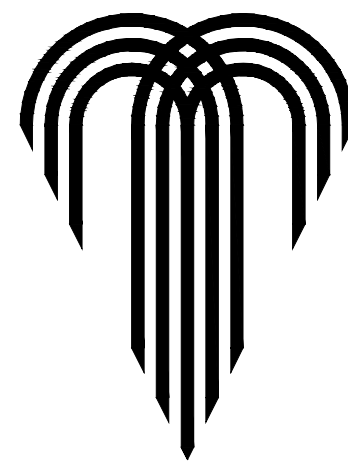


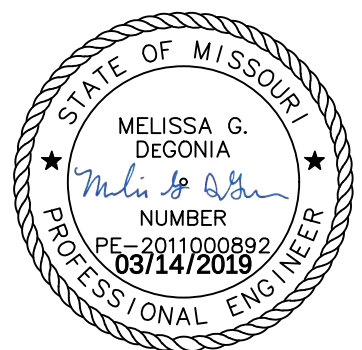
WATER MAIN EXTENSION

FOR HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, JACKSON, MO



OLSSON ASSOCIATES
Olsson Associates - Civil Engineering
Professional Engineer
North Kansas City, MO 64116
TEL 816.587.4320
FAX 816.587.1393
www.olssonassociates.com

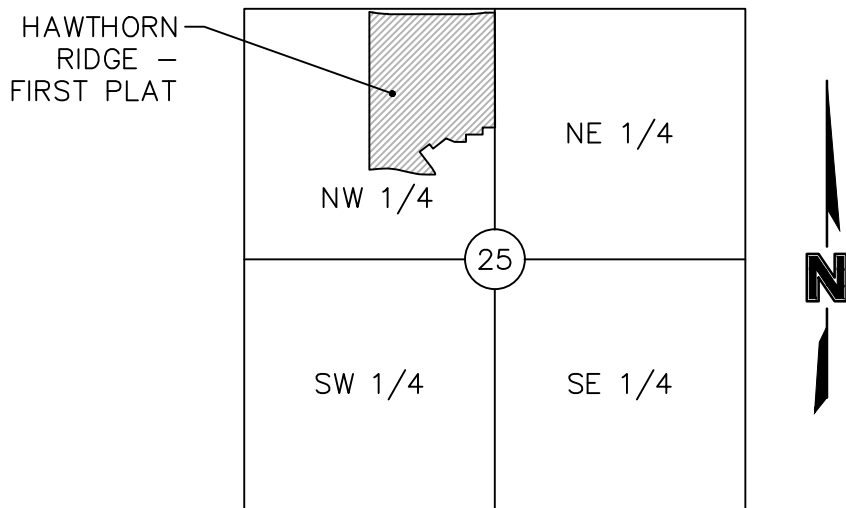
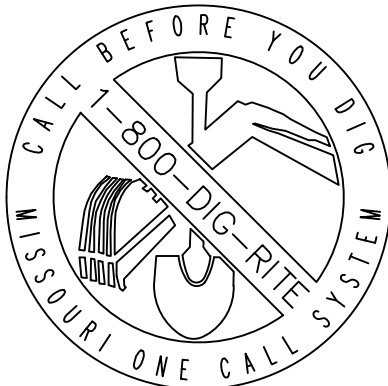


NO.	REV.	DATE	BY	REVISIONS DESCRIPTION
1		04.12.2017	MGD	Revised per city comments
2		11.20.2017	MGD	Revised per city comments
3		01.08.2018	MGD	Prepared for bid
		06.27.2018		Water main 6 and Temp Hydrant revised
		03.04.2019		As-built Submittal

1 COVER SHEET WATER MAIN EXTENSION HAWTHORN RIDGE 1ST PLAT LEE'S SUMMIT, MO	2018

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: P.M.D.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
1



LOCATION MAP

Sec. 25, Twp. 47 N., Rge. 32 W.
(N.T.S.)

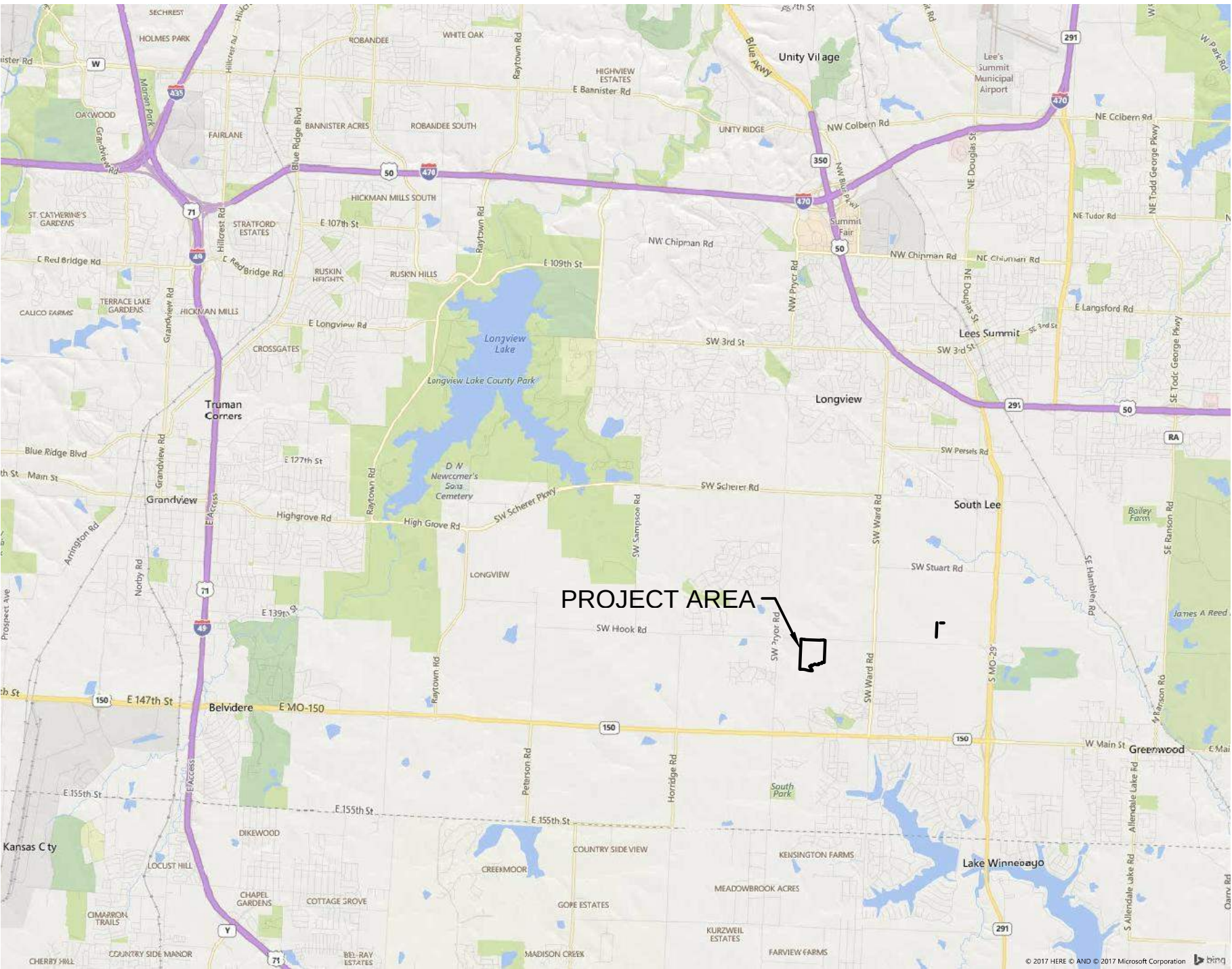
- ☐ NOT FOR CONSTRUCTION
- ☒ REVIEWED FOR CONSTRUCTION

