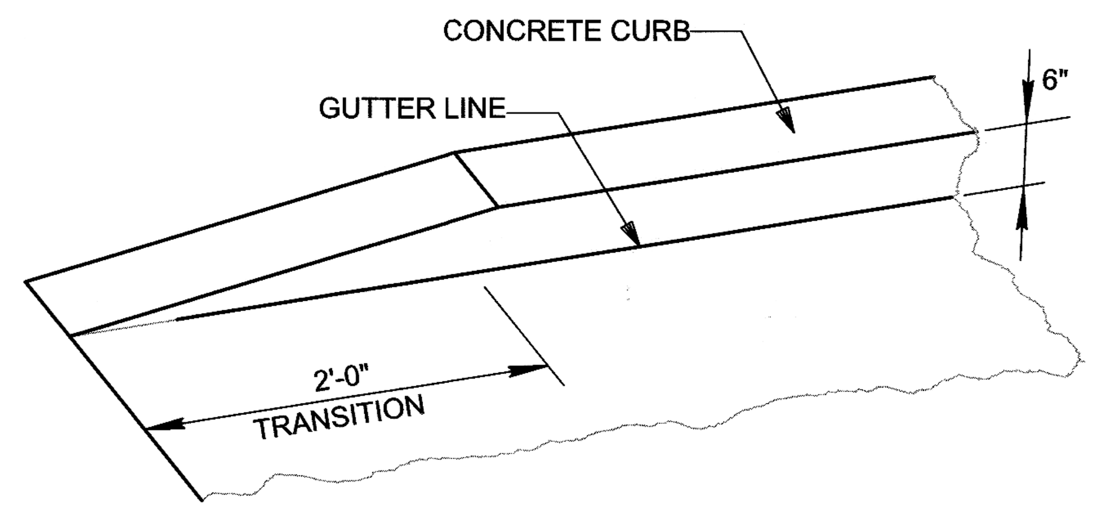


SIDEWALK PLAN VIEW

N.T.S.

NOTES:

1. PROVIDE 1/2" EXPANSION JOINTS WHERE SIDEWALKS ABUT PLAIN CONCRETE PAVEMENT AND LARGE CONCRETE SURFACED AREAS.
2. TRANSVERSE EXPANSION JOINTS SHALL BE CONTINUOUS THROUGH BOTH WALK AND CURB WHERE WALK ABUTS CONCRETE CURB AND GUTTER.
3. ISOLATION JOINTS SHALL BE REQUIRED BETWEEN CURBS THAT ABUT THE SIDEWALK LONGITUDINALLY.



CURB TRANSITION DETAIL

N.T.S.

