

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final Plans\Sheets\GNCV\PUBLIC WATER\C_TTL_WTR_81450.dwg
DATE: Aug 19, 2019 6:48am
XREFS: t_pbase_81450 C_TBLK_22x34_81450 V_XBOU_81450 V_TOPO_81450 USER: thill

LEGEND

▲CTL	SURVEY CONTROL POINT	⊞	TRAFFIC SIGNAL BOX
▲	SURVEY BENCHMARK	⊙	TRAFFIC SIGNAL MANHOLE
▲TBM	SURVEY TEMPORARY BENCHMARK	⊙-⊙	TRAFFIC SIGNAL POLE W/ ARM
⊞M	GAS METER	⊞	TRAFFIC SIGNAL POLE
⊞GAR	GAS RISER	⊞	TRAFFIC SIGNAL CONTROL BOX
⊙	GAS MANHOLE	⊞	TRAFFIC SIGNAL PEDESTAL
⊞GR	GAS REGULATOR	⊞	ELECTRIC MANHOLE
⊞TP	TELEVISION PEDESTAL	⊞M	ELECTRIC METER
⊞	FIBER BOX	⊞ER	ELECTRIC RISER
⊞	FIBER PEDESTAL	⊞	ELECTRIC BOX
⊞	CABLE BOX	⊞	ELECTRIC CABINET
⊞V	CABLE VAULT	⊞	ELECTRIC JUNCTION BOX
⊞P	TELEPHONE PEDESTAL	⊞SPH	SPRINKLER HEAD
⊞	STORM MANHOLE	⊞SCV	SPRINKLER CONTROL VALVE
⊞	STORM GRATE	⊞	WATER METER PIT
⊞	SANITARY MANHOLE	⊞	FIRE HYDRANT
⊞YL	YARD LIGHT	⊞WV	WATER METER
⊞LTP	LIGHT POLE	⊞WV	WATER VALVE
⊞	POWER POLE	⊞FP	FLAG POLE
⊞LPPP	POWER POLE W/ LIGHT	⊞	SIGN
⊞	GUY WIRE	⊞	BOLLARD
⊞	STUMP	⊞	WOOD POST
⊞	BUSH	⊞	STEEL POST
⊞	EVERGREEN TREE	⊞COL	COLUMN
⊞	DECIDUOUS TREE	⊞	BORE HOLE

---	SECTION LINE
---	PROPERTY LINE
---	CENTER LINE
---	PROPOSED ROW LINE
---	EXISTING ROW LINE
---	UTILITY EASEMENT
---	EXISTING CONTOUR
---	EXISTING CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
---	EXISTING TELEPHONE LINE
---	EXISTING SANITARY LINE
---	EXISTING STORM LINE
---	EXISTING GAS LINE
---	EXISTING WATER LINE
---	EXISTING CHAIN LINK FENCE
---	EXISTING OVERHEAD ELECTRIC
---	EXISTING PIPE LINE
---	GRADING LIMITS
---	TEMPORARY CONSTRUCTION EASEMENT
---	PROPOSED UTILITY OVERHEAD EASEMENT
---	PROPOSED PERMANENT DRAINAGE EASEMENT
---	PROPOSED CHAIN LINK FENCE
---	PROPOSED WOOD PRIVACY FENCE
---	EXISTING TREELINE

ABBREVIATION TABLE

M.G.	MATCH GRADE
BOC	BACK OF CURB
EOP	EDGE OF PAVEMENT
R/W	RIGHT-OF-WAY
D/E	DRAINAGE EASEMENT
S/E	SANITARY EASEMENT
S/W	SIDEWALK
TCE	TEMPORARY CONSTRUCTION EASEMENT
UOHE	UTILITY OVERHEAD EASEMENT
PDE	PERMANENT DRAINAGE EASEMENT
PROP.	PROPOSED
EXIST.	EXISTING
TYP.	TYPICAL
CONST.	CONSTRUCT
TBM	TEMPORARY BENCHMARK
C.P.	CONTROL POINT
D.N.D.	DO NOT DISTURB
U.I.P.	USE IN PLACE
ADJ.	ADJUST
EL.	ELEVATION
ESMT.	EASEMENT
BK.CB.	BACK OF CURB
BK.SWK.	BACK OF SIDEWALK



1-800-DIG-RITE or 811
www.mo1call.com

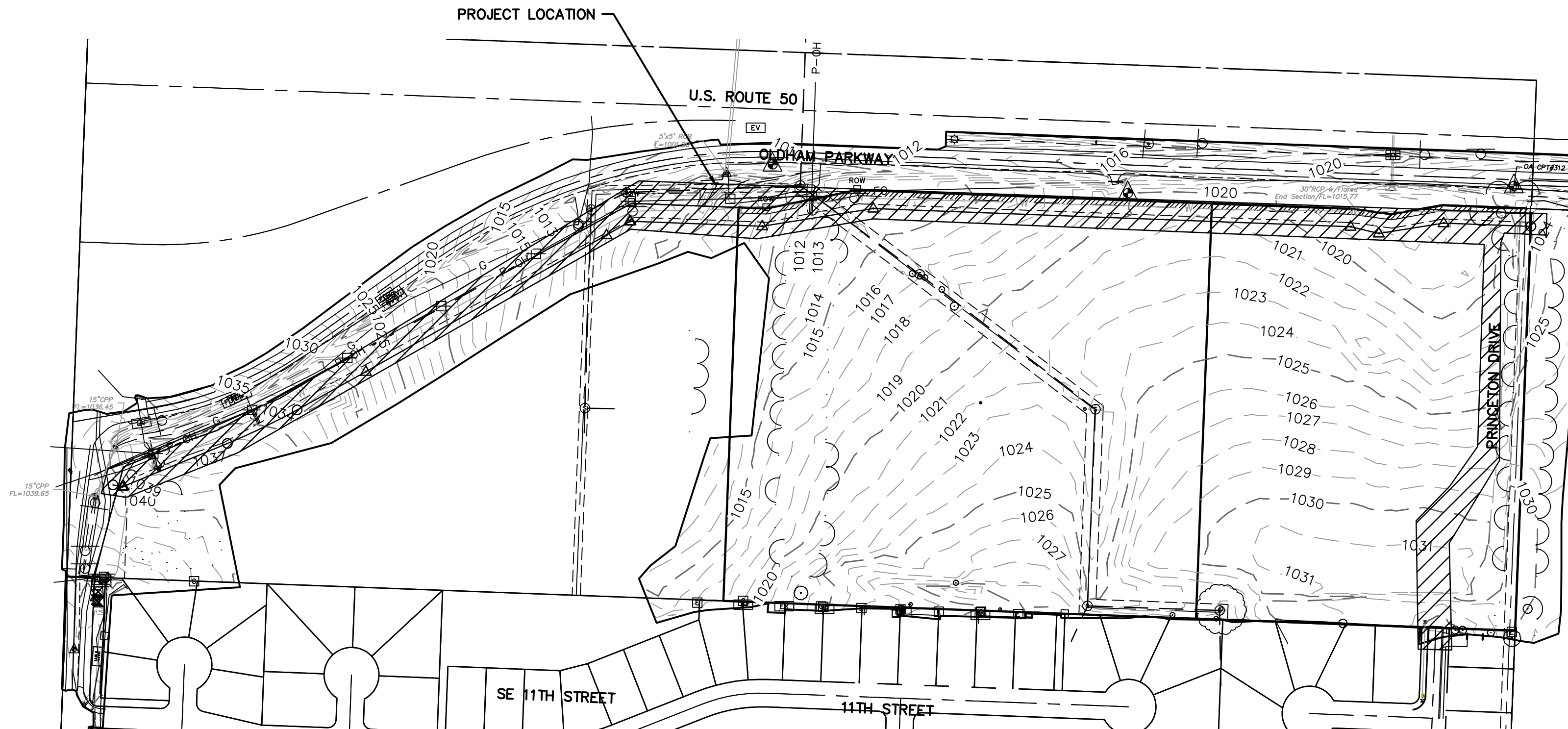
THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "1-800-DIG-RITE", AND COORDINATE FIELD LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. !!STOP!! CALL BEFORE YOU DIG!!

*PROPOSED UTILITIES

---	[ATT]	PROPOSED AT&T
---	[Fo]	PROPOSED FIBER
---	[G]	PROPOSED GAS
---	[W]	PROPOSED WATERLINE
---	[UTL OH]	PROPOSED OVERHEAD UTILITIES
---	[SL]	PROPOSED STREET LIGHT CONDUIT
---	[CCL]	PROPOSED CONSOLIDATED

*The utilities as shown in this legend represent the intended construction or relocation of utilities. These plans do not take into account the construction schedule or "As-Constructed Plans" of utility construction or relocations. Therefore, the Contractor shall notify all utility agencies before beginning work and shall cooperate with them in locating and protecting their utilities. The Engineer and Owner make no guarantee as to accuracy or completeness of information shown.

FINAL PLANS FOR
PUBLIC WATER MAIN EXTENSION
SE OLDHAM ROAD
LEE'S SUMMIT, MISSOURI



LOCATION MAP
SEC. 10, TWP. 47N, RNG. 31W

UTILITY COMPANIES:

AT&T
RON GIFFERT
500 E. 8TH STREET, ROOM 1146
KANSAS CITY, MISSOURI 64106
PHONE: (816) 275-1550
EMAIL: RG7910@ATT.COM

KANSAS CITY POWER & LIGHT
JEFF R. WILLIAMS, ENGINEER - CENTRAL DESIGN
401 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081
PHONE: (816) 347-4310
EMAIL: JEFF.WILLIAMS@KCPL.COM

CONSOLIDATED COMMUNICATIONS
JOHN CASTLOW
14859 W. 95TH STREET
LENEXA, KS 66215
PHONE: (913) 322-9785
EMAIL: JOHN.CASTLOW@CONSOLIDATED.COM

GOOGLE FIBER
LAUREN MARCUCCI
PHONE: (913) 663-1900
EMAIL: LMARCUCCI@GOOGLE.COM

FIRE DEPARTMENT
LEE'S SUMMIT FIRE DEPARTMENT
207 SE DOUGLAS STREET
LEE'S SUMMIT, MISSOURI 64063
(816)-969-1300

AMBULANCE SERVICE
TELE: 911

LEE'S SUMMIT R-7 SCHOOL DISTRICT
KINZIE WOODERSON
301 NE TUDOR ROAD
LEE'S SUMMIT, MO 64086
PHONE: (816) 986-1050
EMAIL: KINZIE.WOODERSON@LSR7.NET

LEE'S SUMMIT WATER UTILITIES
DAVID LOHE
PHONE: (816) 969-1800
EMAIL: DAVID.LOHE@CITYOFLS.NET

LEE'S SUMMIT SEWER UTILITIES
1200 SE HAMBLIN ROAD
LEE'S SUMMIT, MISSOURI 64801
(816) 969-1900

SPIRE GAS
RICHARD FROCK
3025 SE CLOVER DRIVE
LEE'S SUMMIT, MO 64082
PHONE: (816) 472-3489
EMAIL: RICHARD.FROCK@SPIREENERGY.COM

CHARTER/SPECTRUM CABLE
TROY PREWITT
8221 W. 119TH STREET
OVERLAND PARK, KS 66213
PHONE: (816) 401-3573
EMAIL: TROY.PREWITT@CHARTER.COM

COMMUNICATION:
CENTURYLINK
COMCAST
GOOGLE FIBER NOC
SPRINT/ERICSSON
TIME WARNER CABLE
TW TELECOM
UNITE PRIVATE NETWORKS
VERIZON COMMUNICATIONS INC.
1-800-246-4237
1-888-262-5101
1-866-954-1572
1-800-521-0579
1-866-967-7611
1-800-829-0420
1-866-963-4237
1-800-624-9675