DEVELOPMENT TEAM CONTACT INFORMATION

CIVIL ENGINEER		
	MELISSA G DEGONIA, P.E. OLSSON ASSOCIATES	1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 TEL: 816.587.4320 FAX: 816.587.1393 MDEGONIA@OLSSONASSOCIATES.COM
OWNER/DEVELOPER		
	DAVID PRICE CMH PARKS, INC. D/B/A SUMMIT CUSTOM HOMES	120 SE 30TH ST LEE'S SUMMIT, MO 64082 TEL: 816.246.6700 DAVID@SUMMITCUSTOMHOMESKC.COM

UTILITY SERVICE NUMBERS

LEE'S SUMMIT PUBLIC WORKS	816-969-1800
LEE'S SUMMIT WATER & SEWER DEPARTMENT	816-696-1940
MISSOURI GAS ENERGY	816-756-5252
AT&T	800-286-8313
KCP&L	816-471-5275
TIME WARNER CABLE	816-358-5360
GOOGLE FIBER	877-454-6959



INDEX OF SHEETS	
COVER SHEET	1
GENERAL LAYOUT	2
WATER MAIN PLAN & PROFILE	3
WATER MAIN PLAN & PROFILE	4
WATER MAIN PLAN & PROFILE	5
WATER MAIN PLAN & PROFILE	6
WATER MAIN PLAN & PROFILE	7
WATER MAIN PLAN & PROFILE	8
WATER MAIN PLAN & PROFILE	9
WATER DETAILS	11

ACCEPTED:

Melissa G. DeGonia

Melissa G DeGonia, P.E.
Civil Engineer
MO# 2011000892
1301 Burlington, Suite 100
North Kansas City, MO 64116
Phone: 816.587.4320
Fax: 816.587.1393

03/14/2019
Date

REVIEW BY:

City of Lee's Summit, Missouri

Date

AS BUILT

DATE: 12/11/2018

PROPERTY DESCRIPTION:

A tract of land in the Northwest Quarter of Section 25, Township 47 North, Range 32 West of the 5th Principal Meridian in Lee's Summit, Jackson County, Missouri being bounded and described as follows: Commencing at the center of said Section 25; thence North 02°18'36" East, along the West line of said Northwest Quarter, 1,392.58 feet to the Point of Beginning of the tract of land to be herein described; thence North 87°41'24" West, 130.00 feet; thence South 02°18'36" West, 72.00 feet; thence North 87°41'24" West, 175.00 feet; thence South 02°18'36" West, 78.00 feet; thence North 87°41'24" West, 121.73 feet; thence North 65°30'07" West, 95.33 feet; thence South 54°57'38" West, 175.90 feet; thence North 35°02'22" West, 58.00 feet; thence South 54°57'38" West, 130.00 feet; thence South 35°02'22" East, 216.00 feet; thence South 26°05'21" East, 59.04 feet; thence South 11°06'36" East, 18.27 feet; thence North 87°41'24" West, 95.00 feet; thence North 85°13'24" West, 75.61 feet; thence North 77°26'18" West, 74.74 feet; thence North 73°51'15" West, 80.00 feet; thence North 75°24'39" West, 87.64 feet; thence North 81°26'34" West, 91.19 feet; thence North 87°51'30" West, 91.19 feet; thence South 86°06'14" West, 105.62 feet to a point on the West line of the East half said Northwest Quarter; thence North 02°27'15" East, along said West line, 1,661.30 feet to a point on the South right-of-way line of SW Hook Road, as now established; thence Easterly along said South right-of-way line, a along a curve to the right, having an initial tangent bearing of South 80°28'37" East with a radius of 470.00 feet, a central angle of 04°08'23" and an arc distance of 33.96 feet; thence Easterly, continuing along said South right-of-way line, along a curve to the left, having a common tangent with the last described course with a radius of 830.00 feet, a central angle of 11°15'17" and an arc distance of 163.04 feet; thence South 87°35'31" East, continuing along said South right-of-way line, 873.16 feet; thence Easterly continuing along said South right-of-way line, along a curve to the left having an initial tangent bearing of South 87°35'30" East, with a radius of 830.00 feet, a central angle of 10°48'20" and an arc distance of 156.53 feet; thence South 87°45'42" East, continuing along said South right-of-way line, 95.80 feet to a point on said East line; thence South 02°18'36" West, along said East line, 1,210.33 feet to the Point of Beginning. Containing 1,939,986 square feet or 44.54 acres, more or less.

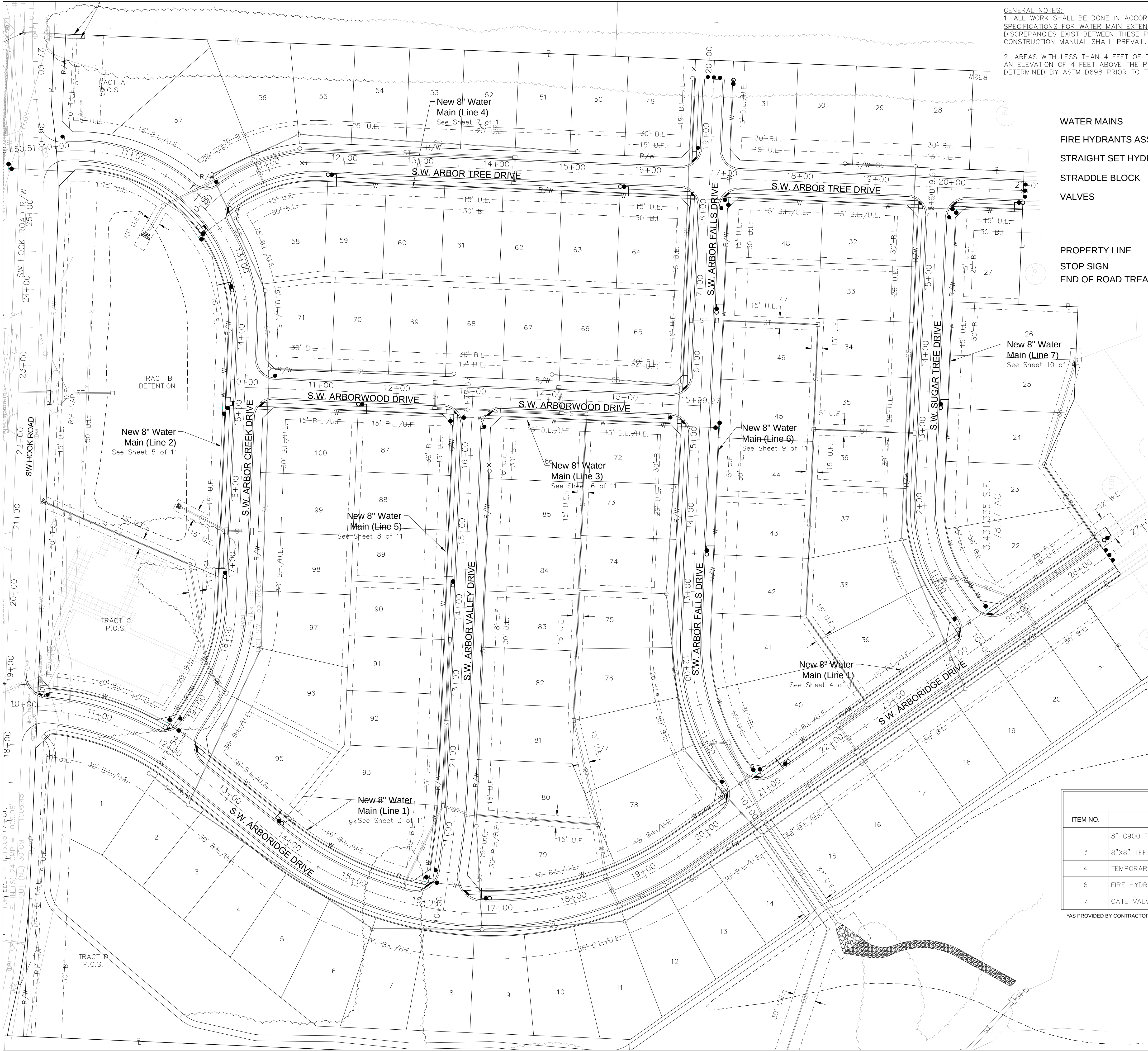
BENCHMARK

RR SPIKE IN SOUTH FACE OF POWER POLE ON NORTH SIDE OF SE. HOOK ROAD, IMMEDIATELY WEST OF DRIVEWAY FOR HOUSE#1662. ELEVATION= 1024.63' NAVD 1988 DATUM

USER: dherandez

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILT\GEN02_017-0188.dwg

DATE: Feb 19, 2019 6:37pm



GENERAL NOTES:
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS OF THE LEE'S SUMMIT, MISSOURI WATER SERVICES DEPARTMENT. 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 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.