LICENSED PROFESSIONAL ENGINEER JAMES R. UMDENSTOCK 11407 09/24/2020 OKLAHOMA

OKIE811

DETAILS (IF REQUIRED)

2" WATERLINE REPLACEMENT TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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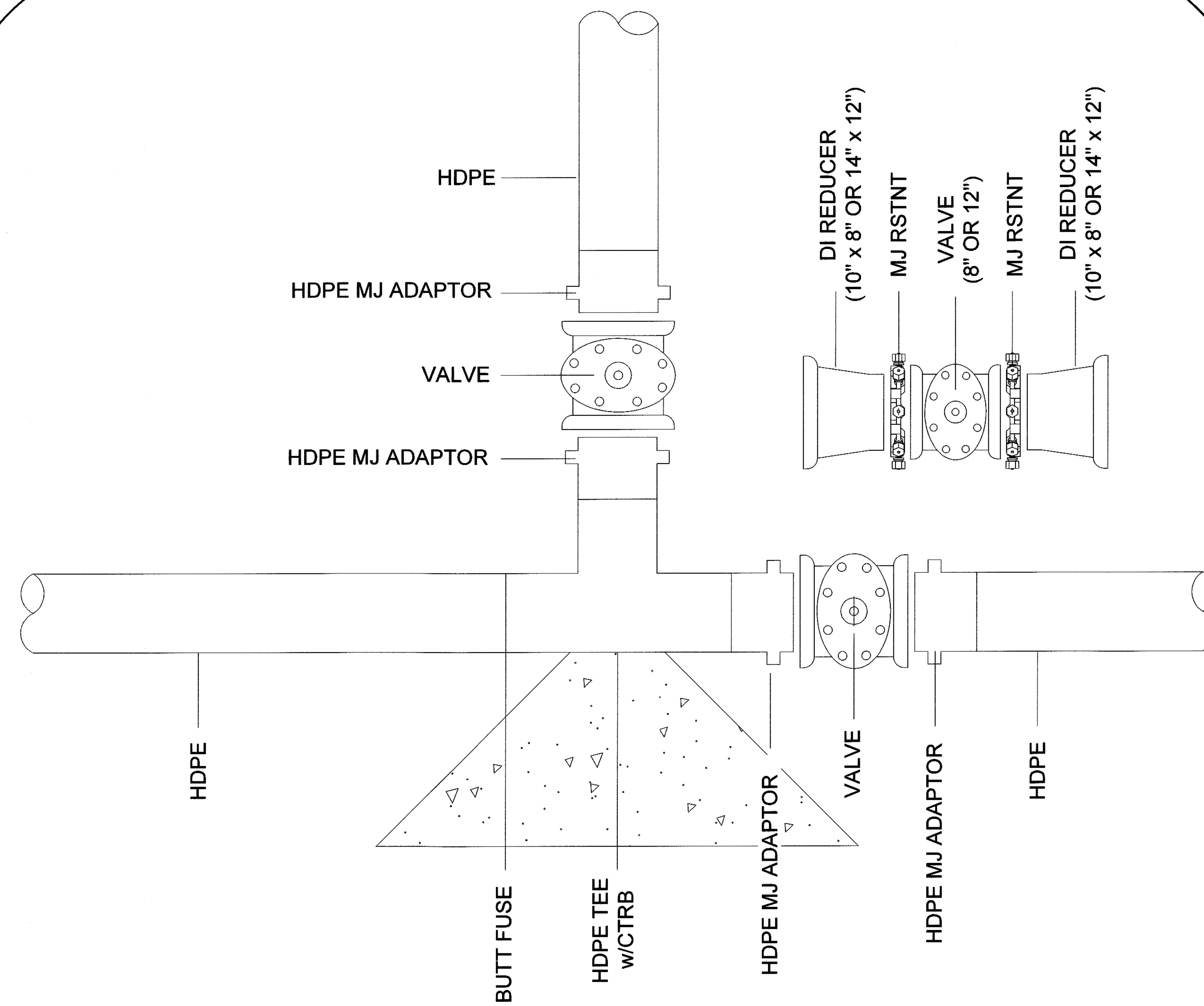
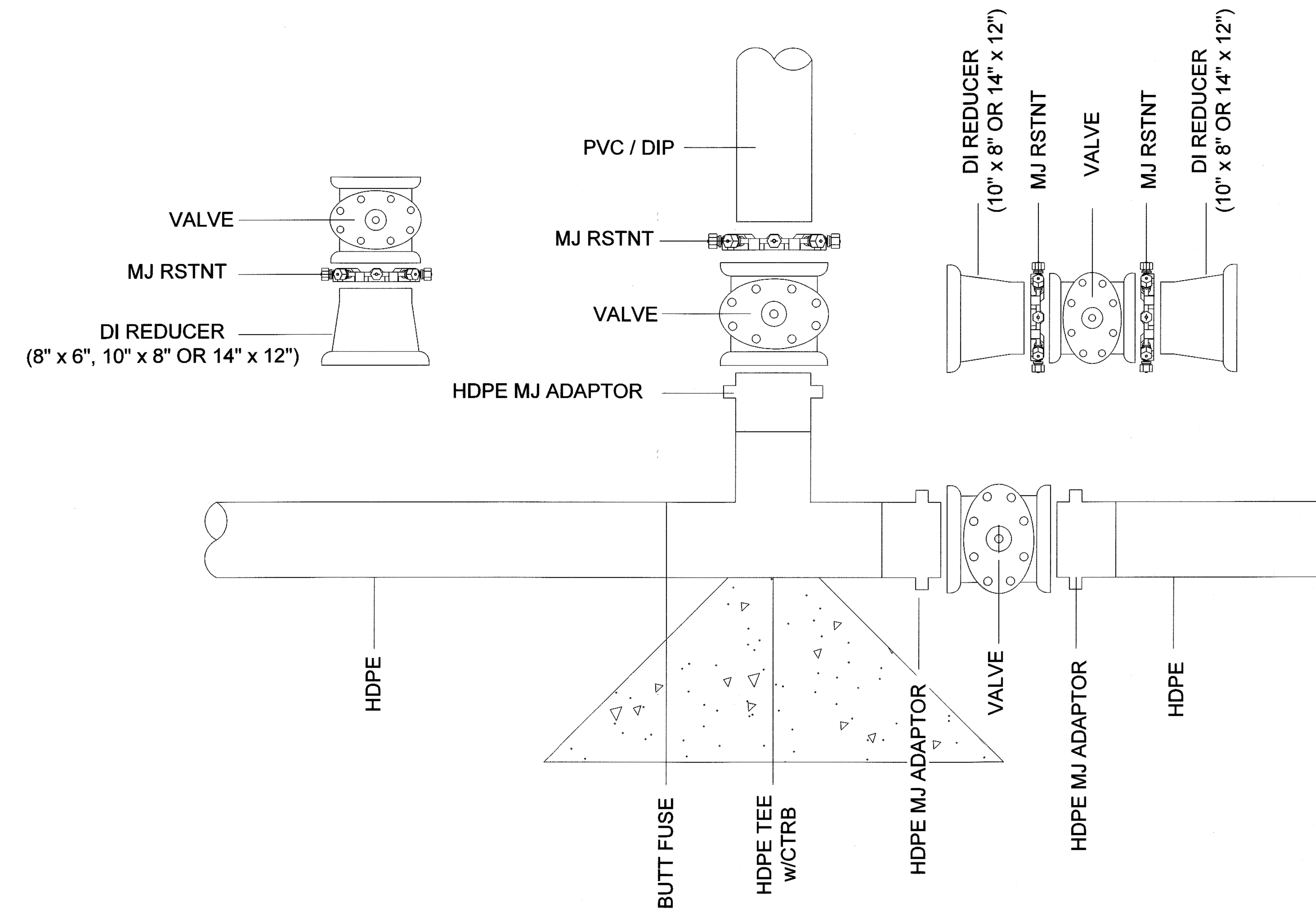
				FIELD MGR		11/20	
			VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAI	11-20	CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 30 OF 36 SHEETS