INDEX OF SHEETS

SHEET NO. TITLE

W0.1	TITLE SHEET
W1.0	WATERLINE INDEX SHEET
W2.1	LINE 1 PLAN & PROFILE
W2.2	LINE 1 PLAN & PROFILE
W2.3	LINE 1 PLAN & PROFILE
W2.4	LINE 1 PLAN & PROFILE
W2.5	LINE 1 PLAN & PROFILE
W2.6	LINE 1 PLAN & PROFILE
W2.7	LINE 2 PLAN & PROFILE
W2.8	LINE 2 PLAN & PROFILE
W3.0	WATER SYSTEM DETAILS
W3.1	WATER SYSTEM DETAILS

BENCHMARKS:

MO DNR JA-45: KC METRO ALUMINUM GRS DISK SET IN CONCRETE 3"± BELOW PAVEMENT ON THE SHOULDER OF SE RANSON ROAD STAMPED "JA-45"
ELEV.=1046.26'
PUBLISHED COORDINATES (1988 ADJUSTMENT):
N: 303273.664M
E: 863885.886M
GRID=GROUND
N: 994990.3460
E: 2834265.6110
CAF: 0.99989860A

BENCHMARK #41314:
NORTHING: 995857.9570
EASTING: 2835453.8010
SET SQUARE CUT IN CENTER OF CONCRETE HEADWALL FOR REINFORCED CONCRETE BOX
ELEVATION=1007.13' (NAVD 88)

OA CONTROL POINT #310
NORTHING: 995873.4445
EASTING: 2835537.7320
FOUND 1/2" REBAR W/CAP 8' SOUTH OF PAVEMENT
EAST OF REINFORCED CONCRETE BOX
ELEVATION=1008.08' (NAVD 88)

SURVEYOR:

OLSSON
7301 W. 133rd STREET, SUITE 200
OVERLAND PARK, KS. 66213-4750
TELE: (913) 381-1170
FAX: (913) 381-1174

OWNER/APPLICANT/DEVELOPER:

LEE'S SUMMIT SENIOR COMMUNITY, LLC.
CONTACT: DENISE K. HEINTZ
5051 S. NATIONAL AVENUE, STE 4-110
SPRINGFIELD, MISSOURI 65810
TELE: (417)893-6006
FAX: (417)862-9501

PREPARED & SUBMITTED BY:
OLSSON
550 E. ST. LOUIS STREET
SPRINGFIELD, MO. 65806

olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #2005002085
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com



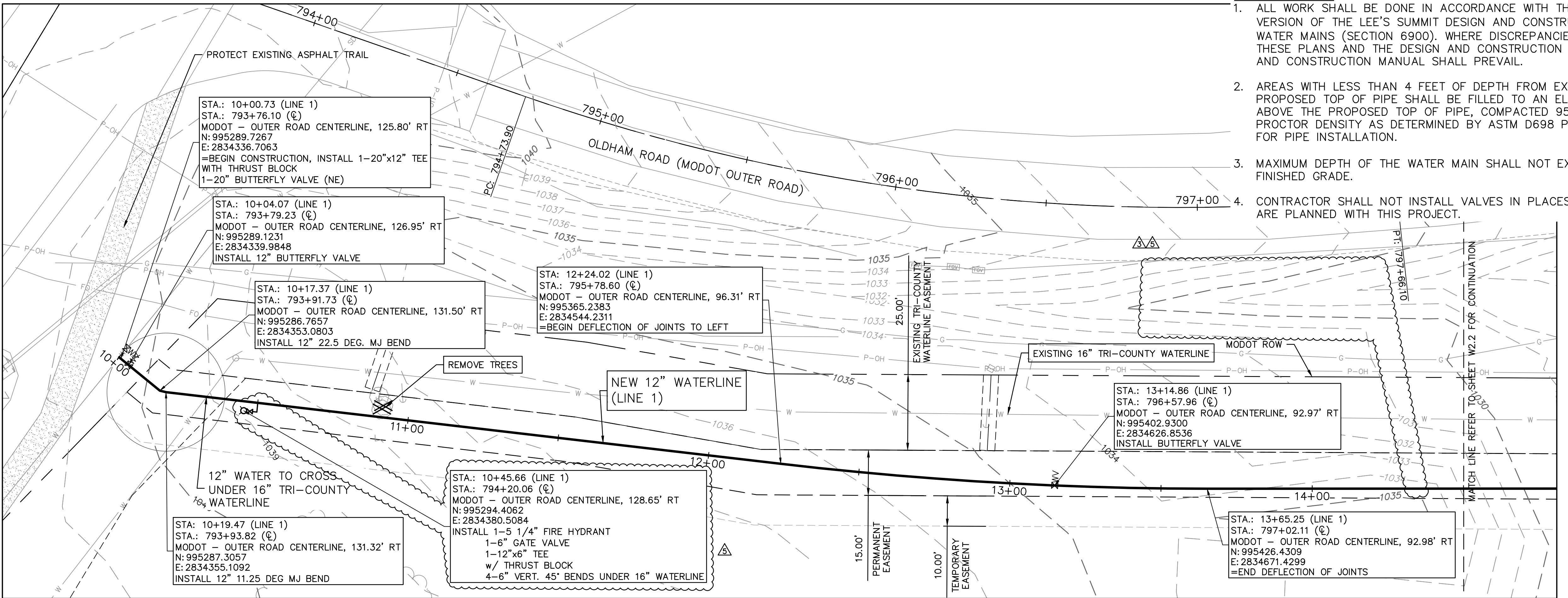
REV.	NO.	DATE	REVISIONS DESCRIPTION
3		08/15/2019	ENGR. REVIEW COMMENTS

PUBLIC WATER MAIN EXTENSION TITLE SHEET	THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY	LEE'S SUMMIT, MISSOURI	2019
--	--	------------------------	------

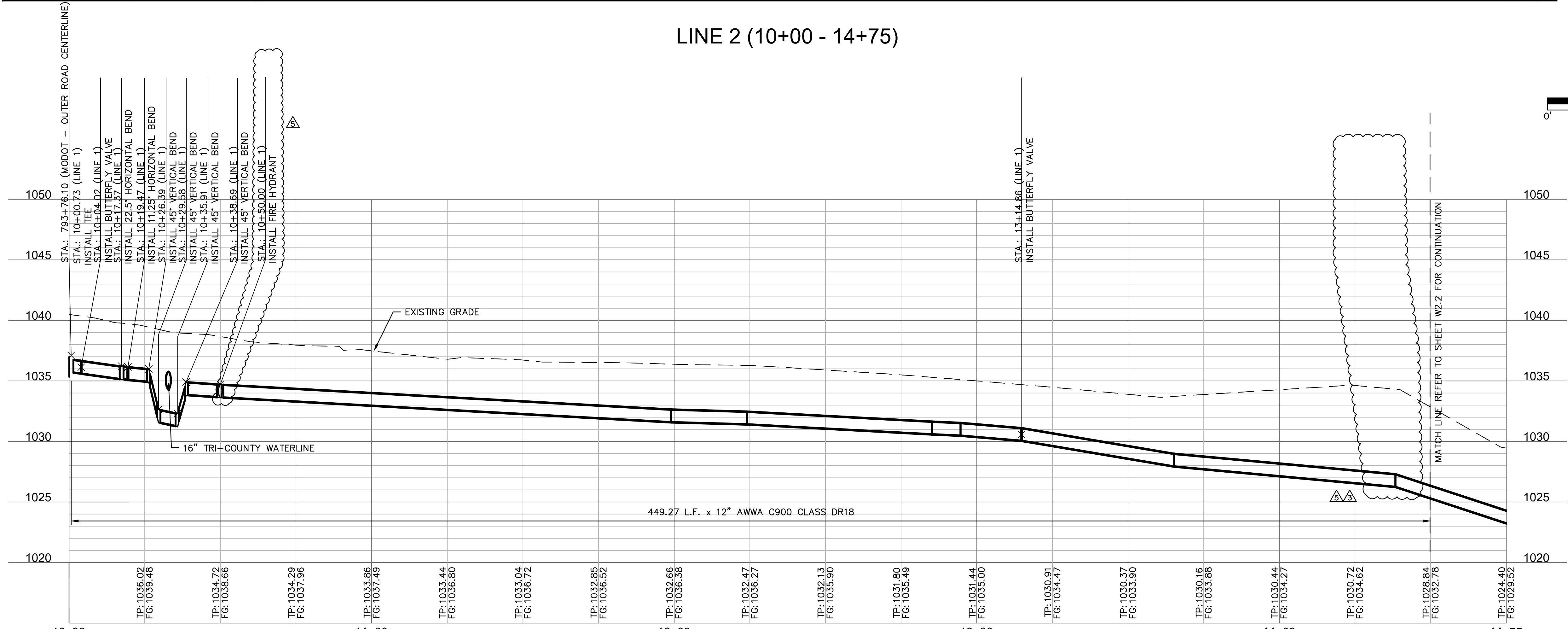
drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_TTL_WTR_81450
date: 00.00.00

SHEET
W0.1

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final Plans\Sheets\GNVC\PUBLIC WATER\C_WPP_81450.dwg
DATE: Aug 19, 2019 7:19am
XREFS: v_xxx_81450 c_pbase_81450 c_tblk_22x34_81450 c_palgn_wtr_81450 v_topo_81450 c_legend_81450
USER: thill
T_PBASE_81450



LINE 2 (10+00 - 14+75)



GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL FOR WATER MAINS (SECTION 6900). WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.
2. AREAS WITH LESS THAN 4 FEET OF DEPTH FROM EXISTING GRADE TO THE PROPOSED TOP OF PIPE SHALL BE FILLED TO AN ELEVATION OF 4 FEET ABOVE THE PROPOSED TOP OF PIPE, COMPACTED 95% OF STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698 PRIOR TO TRENCHING FOR PIPE INSTALLATION.
3. MAXIMUM DEPTH OF THE WATER MAIN SHALL NOT EXCEED 7' FROM FINISHED GRADE.
4. CONTRACTOR SHALL NOT INSTALL VALVES IN PLACES WHERE ADA RAMPS ARE PLANNED WITH THIS PROJECT.

olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #205002085
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

RECORD DRAWING

STATE OF MISSOURI
FRED J. SCHLESER
REGISTERED PROFESSIONAL ENGINEER
No. 08/15/19
"NOT AS BUILT"

REVISIONS	
REV. NO.	REVISIONS DESCRIPTION
5	08/15/2019 ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION
LINE 1 PLAN AND PROFILE