LEGEND
NEW
WATER MAINS
FIRE HYDRANTS ASSEMBLY
STRAIGHT SET HYDRANT ASSEMBLY
STRADDLE BLOCK
VALVES
OTHERS
EXISTING
PROPERTY LINE
STOP SIGN
END OF ROAD TREATMENT

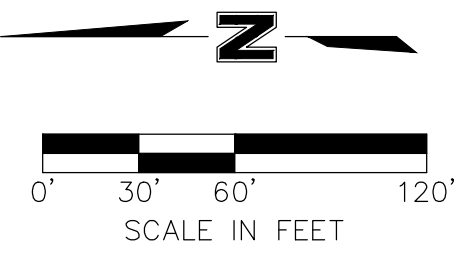
SEE SHEET 10 FOR OFFSITE WATER MAIN EXTENSION

AS BUILT
DATE: 12/11/2018

CONTROL POINT TABLE				
Point Number	Northing	Easting	Point Elevation	Raw Description
800	983674.9350'	2813892.5500'	1016.38'	CP 800
801	983630.4880'	2815280.9210'	1019.74'	CP 801
802	981004.3220'	2812429.0660'	994.50'	CP 802
803	980493.4250'	2815984.1140'	1024.20'	CP 803
902	983638.8300'	2814391.8860'	1021.01'	CP 902

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
1	8" C900 PLASTIC PIPE	L.F.	6581	*6581
3	8"x8" TEE	EA.	10	10
4	TEMPORARY HYDRANT ASSEMBLY	EA.	1	1
6	FIRE HYDRANT ASSEMBLY	EA.	15	15
7	GATE VALVES	E.A.	21	21

*AS PROVIDED BY CONTRACTOR



OLSSON ASSOCIATES
Olsson Associates - Civil Engineering
1301 E. 12th Street, Suite 100
North Kansas City, MO 64116
TEL 816.897.4320
FAX 816.897.1393
www.olssonassociates.com

NO.	REV.	DATE	REVISIONS DESCRIPTION	BY
1	04.19.2017	Revised per city comments	MGD	
2	11.20.2017	Quantities Revised	MGD	
3	08.27.2018	Quantities Revised		

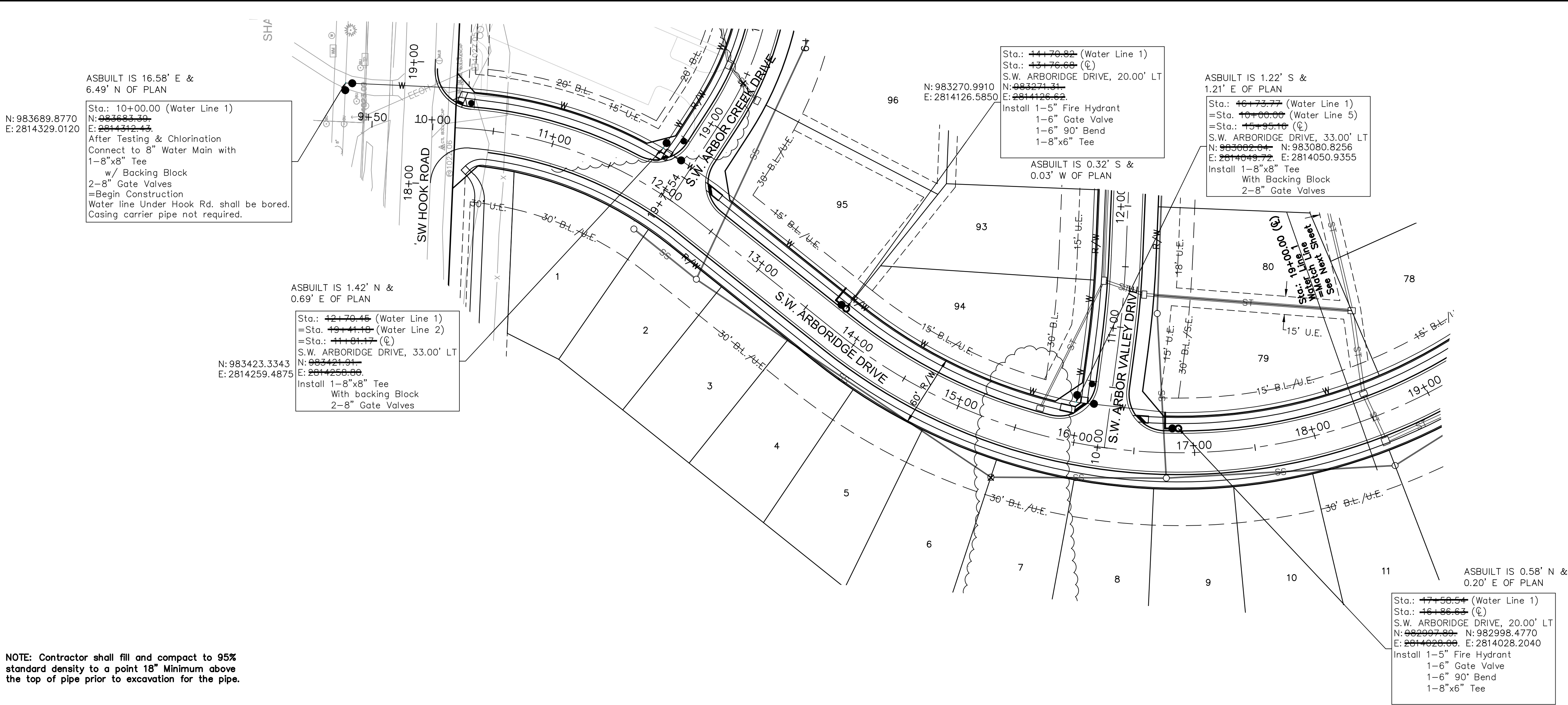
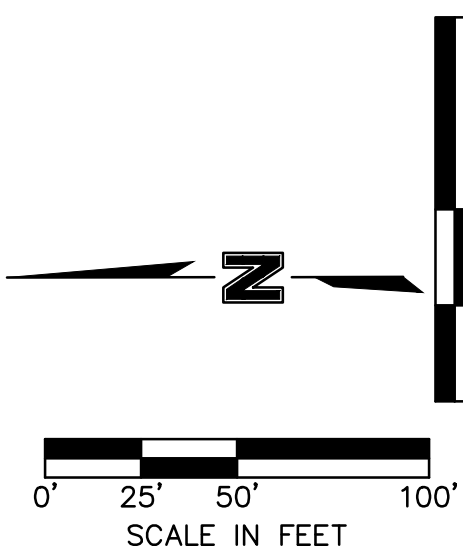
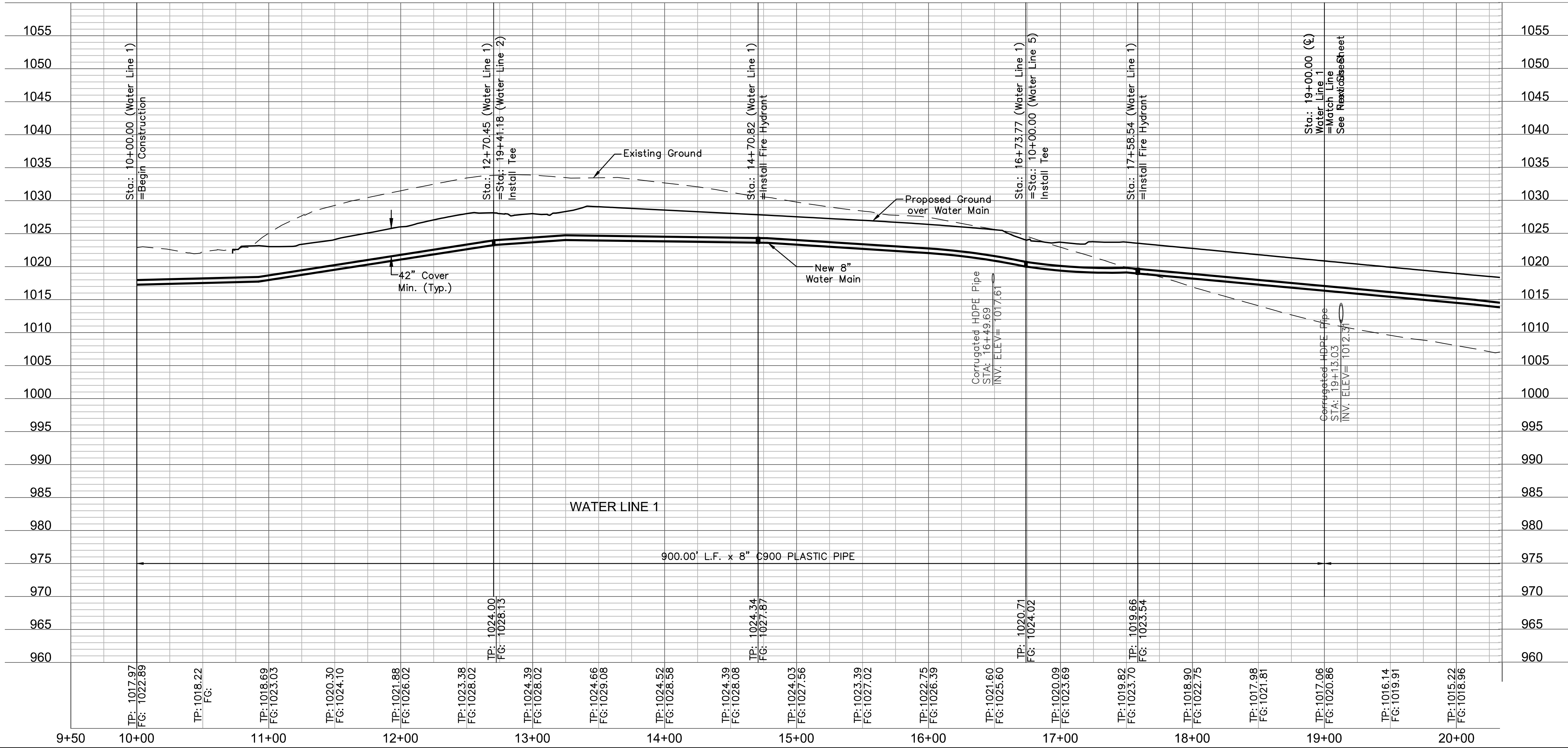
2 GENERAL LAYOUT	2018
------------------	------