HDPE TEE (HDPE MAIN / HDPE BRANCH)



HDPE TEE (HDPE MAIN / DIP OR PVC BRANCH)

WHEN HDPE MAIN IS CONNECTED TO DI FITTING, USE HDPE MJ ADAPTER AND DI REDUCER AS NECESSARY TO MAKE CONNECTION.

TYPICAL CONFIGURATIONS:

WHEN HDPE BRANCH IS 8", USE 8" x 6" DI REDUCER AND 6" GATE VALVE, OR USE 8" GATE VALVE.

WHEN HDPE BRANCH IS 10", USE 10" x 8" DI REDUCER AND 8" GATE VALVE.

WHEN HDPE BRANCH IS 12", USE 12" GATE VALVE.

WHEN HDPE BRANCH IS 14", USE 14" x 12" DI REDUCER AND 12" GATE VALVE.

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE811

HDPE DETAILS

2" WATERLINE REPLACEMENT
TMUA-W 18-14

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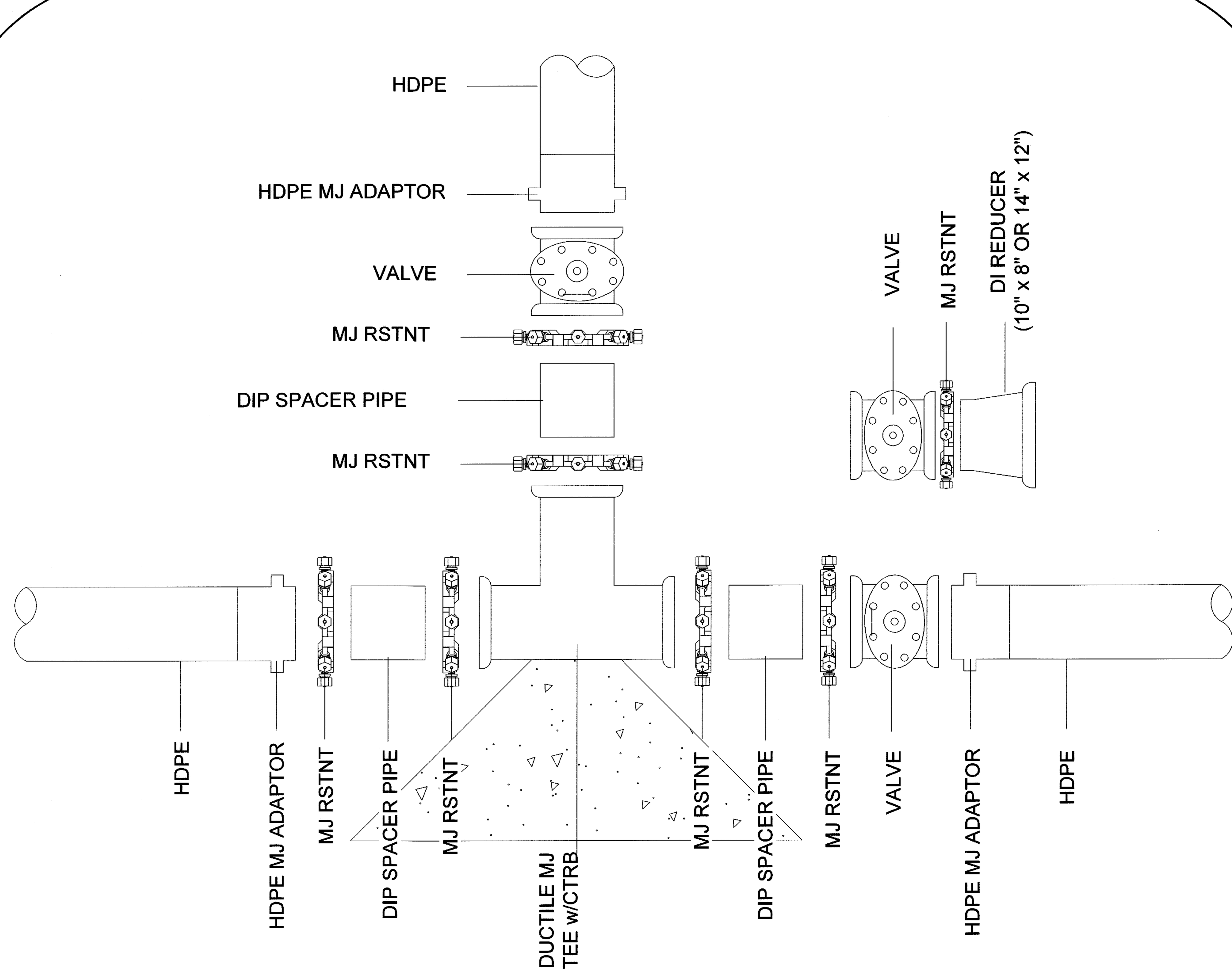
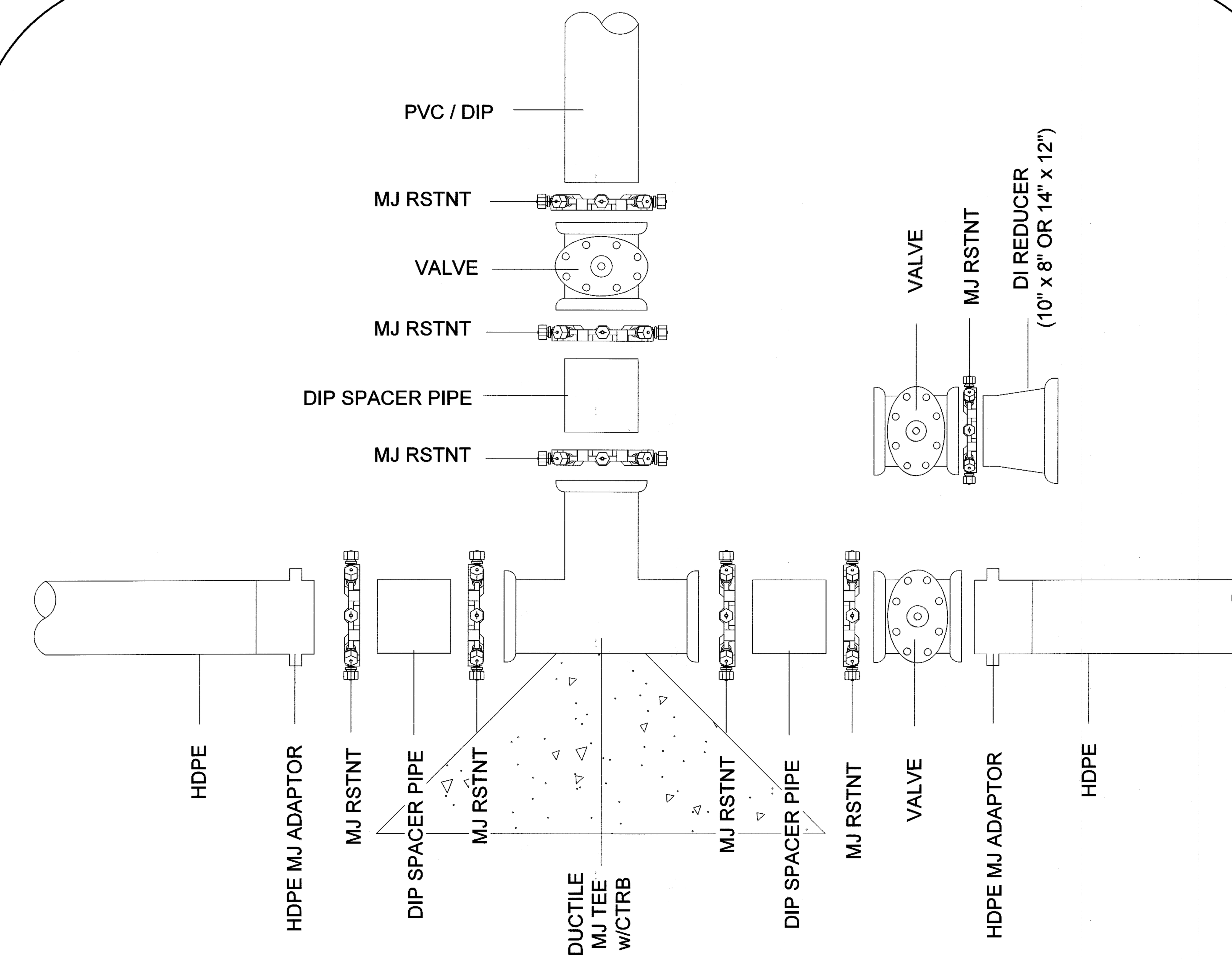
	SURVEY	---	XX-XX-XX	
PROFILE SCALE	PROJECT MGR	RMW	09/2020	
HORIZONTAL: ----	LEAD ENGINEER	CBW	10/2020	
	FIELD MGR	BOW	9/20	
VERTICAL: ----	RECOMMENDED: DESIGN MANAGER	HAS	9.20	CITY ENGINEER
FILE:				DATE:
ATLAS PAGE NO: 107				SHEET 31 OF 36 SHEETS



DI TEE (HDPE MAIN / HDPE BRANCH)



DI TEE (HDPE MAIN / DIP OR PVC BRANCH)

WHEN HDPE MAIN IS CONNECTED TO DI FITTING, USE HDPE MJ ADAPTER AND DI REDUCER AS NECESSARY TO MAKE CONNECTION.

TYPICAL CONFIGURATIONS:

WHEN HDPE BRANCH IS 8", USE 8" x 6" DI REDUCER AND 6" GATE VALVE, OR USE 8" GATE VALVE.

WHEN HDPE BRANCH IS 10", USE 10" x 8" DI REDUCER AND 8" GATE VALVE.

WHEN HDPE BRANCH IS 12", USE 12" GATE VALVE.

WHEN HDPE BRANCH IS 14", USE 14" x 12" DI REDUCER AND 12" GATE VALVE.