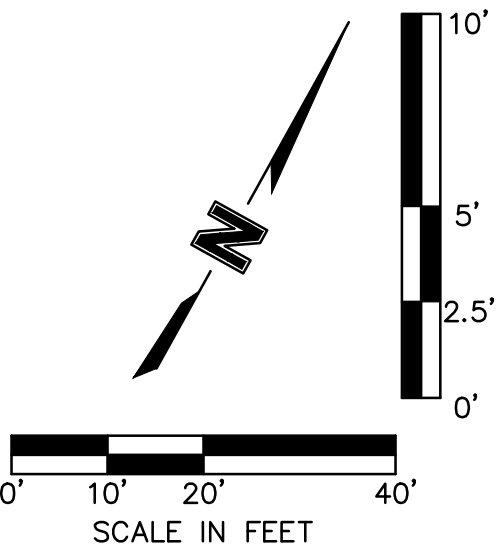
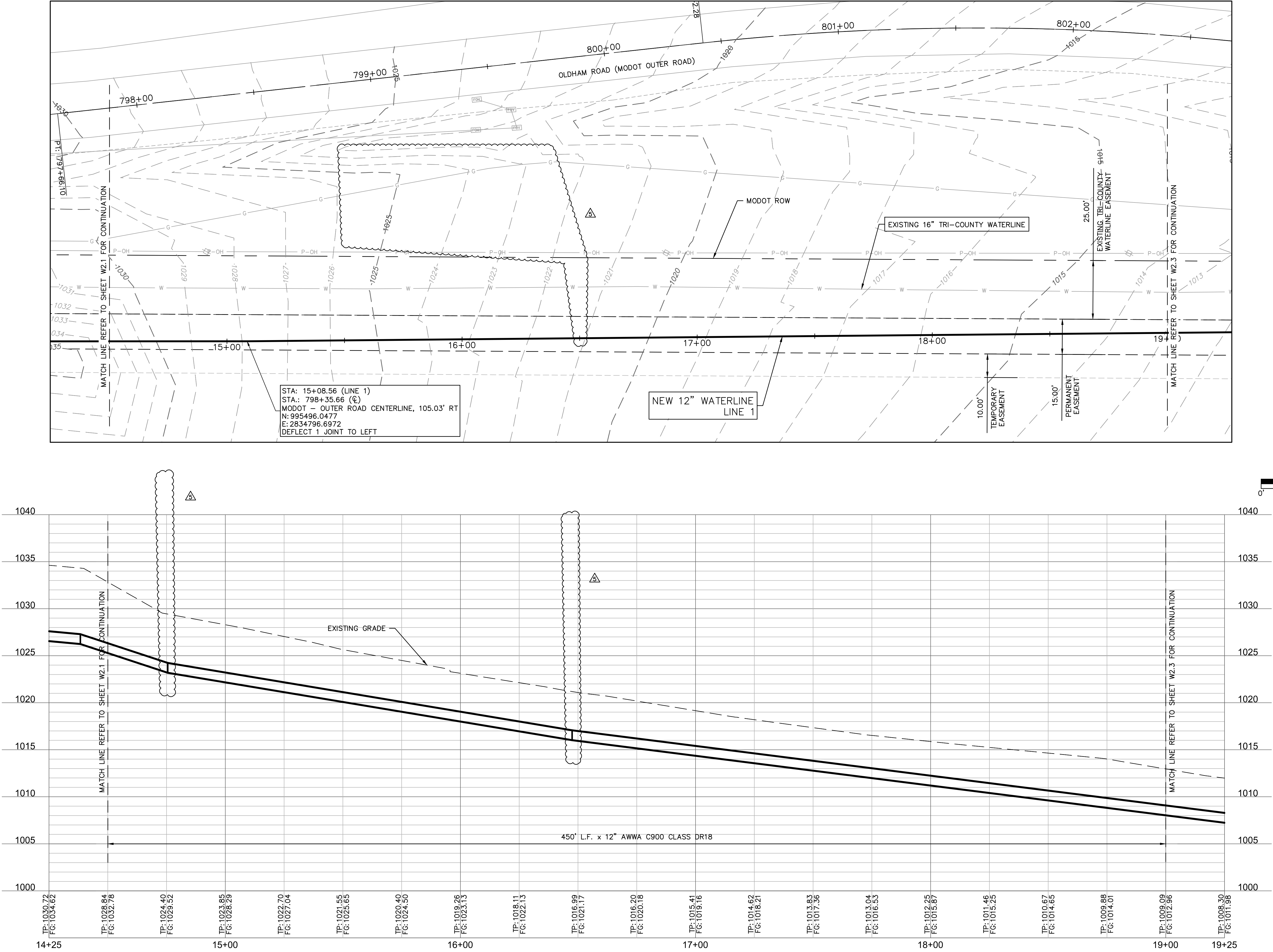
THE PRINCETON SENIOR LIVING
SE OLDHAM PARKWAY

LEE'S SUMMIT, MISSOURI

drawn by: TMH
checked by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08/15/19

SHEET
W2.1

DWG: F:\2018\1001-1500\018-1450-40-Design\AutoCAD\Final_Plans\Sheets\GNVC\PUBLIC WATER\C_WPP_81450.dwg
DATE: Aug 16, 2019 9:37am
XREFS: v_xbou_81450 c_pbcase_81450 c_tblk_22x34_81450 c_pbase_81450 c_legend_81450
USER: thill
T_PBASE_81450
V_TOPO_81450
C_PALGN_WTR_81450



olsson

Olson Engineering MO State Certificate of Authority #001592
Olson Landscape Architecture MO State Cert. of Authority #200500285
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olson.com

RECORD DRAWING

STATE OF MISSOURI

FRED J. SCHLEGEL
REGISTERED PROFESSIONAL ENGINEER
No. 000000000
08/15/19

NOT AS BUILT

REV.	NO.	DATE	REVISIONS DESCRIPTION
5		08/19/2019	ENGR. REVIEW COMMENTS
3		07/19/2019	ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION
LINE 1 PLAN AND PROFILE

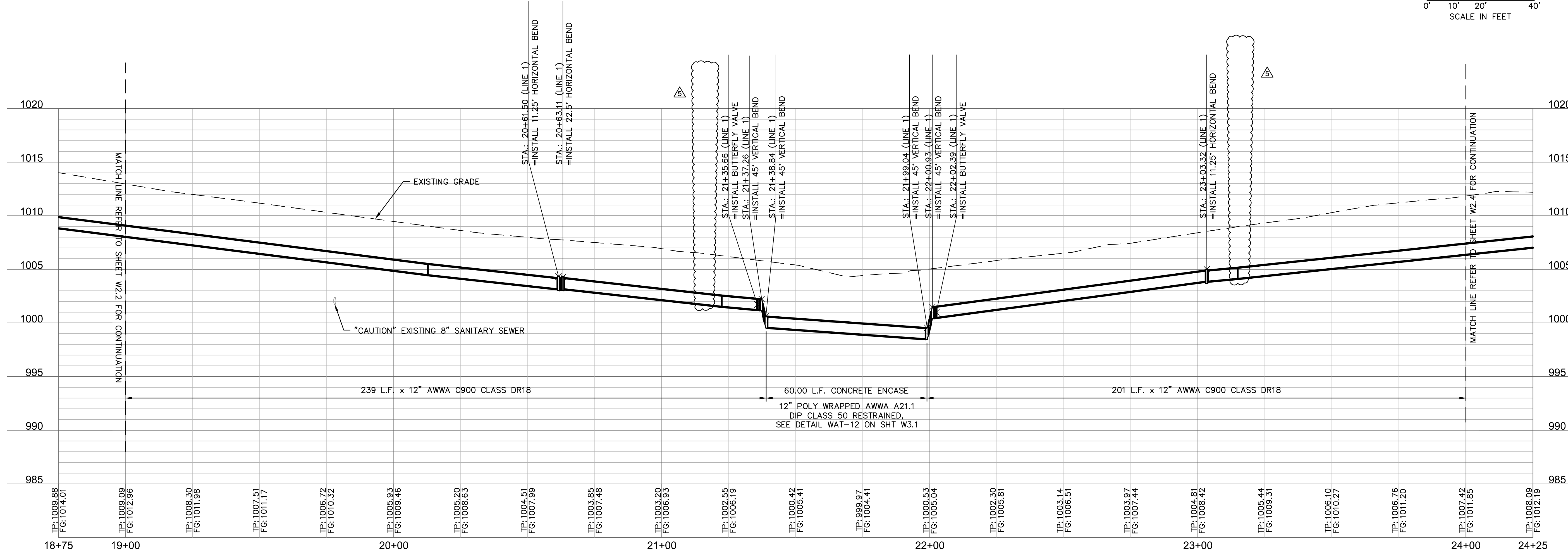
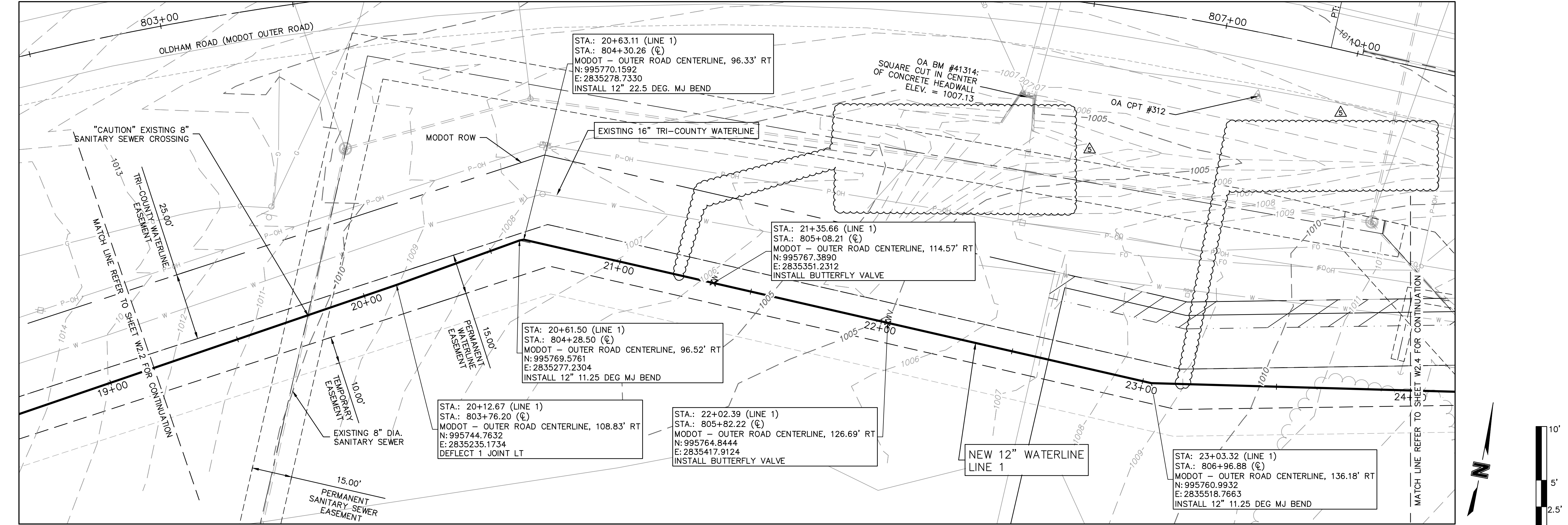
THE PRINCETON SENIOR LIVING
SE OLDHAM PARKWAY

LEE'S SUMMIT, MISSOURI

drawn by: TML
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08.15.19

2019

SHEET
W2.2



olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #205002085
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

RECORD DRAWING

STATE OF MISSOURI

FRED J. SCHLEGER
REGISTERED PROFESSIONAL ENGINEER
No. 000000000
08/15/19

NOT AS BUILT

REV.	NO.	DATE	REVISIONS DESCRIPTION
5		08/15/19	ENGR. REVIEW COMMENTS
3		07/19/2019	ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION
LINE 1 PLAN AND PROFILE