drawn by: D.A.H.O.	checked by: M.G.D.
designed by: P.M.D.	QA/QC by: K.S.J.
project no.: 017-0188	date: 03.03.2017

LEE'S SUMMIT, MO	HAWTHORN RIDGE 1ST PLAT
------------------	----------------------------

SHEET 2

NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018

OLSSON[®]
ASSOCIATES

Olsson Associates - Civil Engineering
130 S. Republic Avenue, Suite 100
North Kansas City, MO 64116
TEL 816.897.4320
FAX 816.897.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
NUMBER 0314/00682
03/14/2018

BY: MGD

REVISIONS DESCRIPTION

NO. REV. DATE

1 04.12.2017 Grading Note Added

REVISIONS

2018

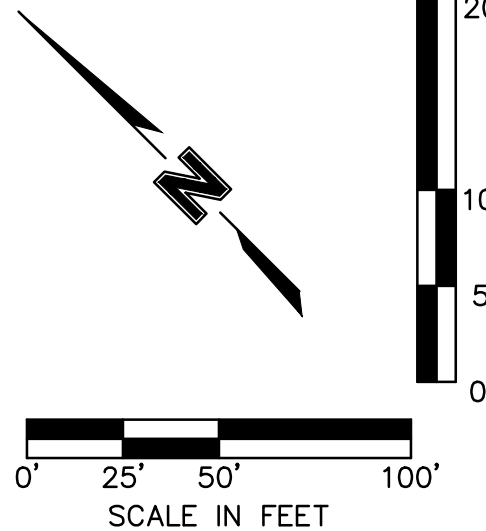
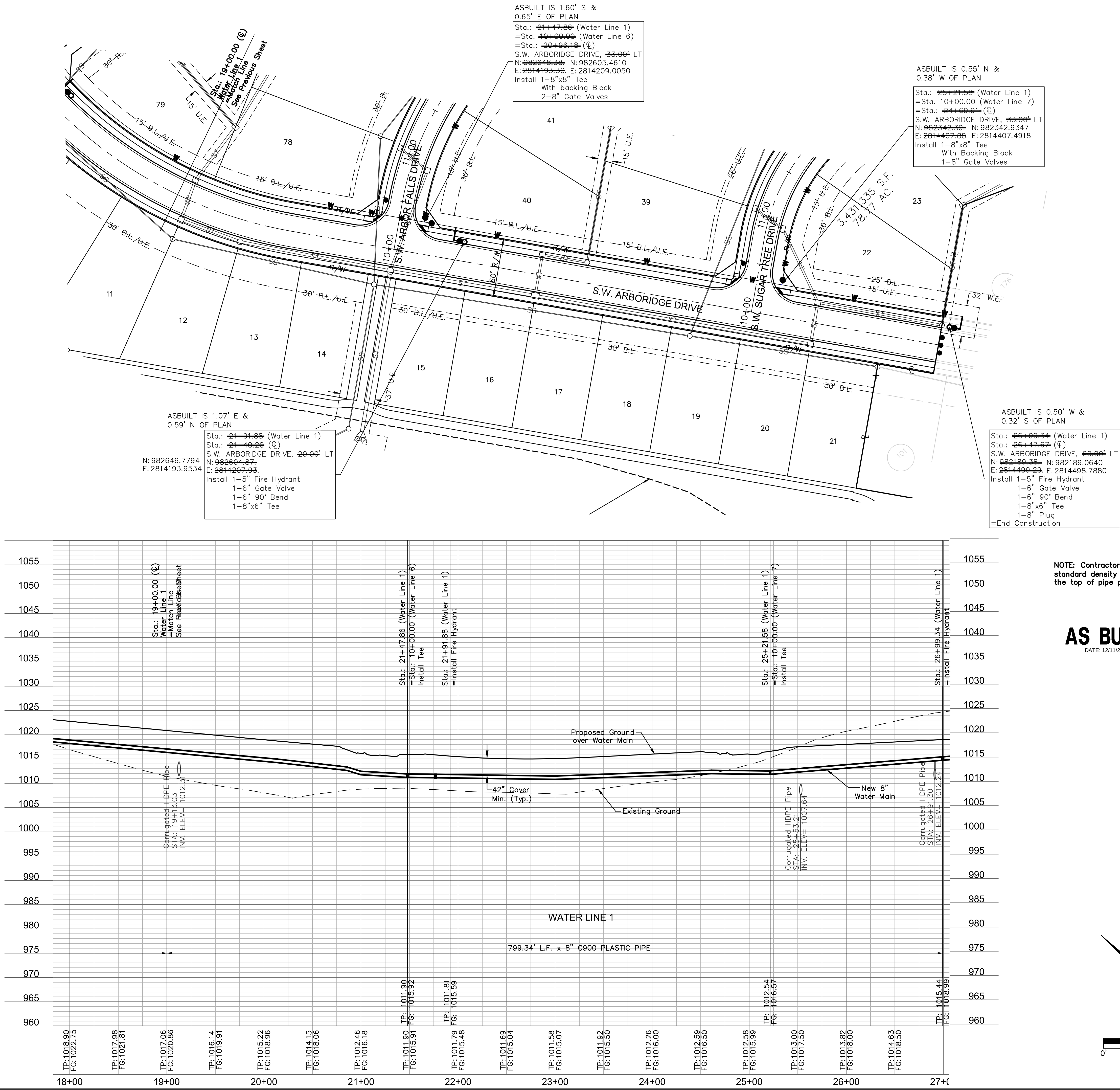
3 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.Q.
checked by: M.G.D.
designed by: P.M.L.B.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
3



OLSSON ASSOCIATES

Olsson Associates - Civil Engineering
1300 S. Highway 100, Suite 100
North Kansas City, MO 64116
TEL 816.897.4320
FAX 816.897.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
No. 001700682
Exp. 03/14/2018

REVISIONS

NO.	REV.	DATE	DESCRIPTION
1		04.12.2017	Fire Hydrant Revisions and grading notes added.