JAMES R. UMDENSTOCK
11407
09/24/2020
LICENSED PROFESSIONAL ENGINEER
OKLAHOMA

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HDPE DETAILS

2" WATERLINE REPLACEMENT
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				FIELD MGR		9/20	
			VERTICAL: ----	RECOMMENDED: HAS 9.20 DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 32 OF 36 SHEETS

WHEN HDPE MAIN IS CONNECTED TO DI FITTING, USE HDPE MJ ADAPTER AND DI REDUCER AS NECESSARY TO MAKE CONNECTION.

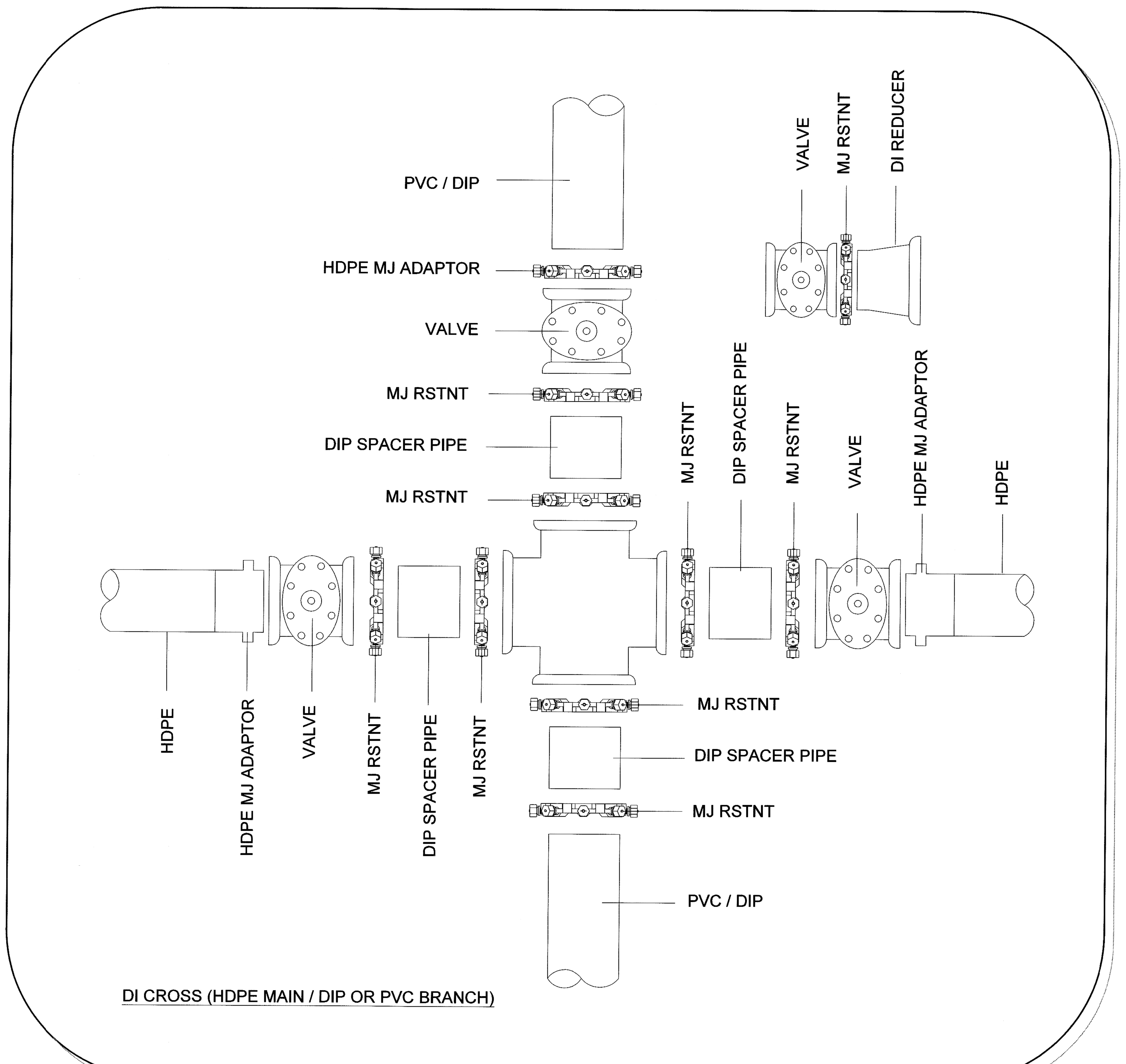
TYPICAL CONFIGURATIONS:

WHEN HDPE BRANCH IS 8", USE 8" x 6" DI REDUCER AND 6" GATE VALVE, OR USE 8" GATE VALVE.

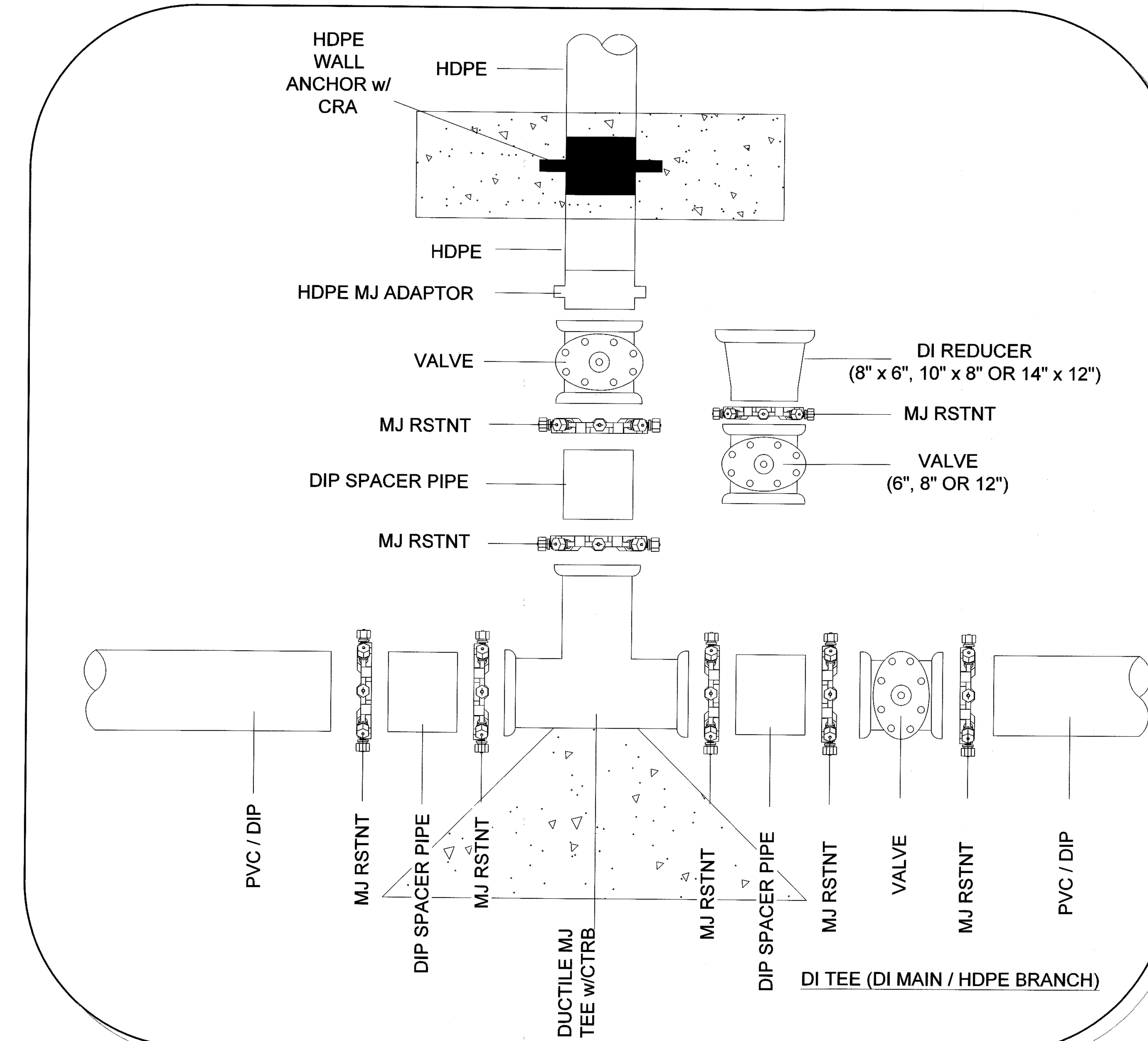
WHEN HDPE BRANCH IS 10", USE 10" x 8" DI REDUCER AND 8" GATE VALVE.