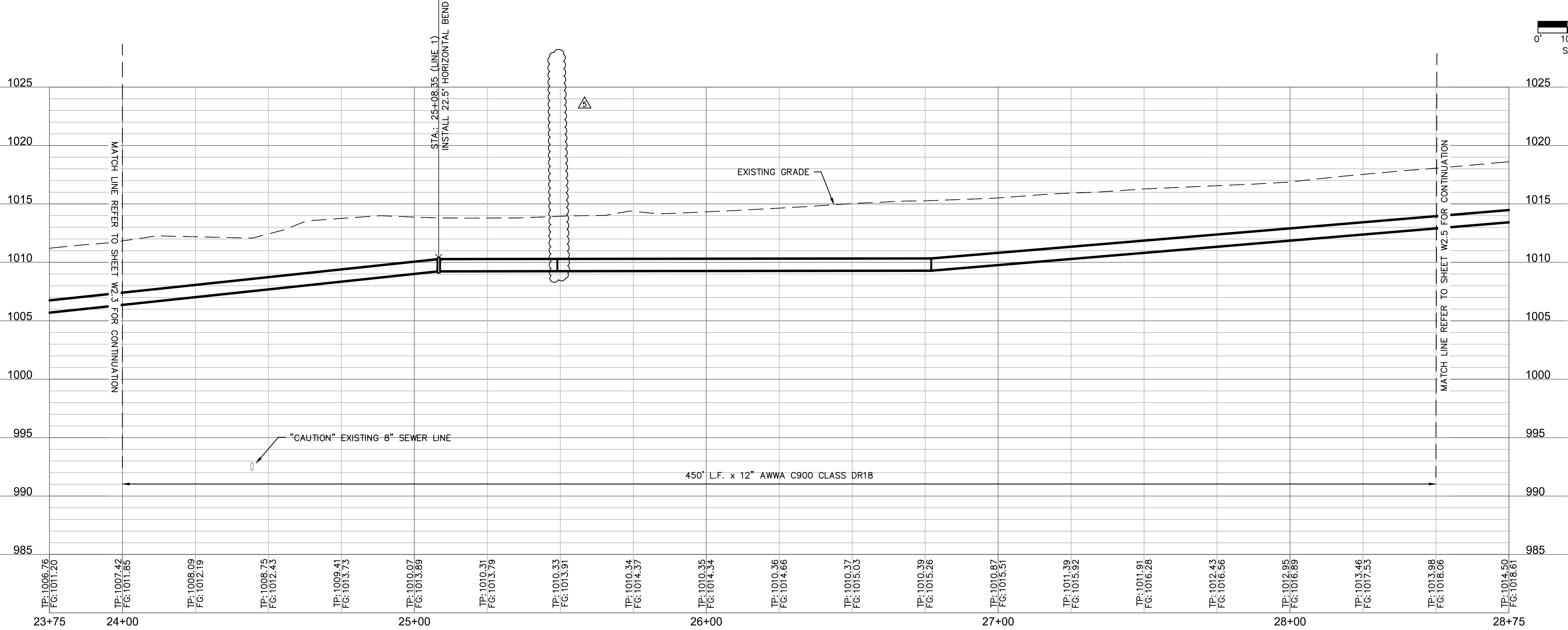
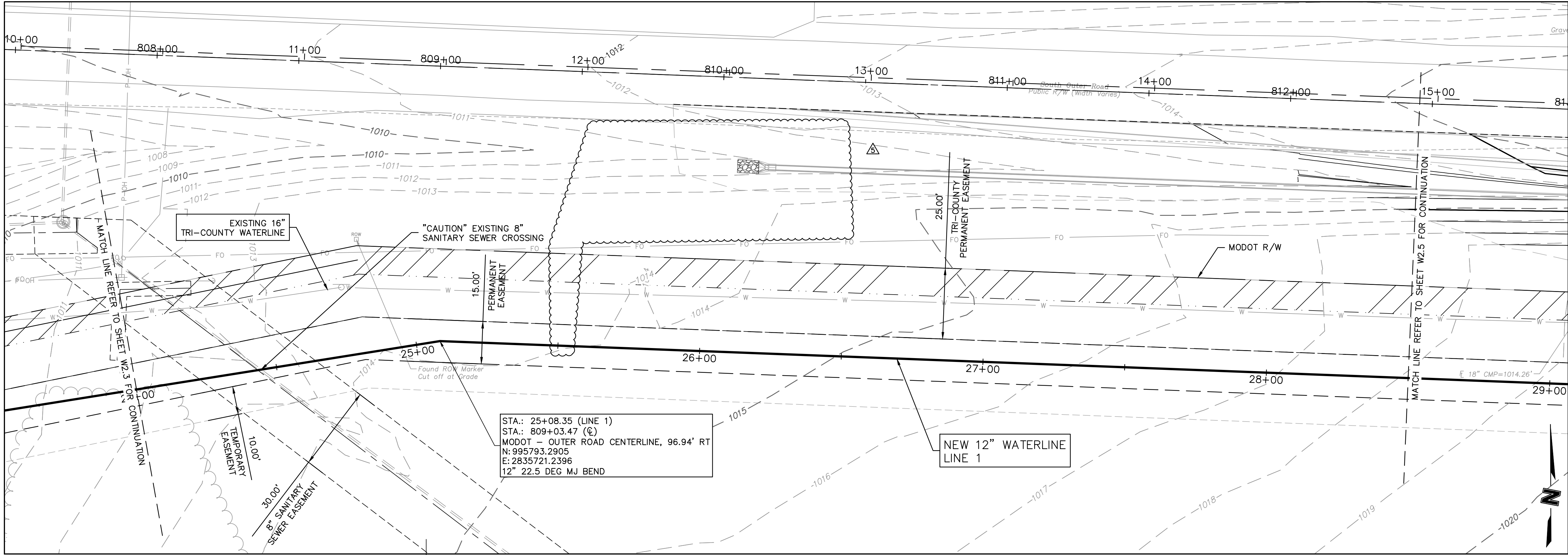
THE PRINCETON SENIOR LIVING
SE OLDHAM PARKWAY

LEE'S SUMMIT, MISSOURI

drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08.15.19

SHEET
W2.3

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final_Plans\Sheets\GNVC\PUBLIC WATER\C_WPP_81450.dwg
DATE: Aug 16, 2019 9:42am
XREFS: v_xbou_81450 c_pbase_81450 c_tblk_22x34_81450 c_phase_81450
USER: thill
C_PALGN_WTR_81450 V_TOPO_81450 c_legend_81450



olsson

Olson Engineering MO State Certificate of Authority #001592
Olson Landscape Architecture MO State Cert. of Authority #20500285
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olson.com

RECORD DRAWING

STATE OF MISSOURI

FRED J. SCHLEGEL
REGISTERED PROFESSIONAL ENGINEER
No. 000000000
08/15/19

NOT AS BUILT

REV.	NO.	DATE	REVISIONS DESCRIPTION
5		08/15/19	ENGR. REVIEW COMMENTS
3		07/19/19	ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION
LINE 1 PLAN AND PROFILE

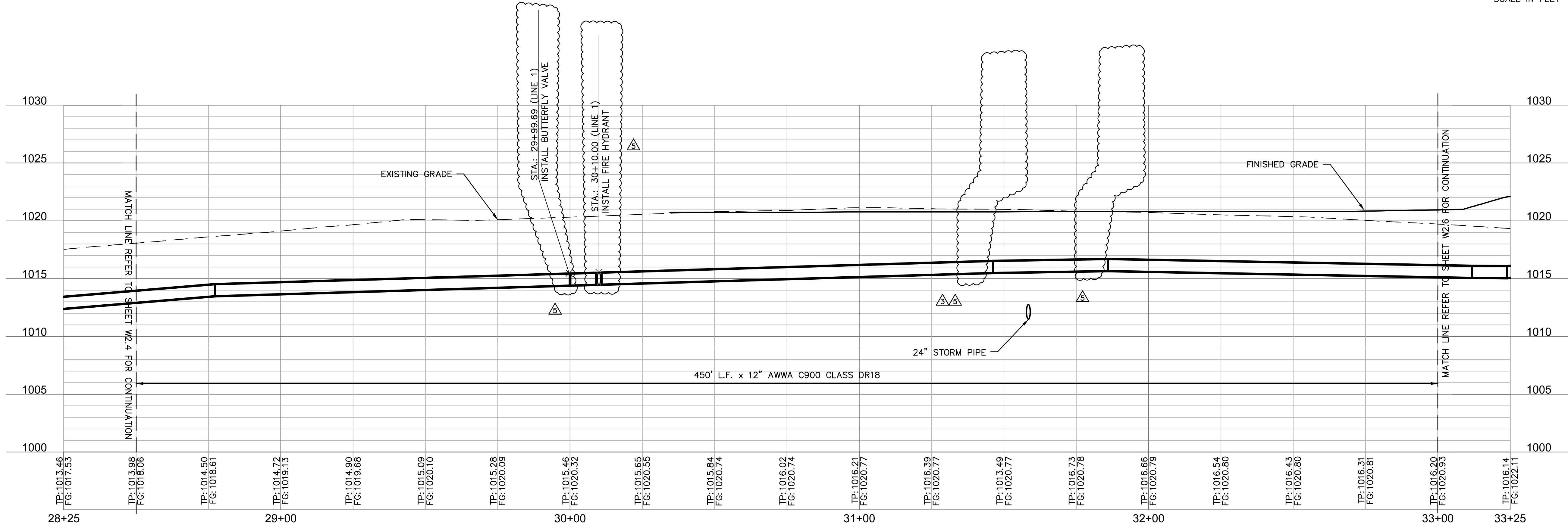
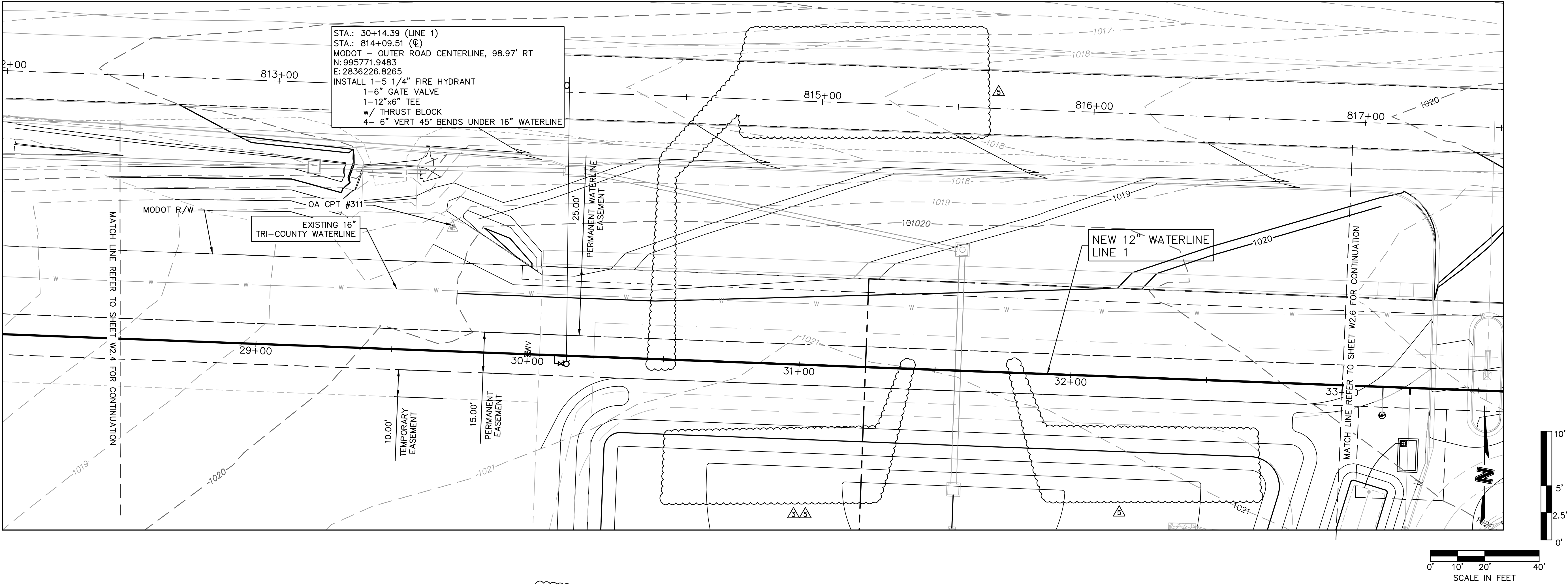
THE PRINCETON SENIOR LIVING
SE OLDHAM PARKWAY