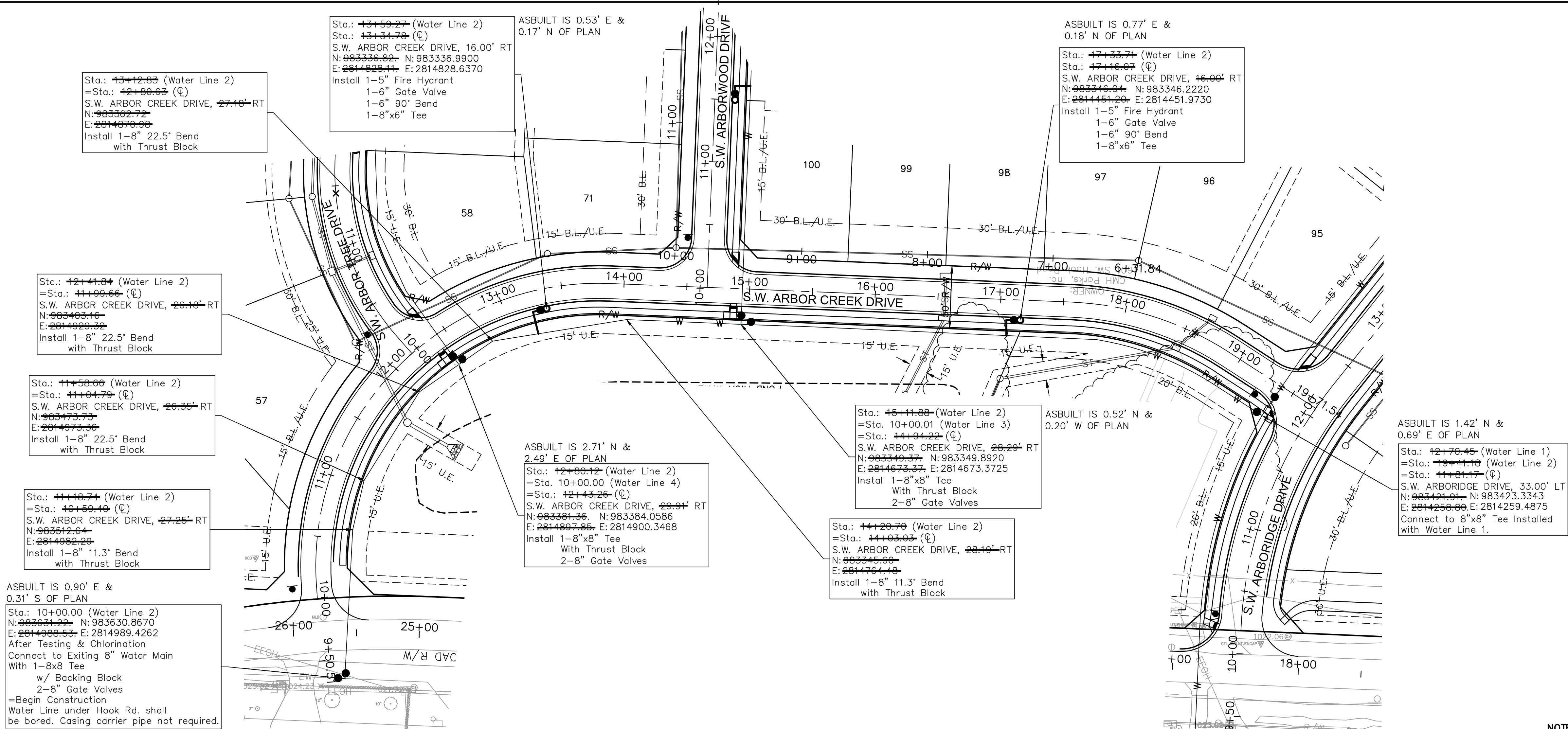
4 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

drawn by: DAH.O
checked by: M.G.D.
designed by: P.M.D.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
4



ASBUILT IS 0.90' E &
0.31' S OF PLAN
Sta.: 10+00.00 (Water Line 2)
N: 983630.8670 E: 2814989.4262
After Testing & Chlorination
Connect to Exiting 8" Water Main
With 1-8x8 Tee
w/ Backing Block
2-8" Gate Valves
=Begin Construction
Water Line under Hook Rd. shall
be bored. Casing carrier pipe not required.

Sta.: 11+18.74 (Water Line 2)
=Sta.: 11+18.74 (E)
S.W. ARBOR CREEK DRIVE, 27.25' RT
N: 983512.61 E: 2814982.20
Install 1-8" 22.5' Bend
with Thrust Block

Sta.: 12+41.84 (Water Line 2)
=Sta.: 12+41.84 (E)
S.W. ARBOR CREEK DRIVE, 26.18' RT
N: 983483.16 E: 2814920.32
Install 1-8" 22.5' Bend
with Thrust Block

Sta.: 13+59.27 (Water Line 2)
=Sta.: 13+59.27 (E)
S.W. ARBOR CREEK DRIVE, 27.18' RT
N: 983336.99 E: 2814828.11
Install 1-5" Fire Hydrant
1-6" Gate Valve
1-6" 90° Bend
1-8"x6" Tee

ASBUILT IS 2.71' N &
2.49' E OF PLAN
Sta.: 12+41.84 (Water Line 2)
=Sta.: 10+00.00 (Water Line 4)
=Sta.: 12+41.84 (E)
S.W. ARBOR CREEK DRIVE, 29.34' RT
N: 983384.0586 E: 2814900.3468
Install 1-8"x8" Tee
With Thrust Block
2-8" Gate Valves

Sta.: 14+18.74 (Water Line 2)
=Sta.: 14+18.74 (E)
S.W. ARBOR CREEK DRIVE, 28.18' RT
N: 983336.99 E: 2814828.11
Install 1-8"x8" Tee
With Thrust Block
2-8" Gate Valves

Sta.: 15+11.88 (Water Line 2)
=Sta.: 10+00.01 (Water Line 3)
=Sta.: 15+11.88 (E)
S.W. ARBOR CREEK DRIVE, 28.20' RT
N: 983349.8920 E: 2814673.3725
Install 1-8"x8" Tee
With Thrust Block
2-8" Gate Valves