WHEN HDPE BRANCH IS 12", USE 12" GATE VALVE.

WHEN HDPE BRANCH IS 14", USE 14" x 12" DI REDUCER AND 12" GATE VALVE.



DI CROSS (HDPE MAIN / DIP OR PVC BRANCH)



DI TEE (DI MAIN / HDPE BRANCH)

JAMES R. UMDENSTOCK
11407
09/24/2020
LICENSED PROFESSIONAL ENGINEER
OKLAHOMA

OKIE811

HDPE DETAILS

2" WATERLINE REPLACEMENT
TMUA-W 18-14

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			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR	ZBM	9/20	
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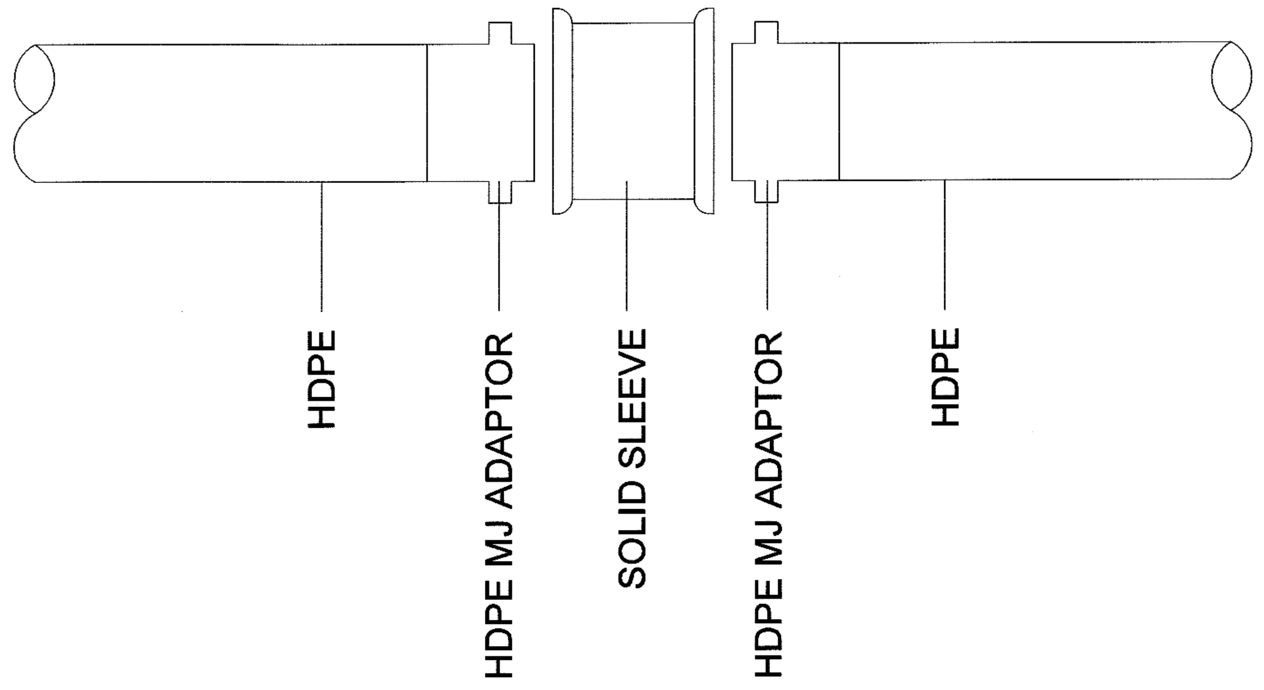
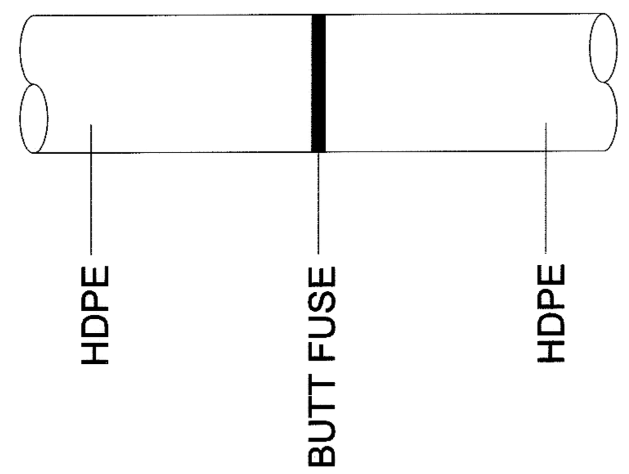
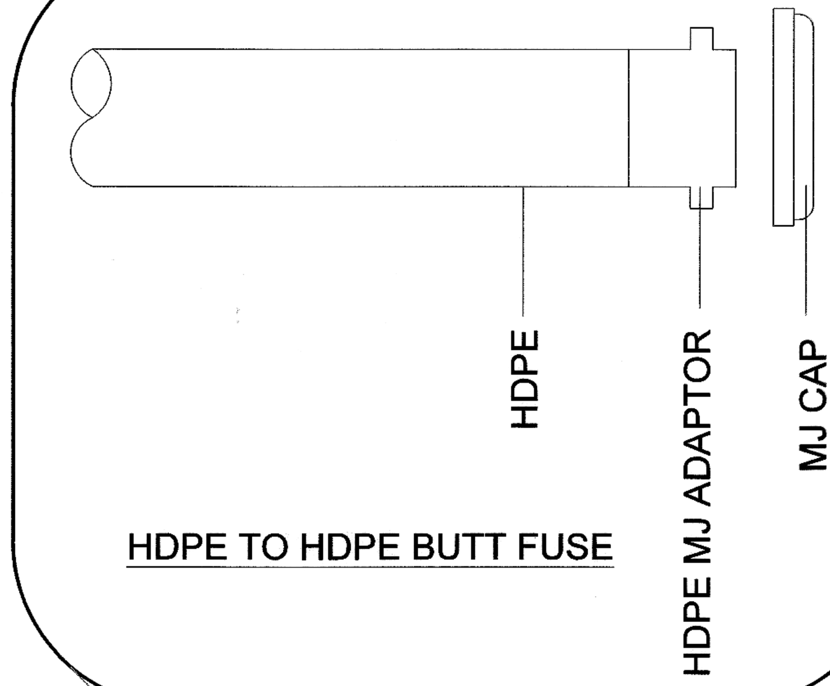
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 33 OF 36 SHEETS