LEE'S SUMMIT, MISSOURI

drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08.15.19

SHEET
W2.4

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final_Plans\Sheets\GNVC\PUBLIC WATER\C_WPP_81450.dwg USER: thill
DATE: Aug 16, 2019 9:43am XREFS: v_xboul_81450 c_pbse_81450 c_tblk_22x34_81450 T_PBASE_81450 C_ALIGN_WTR_81450 V_TOPO_81450 C_LEGEND_81450



olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #20500285
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802 www.olsson.com

RECORD DRAWING

STATE OF MISSOURI

FRED J. SCHLEGEL
REGISTERED PROFESSIONAL ENGINEER
NO. 000000000
08/15/19

NOT AS BUILT

REV. NO.	DATE	REVISIONS DESCRIPTION
5	08/15/19	ENGR. REVIEW COMMENTS
3	07/19/2019	ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION
LINE 1 PLAN AND PROFILE

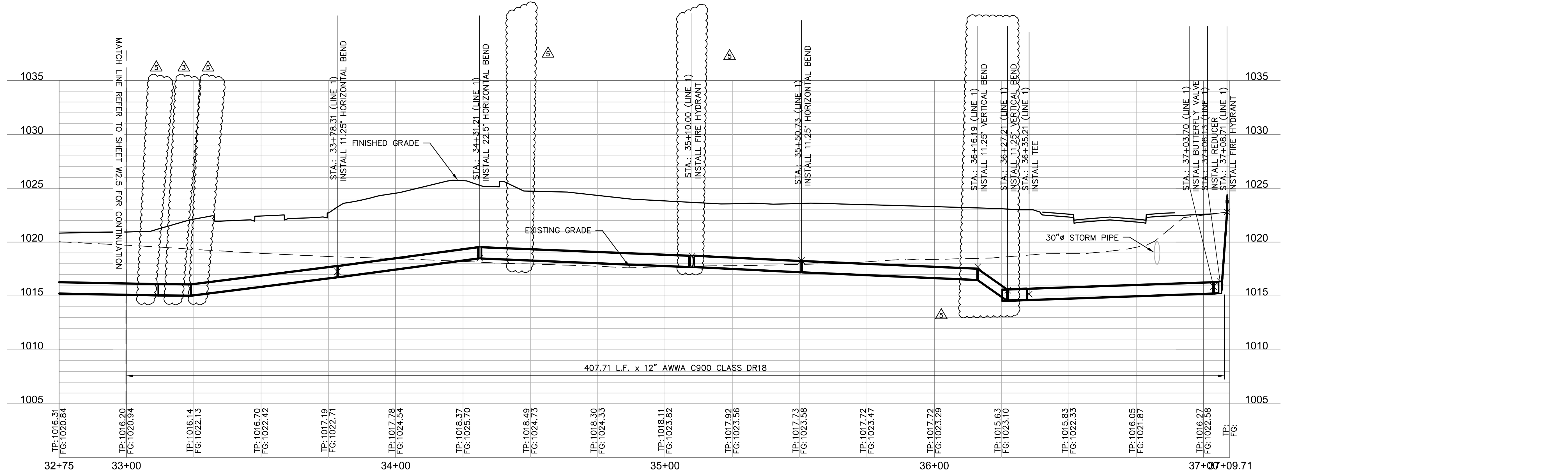
THE PRINCETON SENIOR LIVING
SE OLDHAM PARKWAY

LEE'S SUMMIT, MISSOURI

drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08.15.19

SHEET
W2.5

DWG: F:\2011
DATE: Aug 1



olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #020000285
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

RECORD DRAWING

STATE OF MISSOURI

FRED J. SCHLEGEL

PROFESSIONAL ENGINEER

FE-0005072332

08/15/19

"NOT AS BUILT"

WATER MAIN EXTENSION LINE 1 PLAN AND PROFILE		REVISIONS DESCRIPTION	
REV. NO.	DATE		
5	08/15/19	ENGR. REVIEW COMMENTS	
3	07/19/2019	ENGR. REVIEW COMMENTS	
THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY			
LEE'S SUMMIT, MISSOURI		2019	

drawn by: _____ TMH

designed by: _____ FJB

checked by: _____ JLR

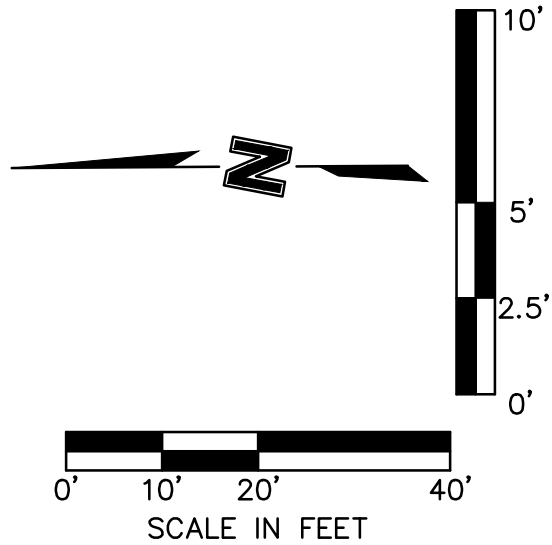
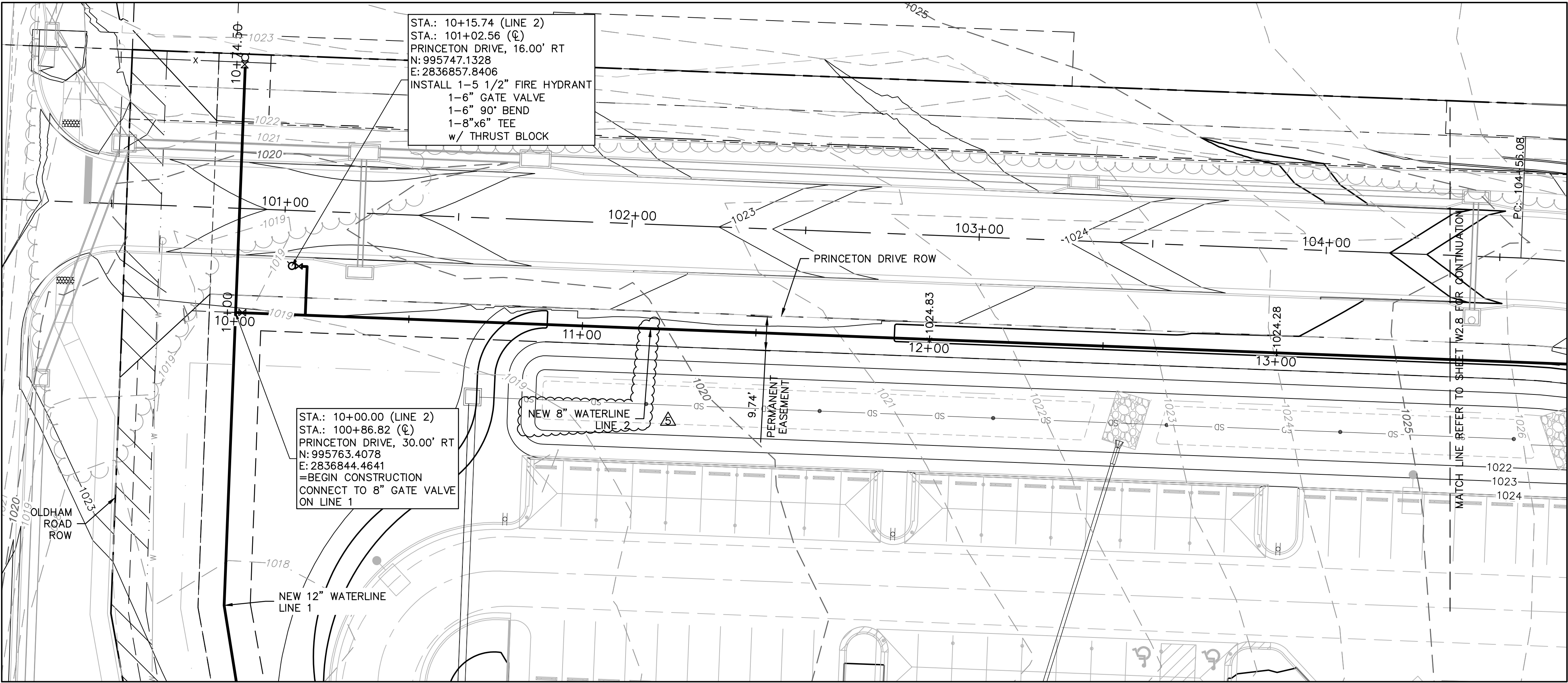
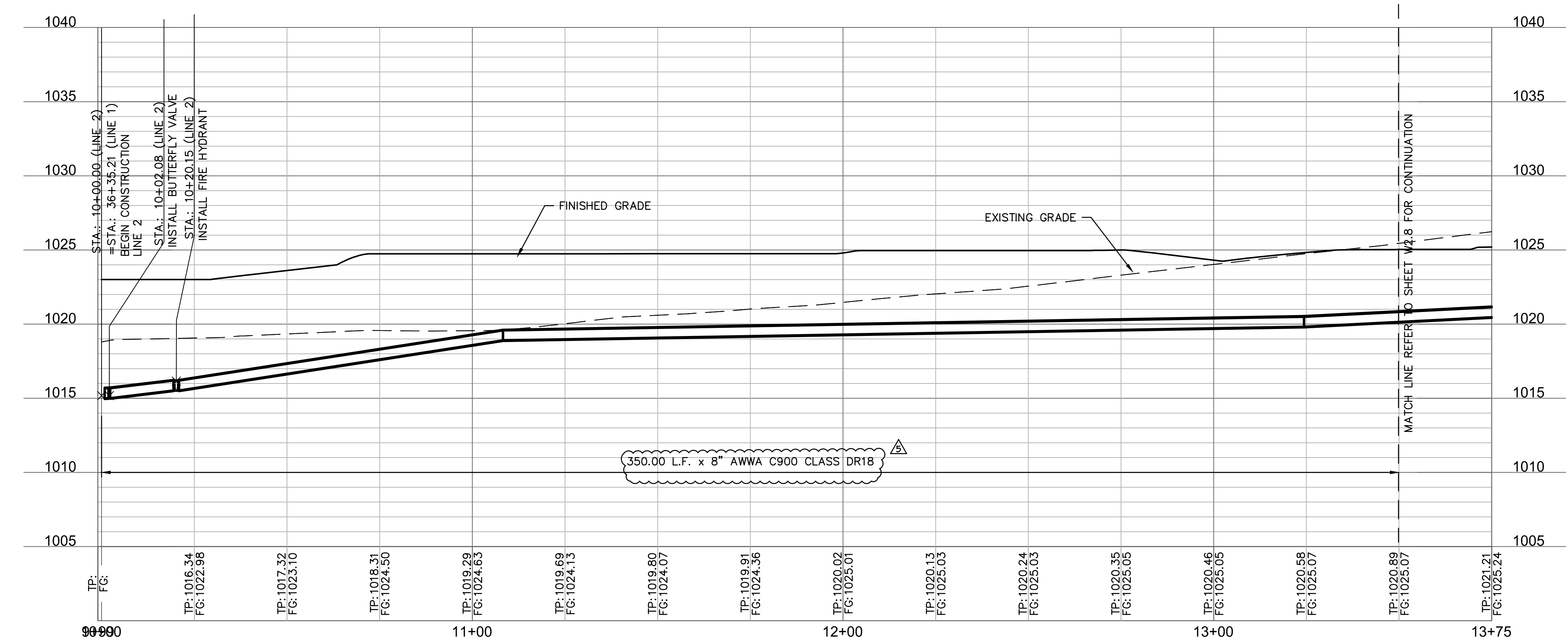
project no.: _____ 018-1450

drawing no.: _____ C_WPP_81450

date: _____ 08.15.19

SHEET

W2.6



olsson

Olson Engineering MO State Certificate of Authority #001592
Olson Landscape Architecture MO State Cert. of Authority #20500265
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802 www.olson.com