ASBUILT IS 0.52' N &
0.20' W OF PLAN

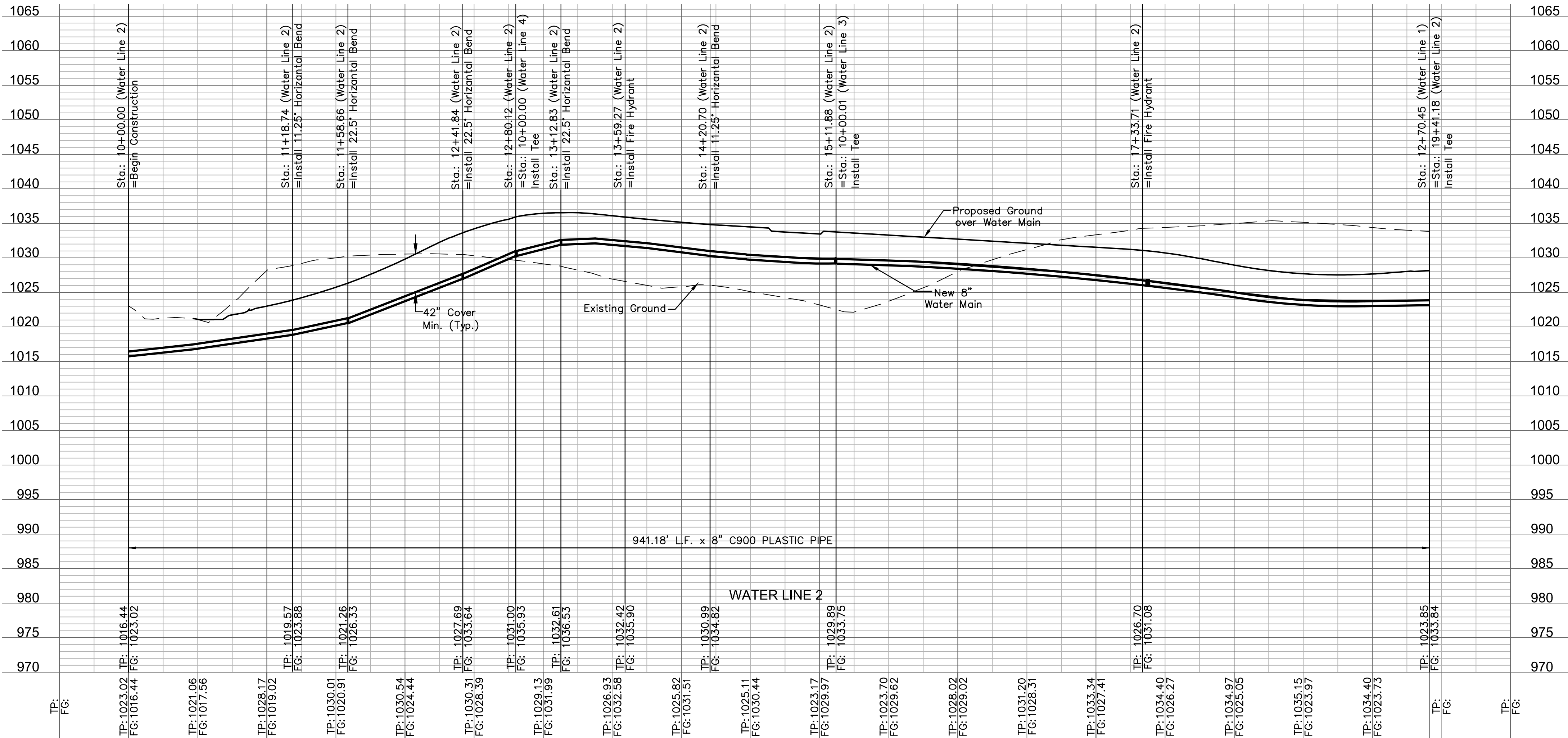
Sta.: 17+33.71 (Water Line 2)
=Sta.: 17+33.71 (E)
S.W. ARBOR CREEK DRIVE, 46.00' RT
N: 983349.8920 E: 2814673.3725
Install 1-5" Fire Hydrant
1-6" Gate Valve
1-6" 90° Bend
1-8"x6" Tee

ASBUILT IS 0.77' E &
0.18' N OF PLAN

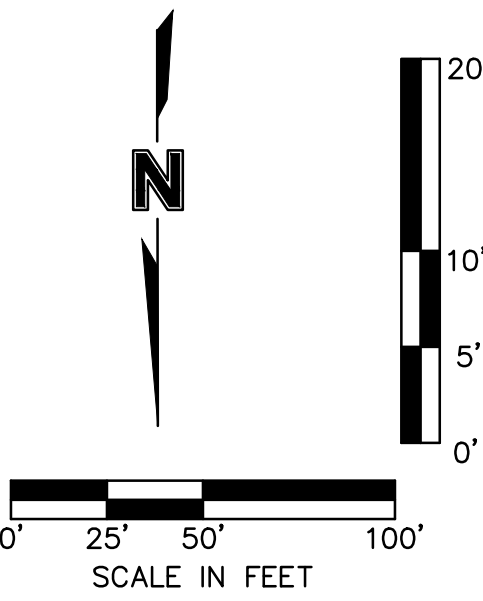
Sta.: 18+00.00 (Water Line 1)
=Sta.: 18+00.00 (E)
S.W. ARBOR CREEK DRIVE, 33.00' LT
N: 983423.3343 E: 2814259.4875
Connect to 8"x8" Tee Installed
with Water Line 1.

ASBUILT IS 1.42' N &
0.69' E OF PLAN

NOTE: Contractor shall fill and compact to 95%
standard density to a point 18" Minimum above
the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018



OLSSON ASSOCIATES

Olsson Associates - Civil Engineering
330 S. Main Street, Suite 200
North Kansas City, MO 64116
TEL 816.597.4320
FAX 816.597.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
NUMBER
03142018

BY: MGD
REVISIONS DESCRIPTION
1. Tee's Revised and Grading note Added
DATE: 04.12.2017