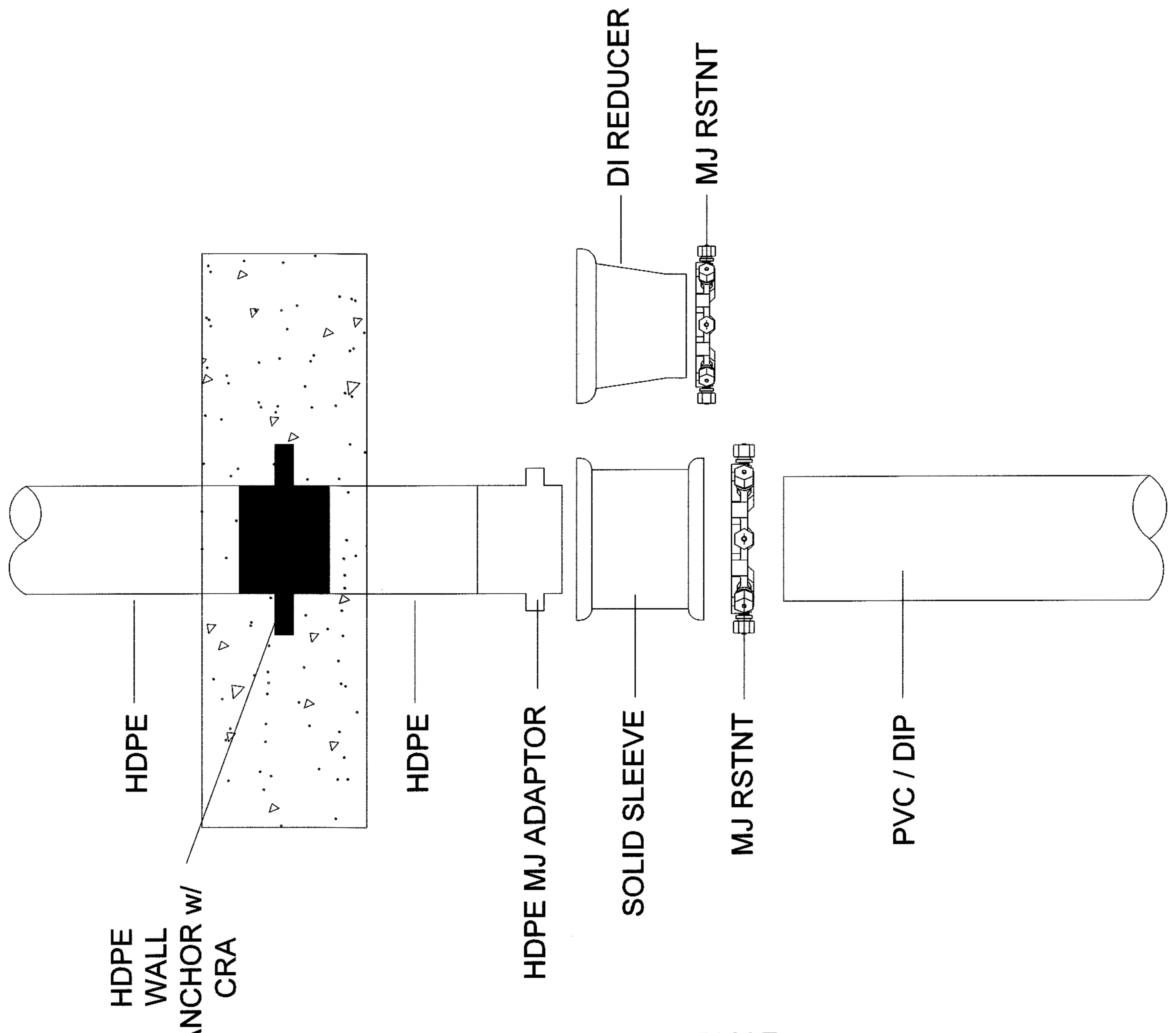
HDPE TO HDPE DI SPLICE



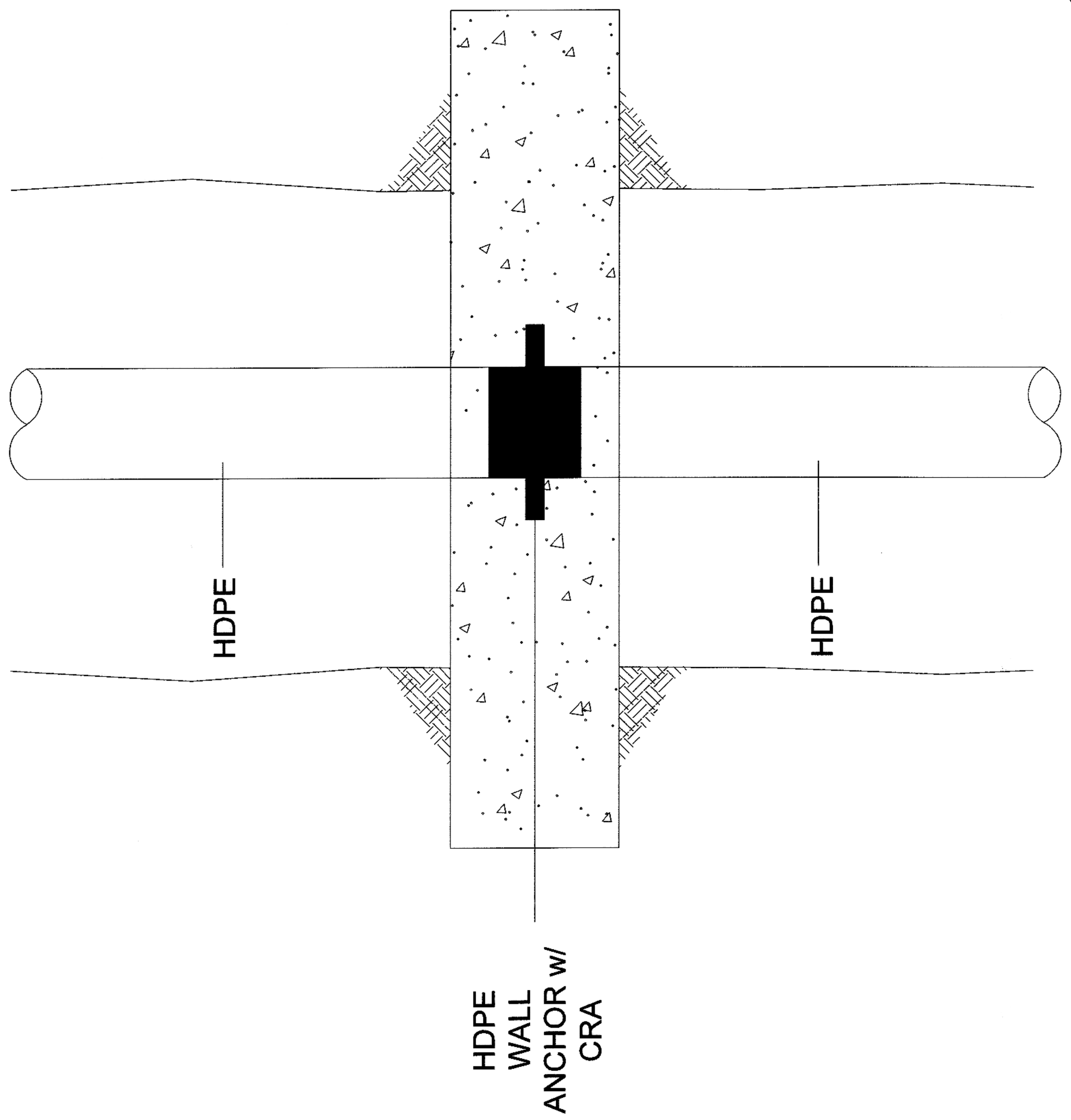
HDPE TO HDPE BUTT FUSE



HDPE TO HDPE BUTT FUSE



HDPE TO DI/PVC SPLICE



HDPE WALL ANCHOR

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE 811

HDPE DETAILS

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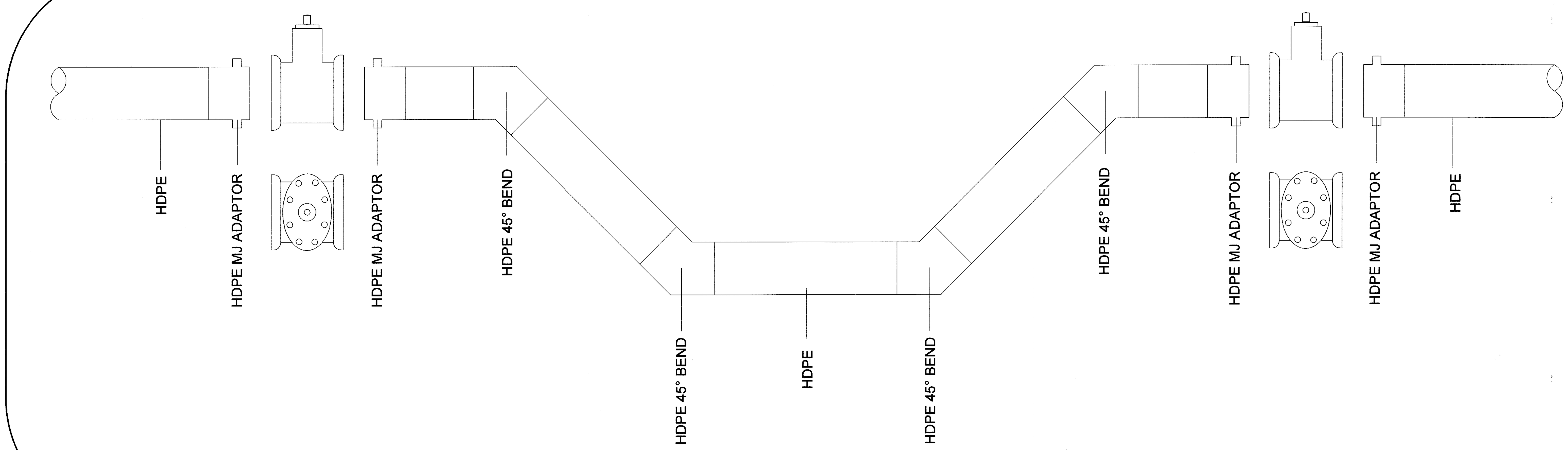
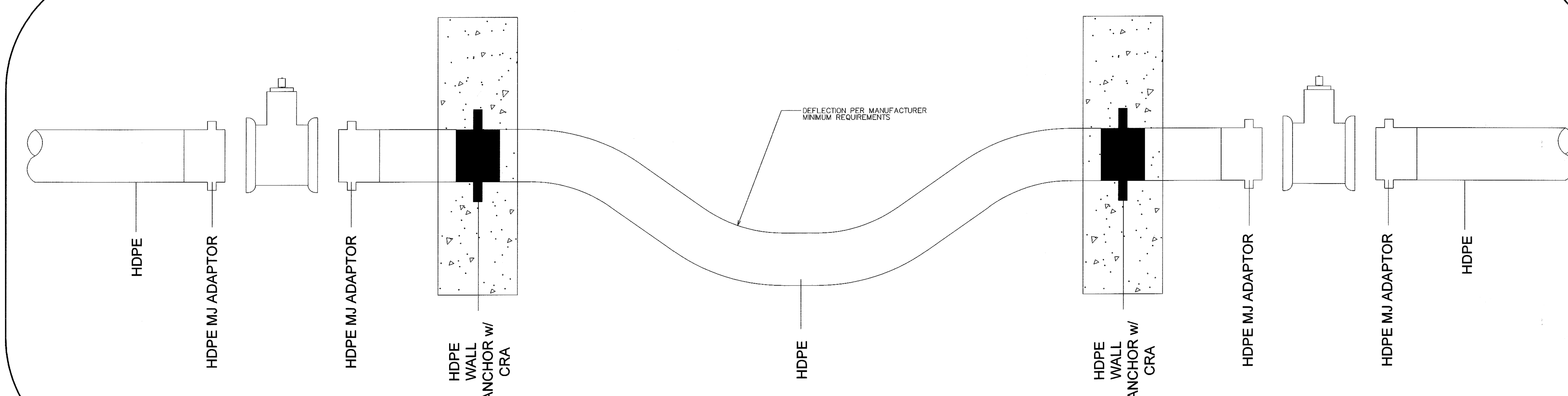
			HORIZONTAL: ----	LEAD ENGINEER	CGW	10/2020	
				FIELD MGR	[illegible]	9/20	
			VERTICAL: ----	RECOMMENDED: HAS 9.20 DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 34 OF 36 SHEETS



HDPE HORIZONTAL / VERTICAL REALIGNMENT USING FITTINGS



HDPE HORIZONTAL / VERTICAL REALIGNMENT USING DEFLECTION

WHEN HDPE MAIN IS CONNECTED TO DI FITTING, USE HDPE MJ ADAPTER AND DI REDUCER AS NECESSARY TO MAKE CONNECTION.