RECORD DRAWING

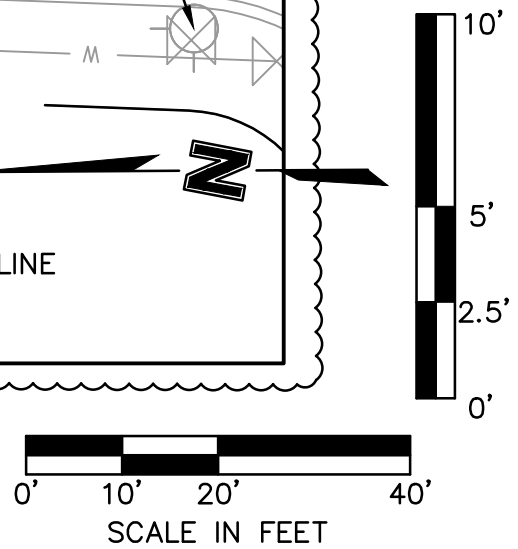
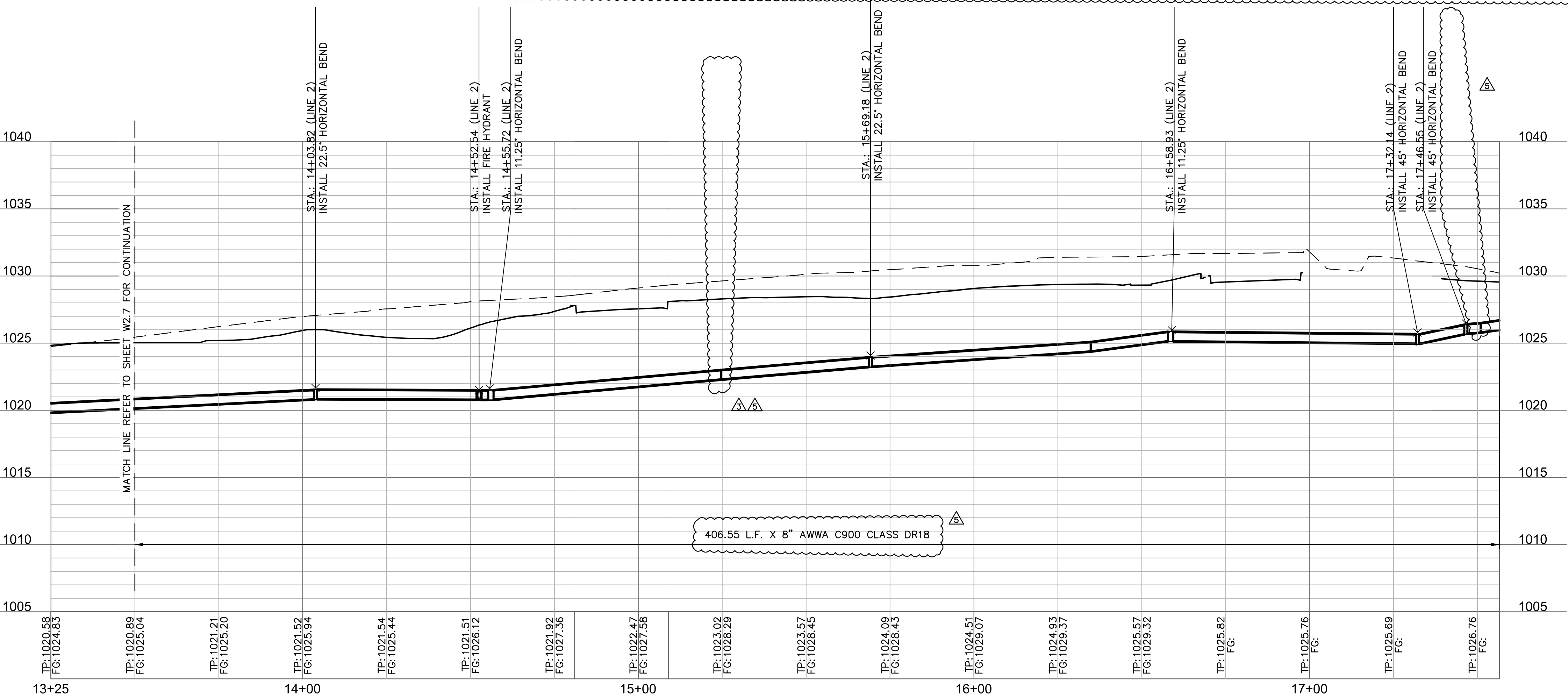
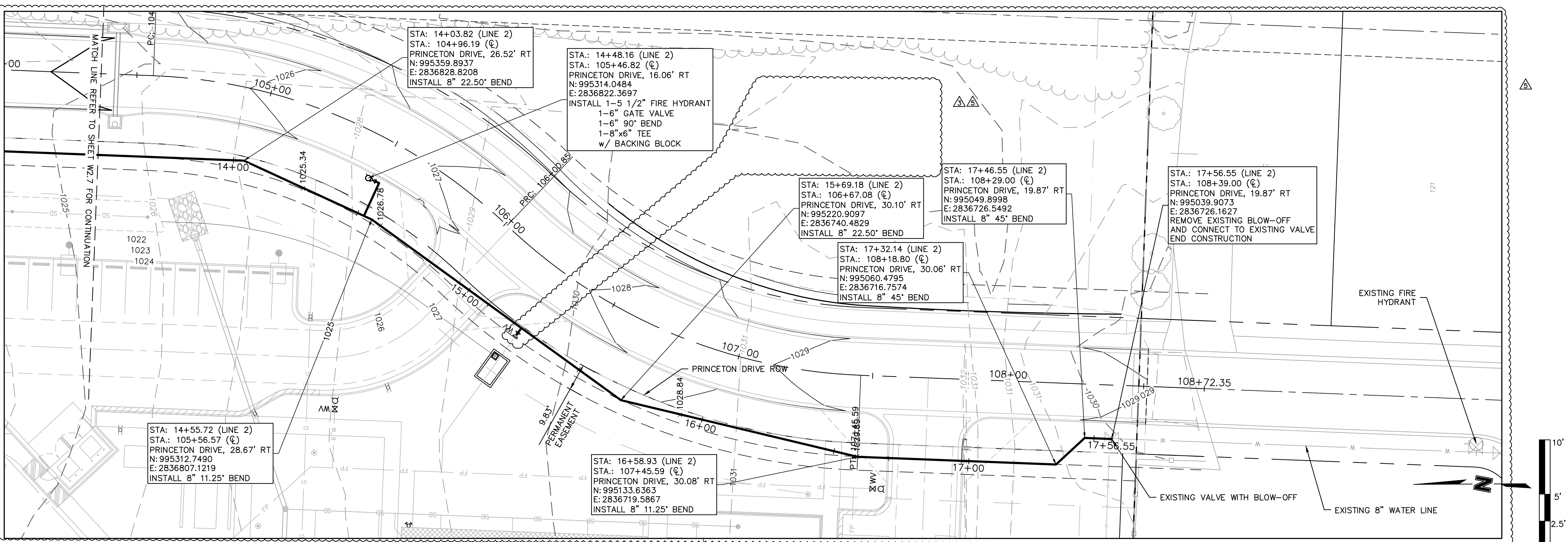
NOT AS BUILT

REVISIONS	
REV. NO.	REVISIONS DESCRIPTION
5	ENGR. REVIEW COMMENTS
3	ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION LINE 2 PLAN AND PROFILE	
THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY	
LEE'S SUMMIT, MISSOURI	
2019	

drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08.15.19

SHEET
W2.7



olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #205002085
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

RECORD DRAWING

STATE OF MISSOURI

FRED J. SCHLESER
REGISTERED PROFESSIONAL ENGINEER
NO. 000000000
08/15/19

NOT AS BUILT

REV.	NO.	DATE	REVISIONS DESCRIPTION
5		08/15/19	ENGR. REVIEW COMMENTS
3		07/19/2019	ENGR. REVIEW COMMENTS

WATER MAIN EXTENSION
LINE 2 PLAN AND PROFILE

THE PRINCETON SENIOR LIVING
SE OLDHAM PARKWAY

LEE'S SUMMIT, MISSOURI

2019

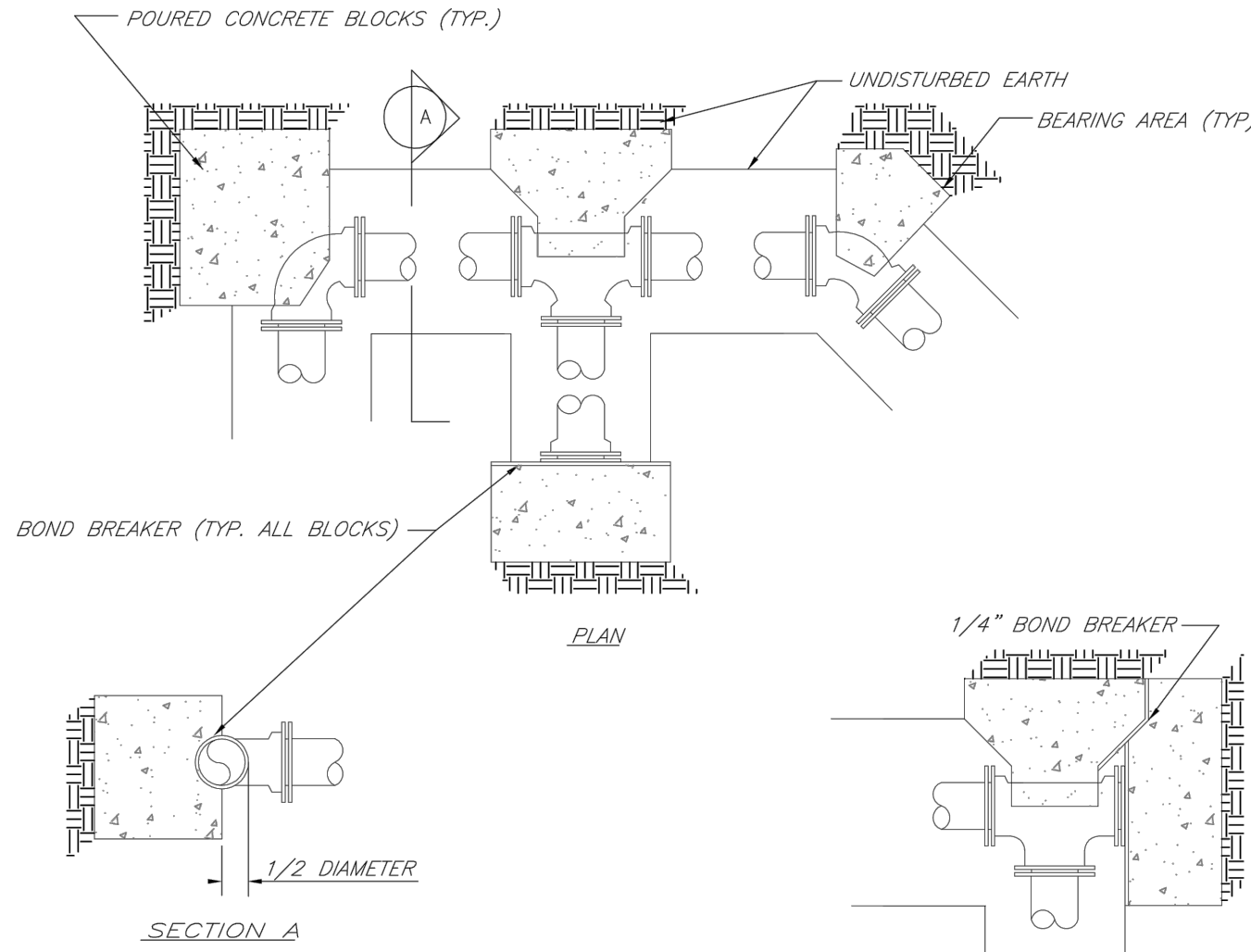
drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_WPP_81450
date: 08.15.19