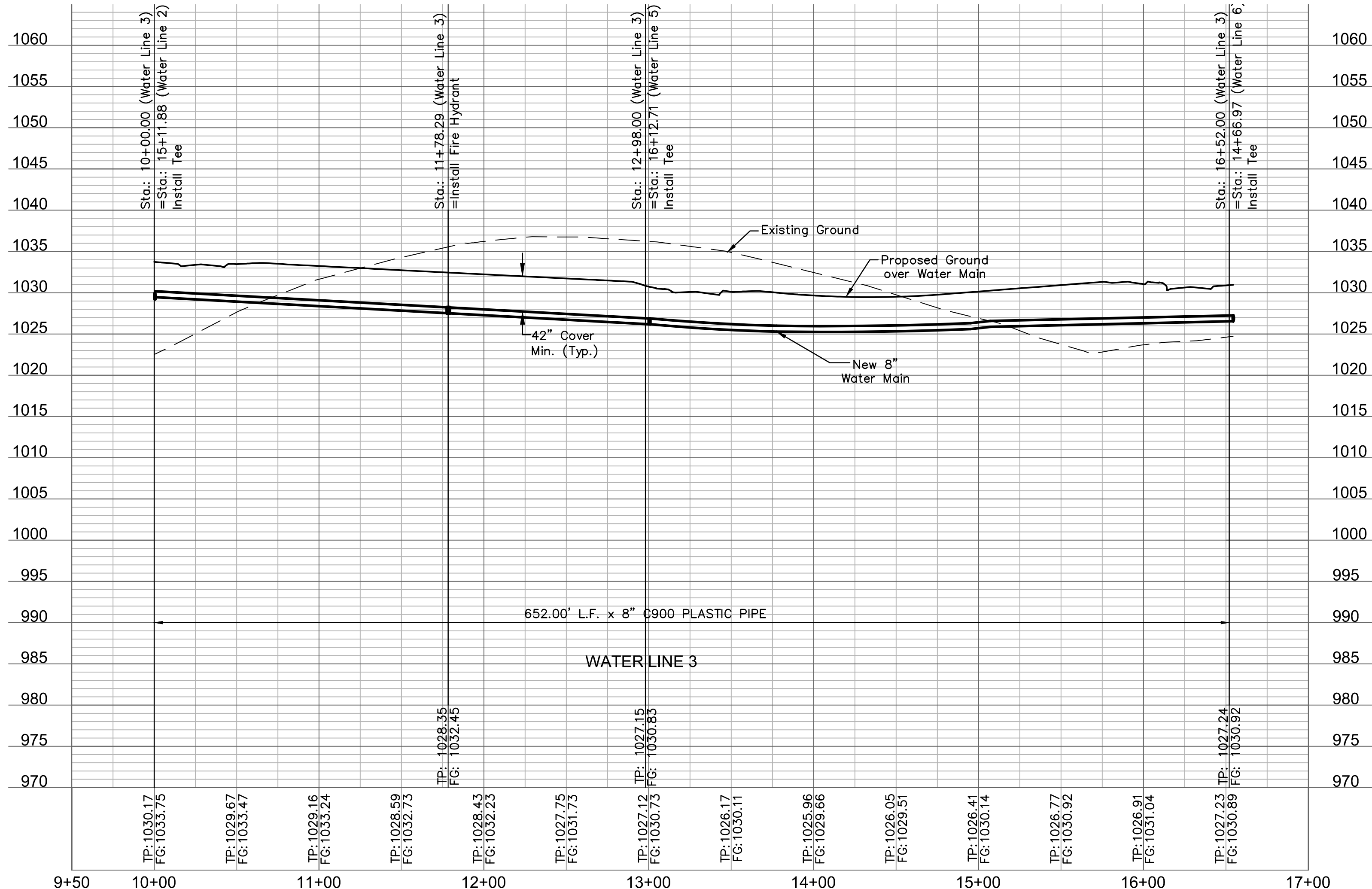
2018

5 WATER MAIN PLAN & PROFILE
HAWTHORN RIDGE
1ST PLAT
LEE'S SUMMIT, MO

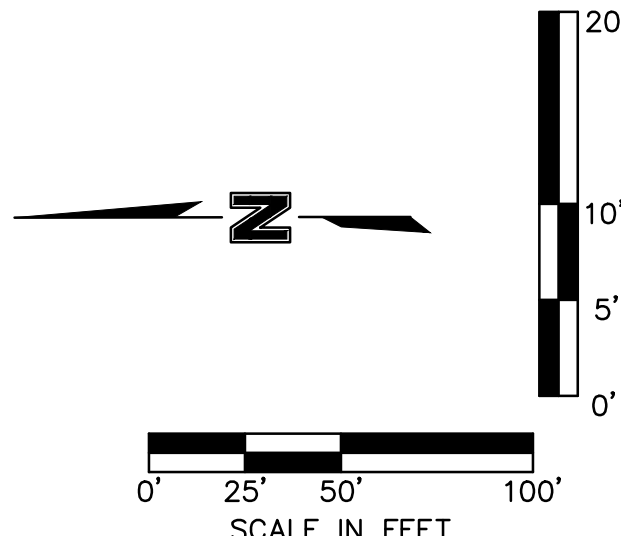
drawn by: DAH.O
checked by: M.G.D.
designed by: P.M.B.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
5

NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.

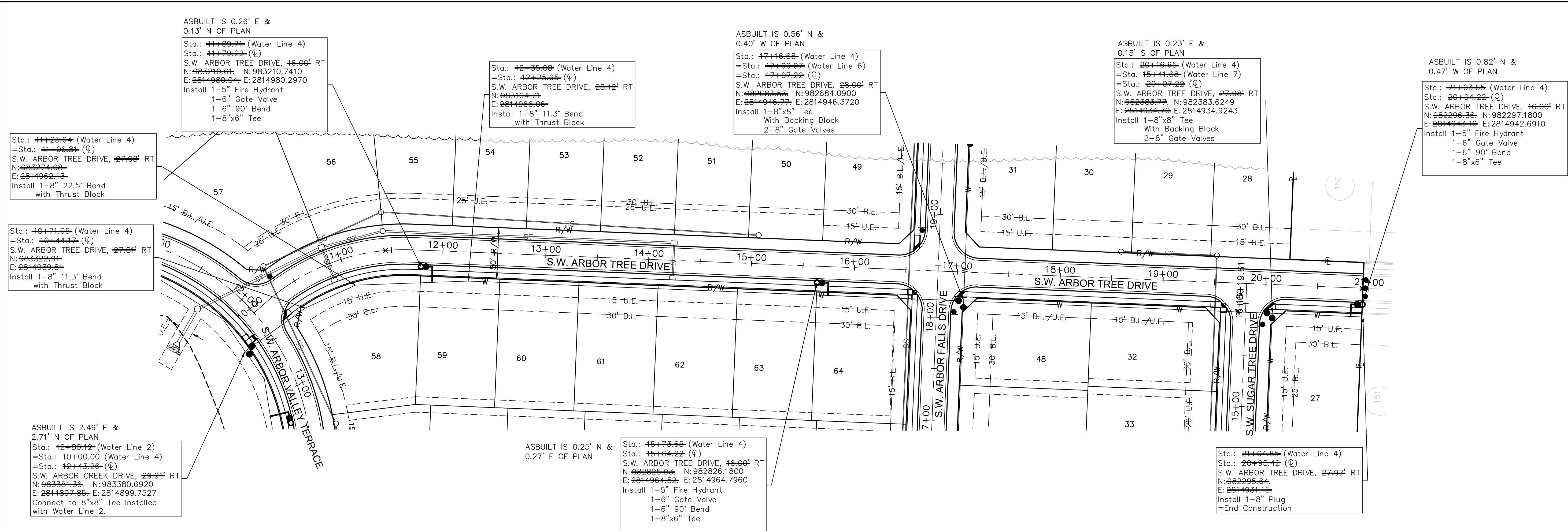


DATE: 12/11/2018

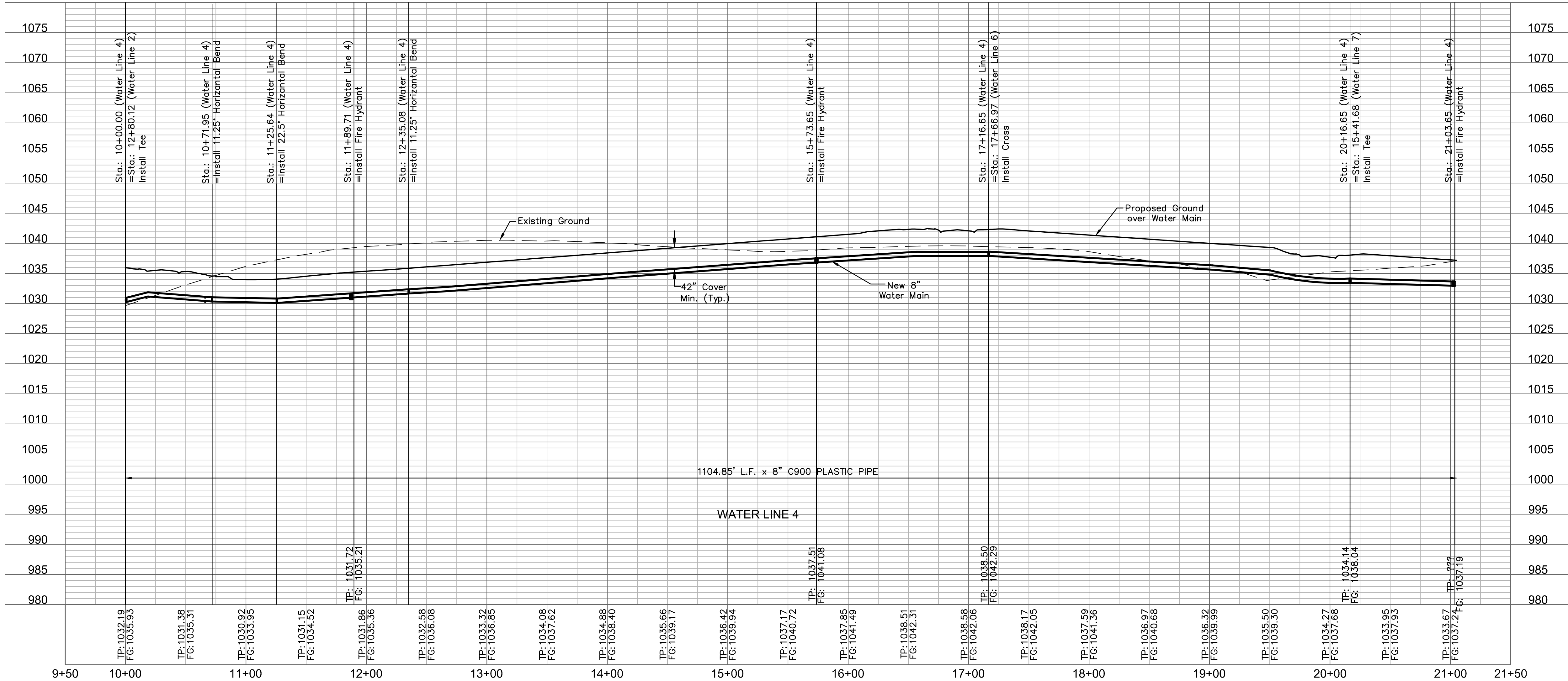
[illegible]