TYPICAL CONFIGURATIONS:

WHEN HDPE BRANCH IS 8", USE 8" x 6" DI REDUCER AND 6" GATE VALVE, OR USE 8" GATE VALVE.

WHEN HDPE BRANCH IS 10", USE 10" x 8" DI REDUCER AND 8" GATE VALVE.

WHEN HDPE BRANCH IS 12", USE 12" GATE VALVE.

WHEN HDPE BRANCH IS 14", USE 14" x 12" DI REDUCER AND 12" GATE VALVE.

LICENSED PROFESSIONAL ENGINEER
JAMES R. UMDENSTOCK
11407
09/24/2020
OKLAHOMA

OKIE 811

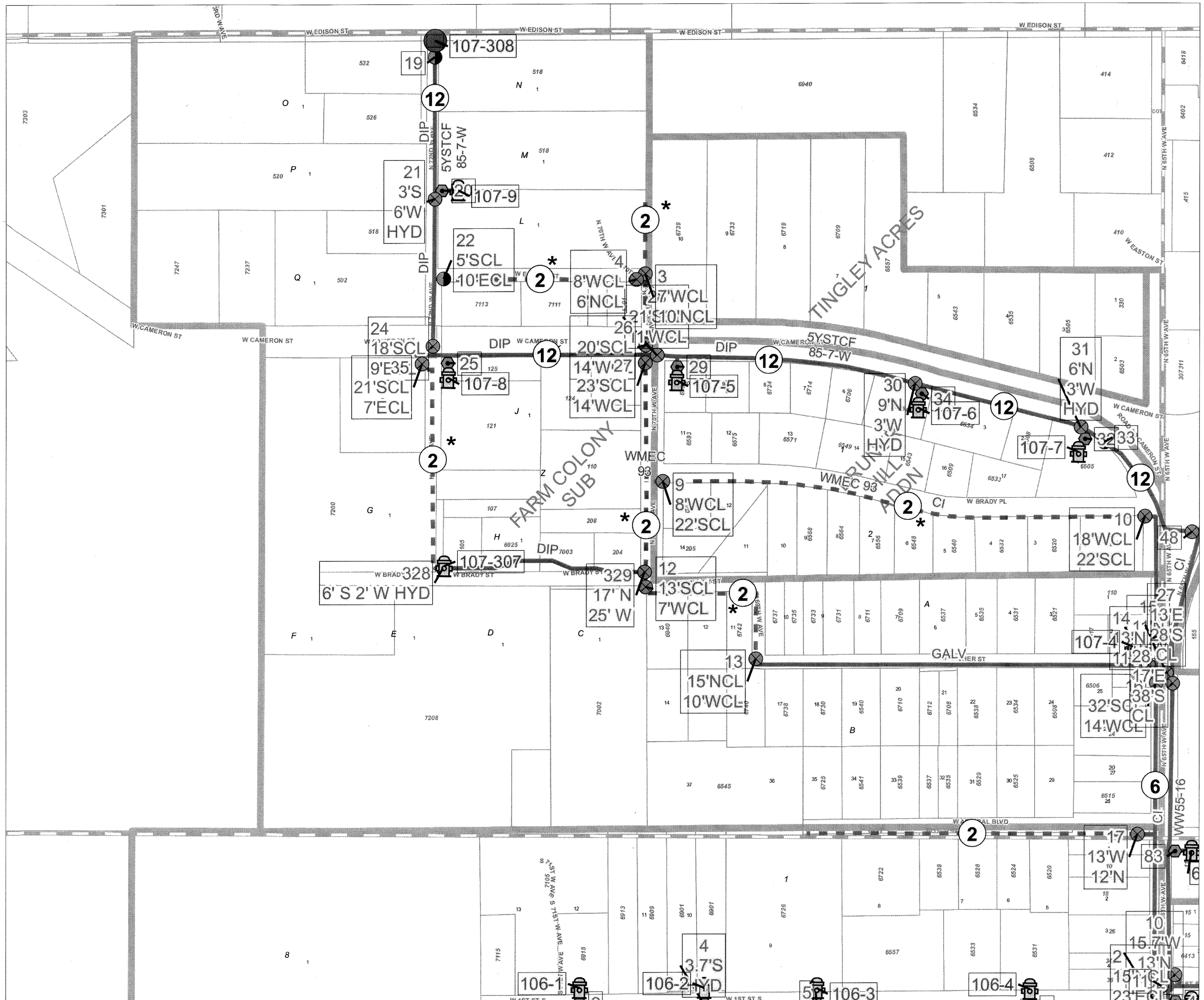
HDPE DETAILS

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Plans and Estimates Prepared by:
KEITHLINE ENGINEERING GROUP
8556 E. 101ST ST., STE.C Tulsa, Oklahoma 74133 (918) 369-7911

REVISION	BY	DATE	PLAN SCALE	DRAWN	---	XX-XX-XX	APPROVED:
			----	DESIGNED	---	XX-XX-XX	
				SURVEY	---	XX-XX-XX	
			PROFILE SCALE	PROJECT MGR	RMW	09/2020	
			HORIZONTAL: ----	LEAD ENGINEER	CEW	10/2020	
				FIELD MGR	RDA	9/20	
			VERTICAL: ----	RECOMMENDED: HAS 9.20 DESIGN MANAGER			CITY ENGINEER
			FILE:				DATE:
			ATLAS PAGE NO: 107				SHEET 35 OF 36 SHEETS



* REPLACED THIS CONTRACT

OKIE811

CITY OF TULSA
WATER ATLAS
107

2" WATERLINE REPLACEMENT
TMUA-W 18-14

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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REVISION	BY	DATE

PLAN SCALE ----
PROFILE SCALE
HORIZONTAL: ----
VERTICAL: ----

DRAWN	---	XX-XX-XX
DESIGNED	---	XX-XX-XX
SURVEY	---	XX-XX-XX
PROJECT MGR	RMW	09/2020
LEAD ENGINEER	CEW	10/2020
FIELD MGR		9/20
RECOMMENDED: DESIGN MANAGER	HAS	9-20

APPROVED:
CITY ENGINEER
DATE:

FILE:
ATLAS PAGE NO: 107
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