SHEET
W2.8

REQUIRED CONCRETE BEARING AREA (SQUARE FEET - SF)					
NOM. DIA. (INCHES)	TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.9	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

NOTES:

1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.
5. ALL DUCTILE IRON FITTINGS SHALL BE POLYETHYLENE WRAPPED.

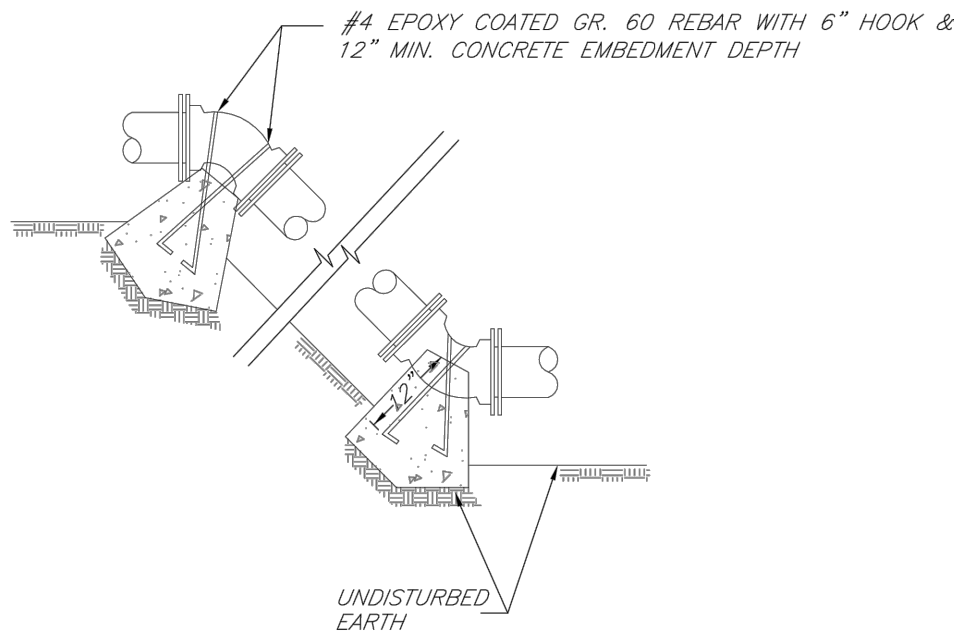


LS	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	Date: 02/13
		Drawn By: JN
		Checked By: DL
		FILE: WAT-1
HORIZONTAL THRUST BLOCKS		Rev: 1/14
		Rev:

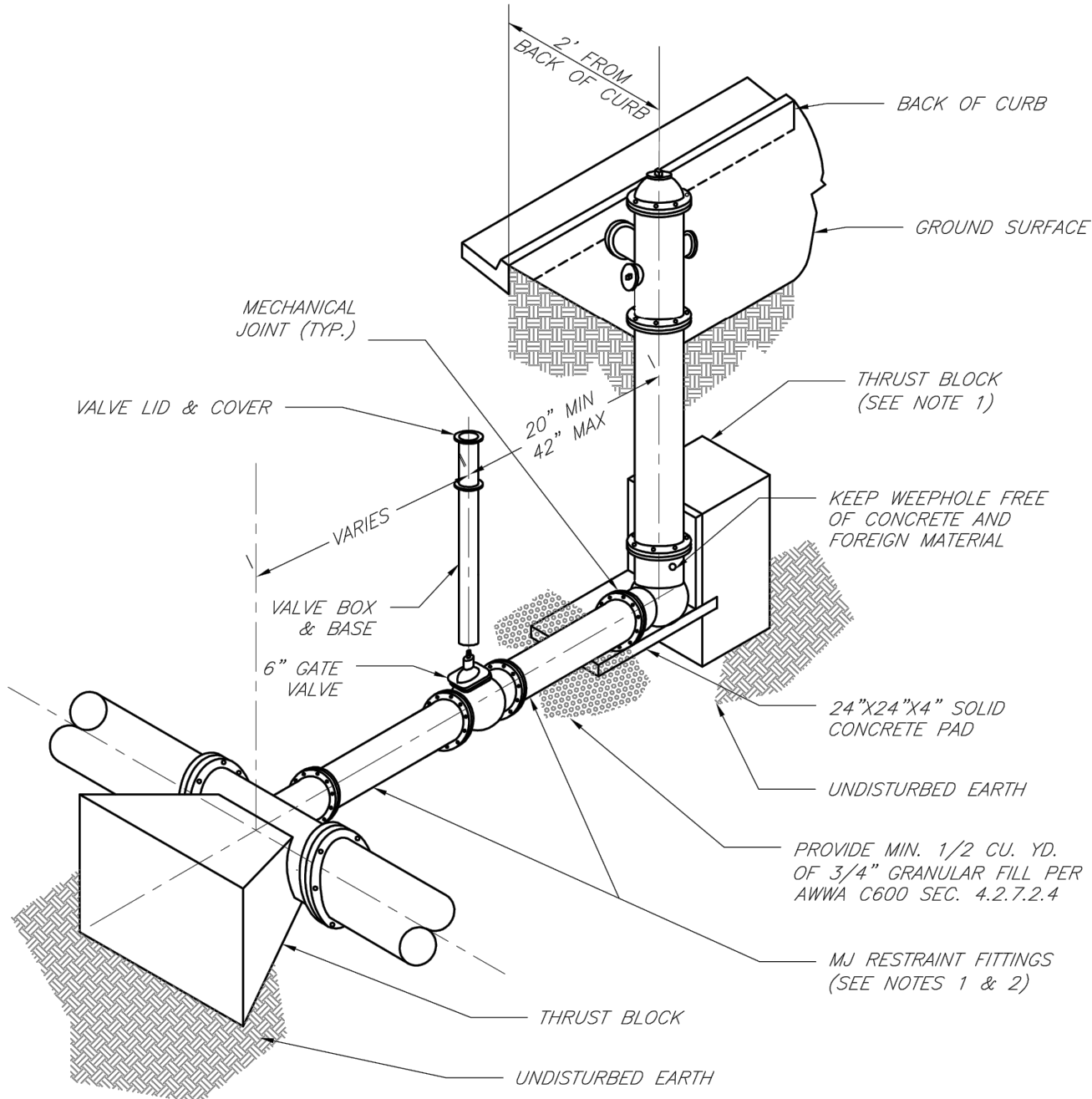
REQUIRED CONCRETE VOLUME (CUBIC FEET - CF)					
NOM. DIA. (INCHES)	TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.1	107.3	54.7	27.5
12	202.0	REST. JT.	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4

NOTES:

1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.
5. USE POLYETHYLENE AROUND ALL FITTINGS AND COAT BOLTS PER SPECS.



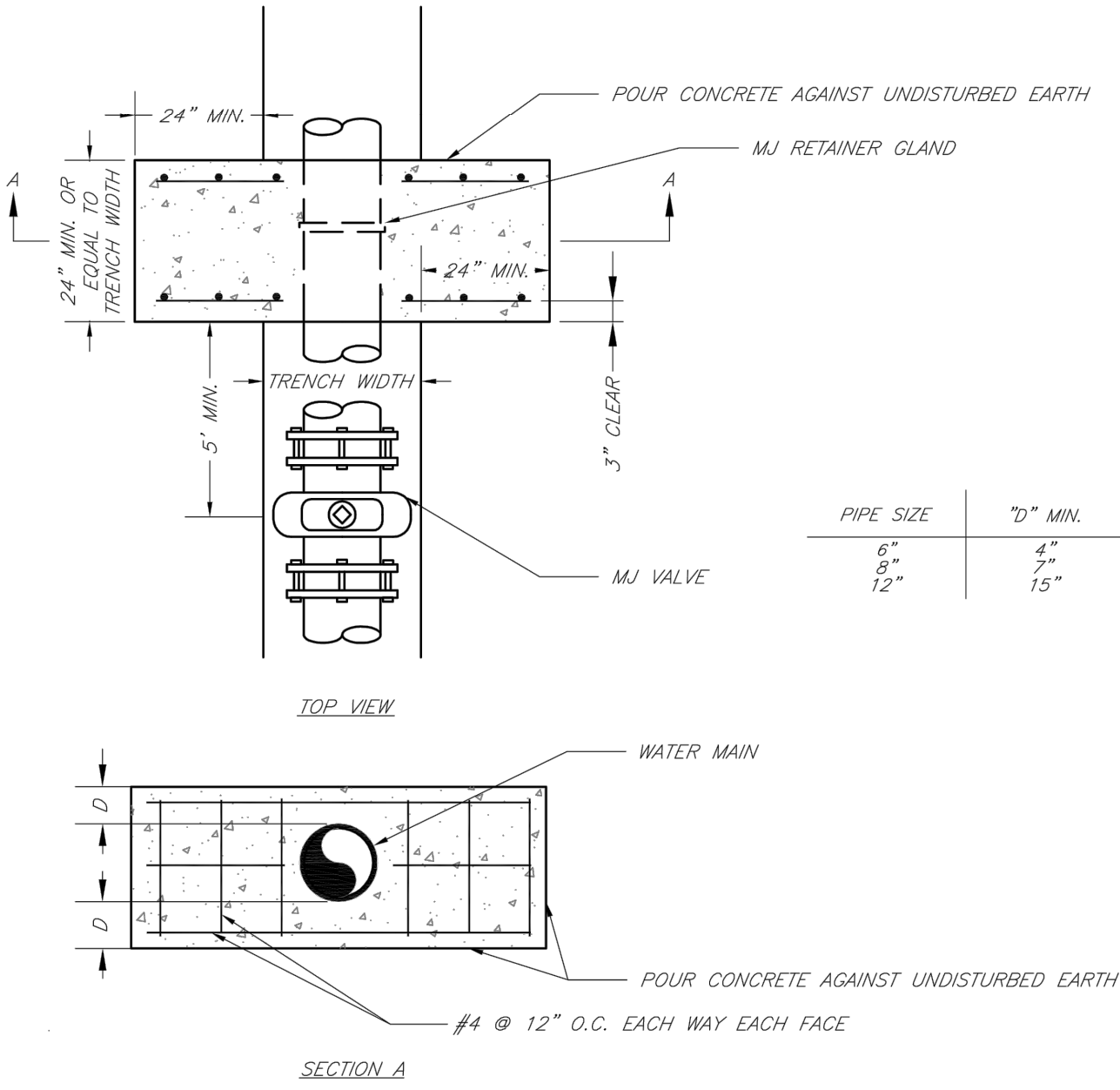
LS	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	Date: 02/13
		Drawn By: JN
		Checked By: DL
		FILE: WAT-2
VERTICAL THRUST BLOCKS		Rev: 1/14
		Rev:



NOTES:

1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS, FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

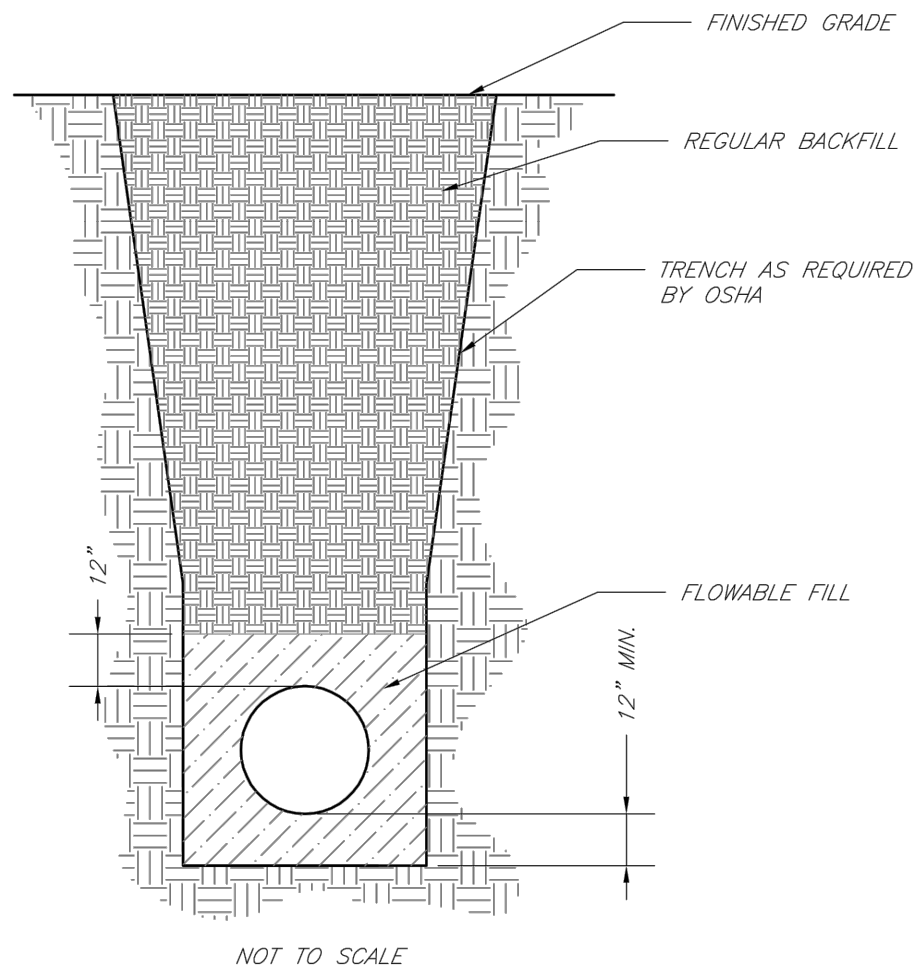
LS	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	Date: 02/13
		Drawn By: JN
		Checked By: DL
		FILE: WAT-7
HYDRANT INSTALLATION -- STRAIGHT SET		Rev: 1/14
		Rev:



NOTE:

THIS DETAIL NOT TO BE USED FOR PIPE GREATER THAN 12"

LS	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	Date: 02/13
		Drawn By: JN
		Checked By: DL
		FILE: WAT-3
STRADDLE BLOCK		Rev: 1/14
		Rev:



NOTES:

1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.
4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12".

LS	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	Date: 02/13
		Drawn By: JN
		Checked By: DL
		FILE: WAT-6
TRENCH CHECK		Rev: 1/14
		Rev:

NOTE:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE MOST CURRENT VERSION OF LEE'S SUMMIT'S "DESIGN AND CONSTRUCTION MANUAL".
2. SEE LEE'S SUMMIT'S "DESIGN AND CONSTRUCTION MANUAL" FOR LIST OF APPROVED VENDORS

olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #205002055
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

RECORD DRAWING



"NOT AS BUILT"

REV. NO.		DATE	REVISIONS DESCRIPTION
5		08/19/2019	ENGR. REVIEW COMMENTS
3		07/19/2019	ENGR. REVIEW COMMENTS

PUBLIC WATER MAIN EXTENSION WATER SYSTEM DETAILS		2019
THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY		
LEE'S SUMMIT, MISSOURI		

drawn by: TMH
designed by: FJS
checked by: JLR
project no.: 018-1450
drawing no.: C_DTLS_81450
date: 08.15.19

SHEET
W3.0



1. INTERMEDIATE BELLS SHALL BE ENCASED.
2. REINFORCING STEEL SHALL BE #4 @ 12" O.C. EACH WAY WITH A MINIMUM REBAR LAP OF 12"
3. THIS DETAIL IS FOR PIPES 12" AND SMALLER.
4. FOR CONTINUITY CONTINUE TAPPING TRACE WIRE TO DUCTILE IRON PIPE THROUGH CONCRETE ENCASEMENT ZONE.



1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIVE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS FIRE HYDRANT SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.



VALVES ON 12" AND 20" LINES SHALL BE BUTTERFLY VALVES AND INSTALLED SIMILARLY BUT WILL HAVE OPERATING ACTUATOR AND NUT HORIZONTAL. SEE LEE'S SUMMIT'S "DESIGN AND CONSTRUCTION MANUAL"

FOR VALVES 10" OR SMALLER

	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063		Date: 02/13 Drawn By: JN Checked By: DL File: WAT-09
	VALVE STEM EXTENSION AND VALVE BOX		Rev: 1/14 Rev:



TO SCALE



NOTES:

1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
3. CITY TO FURNISH ITEMS A-K.
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
9. LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
10. CONTACT WATER UTILITIES, 816-969-1900, FOR REQUIREMENTS OF A METER LARGER THAN 2"



NOTES:

1. A MINIMUM OF 42 INCHES OF COVER SHALL BE OVER THE TOP OF THE PIPE. THIS MINIMUM OF COVER SHALL BE FROM THE TOP OF PIPE TO THE FINISHED GRADE. A MAXIMUM ALLOWED COVER SHALL BE 7'.
2. BEDDING AGGREGATE SHALL BE PLACES FROM A LEVEL 6 INCHES BELOW THE BOTTOM OF THE PIPE TO A LEVEL 6 INCHES ABOVE THE TOP OF THE PIPE.
3. TRENCH BACKFILL IN PAVED AREAS WITHIN STREET OR ALLEY RIGHT OF WAYS
- a. NARROW TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES 24 INCHES OR LESS IN WIDTH AND SHALL BE TYPE A FLOWABLE FILL.
- b. STANDARD TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES BETWEEN 24 TO 48 INCHES WIDE SHALL BE EITHER TYPE A FLOWABLE FILL OR DENSE, WELL GRADED AGGREGATE BASE MATERIAL. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS FOR KDOT AB-3; MODOT TYPES 1 OR 5; OR APWA 2202.2.
- c. WIDE TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES BETWEEN GREATER THAN 48 INCHES WIDE SHALL BE SUITABLE MATERIAL AS SPECIFIED FOR EARTH EMBANKMENT IN APWA STANDARD SPECIFICATIONS, SECTION 2102.2.C.
4. SUITABLE BACKFILL MATERIAL OUTSIDE OF PAVED AREAS WITHIN RIGHT OF WAY, AND ALL AREAS OUTSIDE RIGHT OF WAY, MAY BE SUITABLE MATERIAL AS SPECIFIED FOR EARTH EMBANKMENT IN APWA STANDARD SPECIFICATIONS, SECTION 2102.2.C. SUITABLE BACKFILL MATERIAL MAY ALSO BE OTHER TRENCH BACKFILL MATERIAL (FLOWABLE FILL OR AGGREGATE BASE) DEPENDING ON SITE CONDITIONS, TRENCH WIDTHS OR AT THE DIRECTION OF THE CITY'S ON SITE INSPECTOR.

	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION 220 SE GREEN STREET LEE'S SUMMIT, MO 64063		Date: 02/13 Drawn By: JN Checked By: DL FILE: WAT-11
	SERVICE CONNECTION/METER WELL		Rev: 1/14 Rev:

olsson Olsson Engineering MO State Certificate of Authority #401592 Olsson Landscape Architecture MO State Cert. of Authority #2005000285 550 S. Louis St. Springfield, MO 65806 TEL 417.890.8802 www.olsson.com																															
RECORD DRAWING STATE OF MISSOURI FRED J. SCHLEGGEL REGISTERED PROFESSIONAL ENGINEER PE-2005022332 08/15/19 "NOT AS BUILT"																															
<table><thead><tr><th>REV. NO.</th><th>DATE</th><th>REVISIONS DESCRIPTION</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>5</td><td>08/15/2019</td><td>ENGR. REVIEW COMMENTS</td></tr><tr><td>3</td><td>07/19/2019</td><td>ENGR. REVIEW COMMENTS</td></tr><tr><td colspan="2"></td><td>REVISIONS</td></tr></tbody></table>		REV. NO.	DATE	REVISIONS DESCRIPTION																			5	08/15/2019	ENGR. REVIEW COMMENTS	3	07/19/2019	ENGR. REVIEW COMMENTS			REVISIONS
REV. NO.	DATE	REVISIONS DESCRIPTION																													
5	08/15/2019	ENGR. REVIEW COMMENTS																													
3	07/19/2019	ENGR. REVIEW COMMENTS																													
		REVISIONS																													
<table><thead><tr><th>PUBLIC WATER MAIN EXTENSION WATER SYSTEM DETAILS</th><th>2019</th></tr></thead><tbody><tr><td>THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY</td><td></td></tr><tr><td>LEE'S SUMMIT, MISSOURI</td><td></td></tr></tbody></table>		PUBLIC WATER MAIN EXTENSION WATER SYSTEM DETAILS	2019	THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY		LEE'S SUMMIT, MISSOURI																									
PUBLIC WATER MAIN EXTENSION WATER SYSTEM DETAILS	2019																														
THE PRINCETON SENIOR LIVING SE OLDHAM PARKWAY																															
LEE'S SUMMIT, MISSOURI																															
<table><tbody><tr><td>drawn by: _____</td><td>TMH</td></tr><tr><td>designed by: _____</td><td>FJS</td></tr><tr><td>checked by: _____</td><td>JLR</td></tr><tr><td>project no.: _____</td><td>018-1450</td></tr><tr><td>drawing no.: _____</td><td>C. DTLS. 81450</td></tr><tr><td>date: _____</td><td>00.00.00</td></tr></tbody></table>		drawn by: _____	TMH	designed by: _____	FJS	checked by: _____	JLR	project no.: _____	018-1450	drawing no.: _____	C. DTLS. 81450	date: _____	00.00.00																		
drawn by: _____	TMH																														
designed by: _____	FJS																														
checked by: _____	JLR																														
project no.: _____	018-1450																														
drawing no.: _____	C. DTLS. 81450																														
date: _____	00.00.00																														
SHEET W3.1																															