DEVISIONS

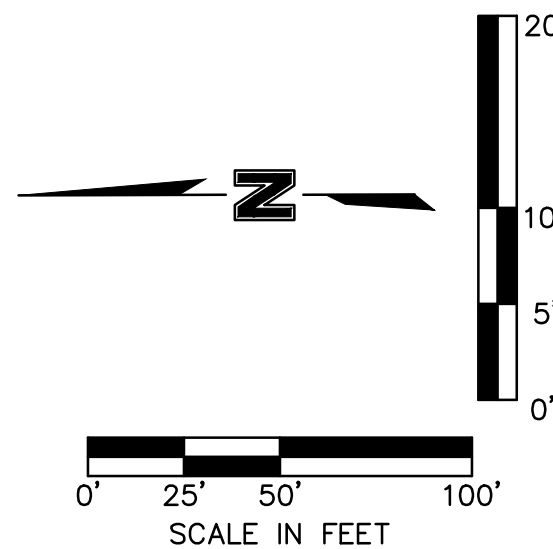




NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018



OLSSON ASSOCIATES

Olsson Associates - Civil Engineering
1300 E. 12th Avenue, Suite 100
North Kansas City, MO 64116
TEL 816.597.4320
FAX 816.597.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
NUMBER
0301000892
03/04/2018

BY: MGD
NO. REV. 1
DATE 04.19.2017
REVISIONS DESCRIPTION
Grading note added and and benies added

7 WATER MAIN PLAN & PROFILE
HAWTHORN RIDGE
1ST PLAT
2018
LEE'S SUMMIT, MO

drawn by: DAH.O
checked by: M.G.D.
designed by: P.M.L.B.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
7

ASBUILT IS 1.22' S &
1.21' E OF PLAN

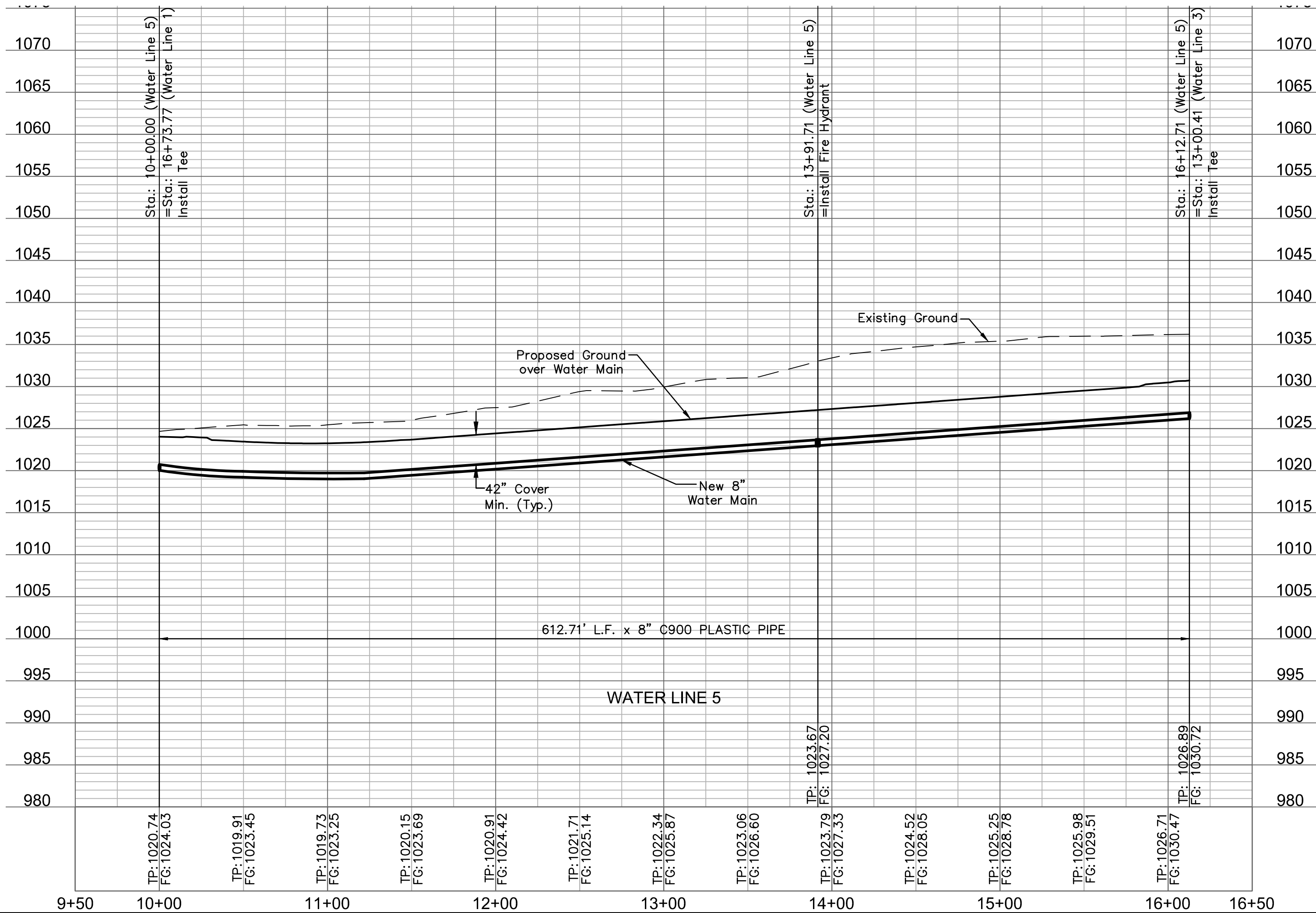
Sta.: ~~16+73.77~~ (Water Line 1)
=Sta.: ~~16+00.00~~ (Water Line 5)
=Sta.: ~~16+00.00~~ (C)
S.W. ARBORIDGE DRIVE, 33.00' LT
N: 983082.04, N: 983080.8256
E: 2814040.72 E: 2814050.9355
Connect to 8"x8" Tee Installed
with Water Line 1.

ASBUILT IS 1.14' W &
0.04' N OF PLAN

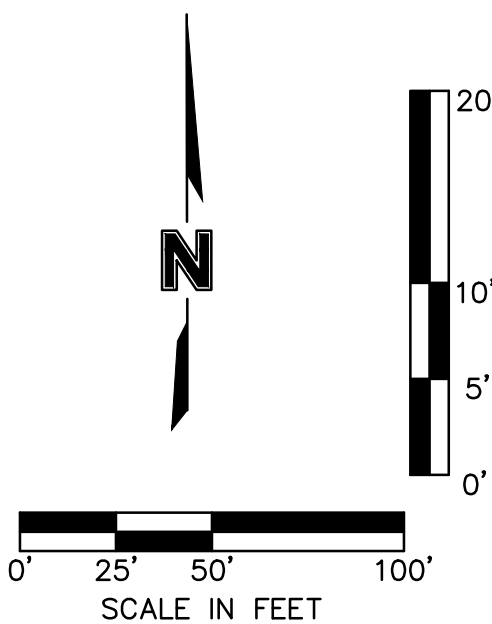
Sta.: ~~13+01.71~~ (Water Line 5)
Sta.: ~~13+28.37~~ (C)
S.W. ARBOR VALLEY DRIVE, 46.00' LT
N: 983046.25, N: 983046.2870
E: 2814430.00 E: 2814438.8420
Install 1-5" Fire Hydrant
1-6" Gate Valve
1-6" 90° Bend
1-8"x6" Tee

ASBUILT IS 0.16' S &
0.12' W OF PLAN

Sta.: ~~13+00.41~~ (Water Line 3)
=Sta.: ~~16+12.71~~ (Water Line 5)
=Sta.: ~~16+12.71~~ (C)
S.W. ARBORWOOD DRIVE, 28.00' RT
N: 983049.37, N: 983049.1728
E: 2814661.28 E: 2814661.1523
Connect to 8"x8" Tee Installed
with Water Line 3.



AS BUILT
DATE: 12/11/2018

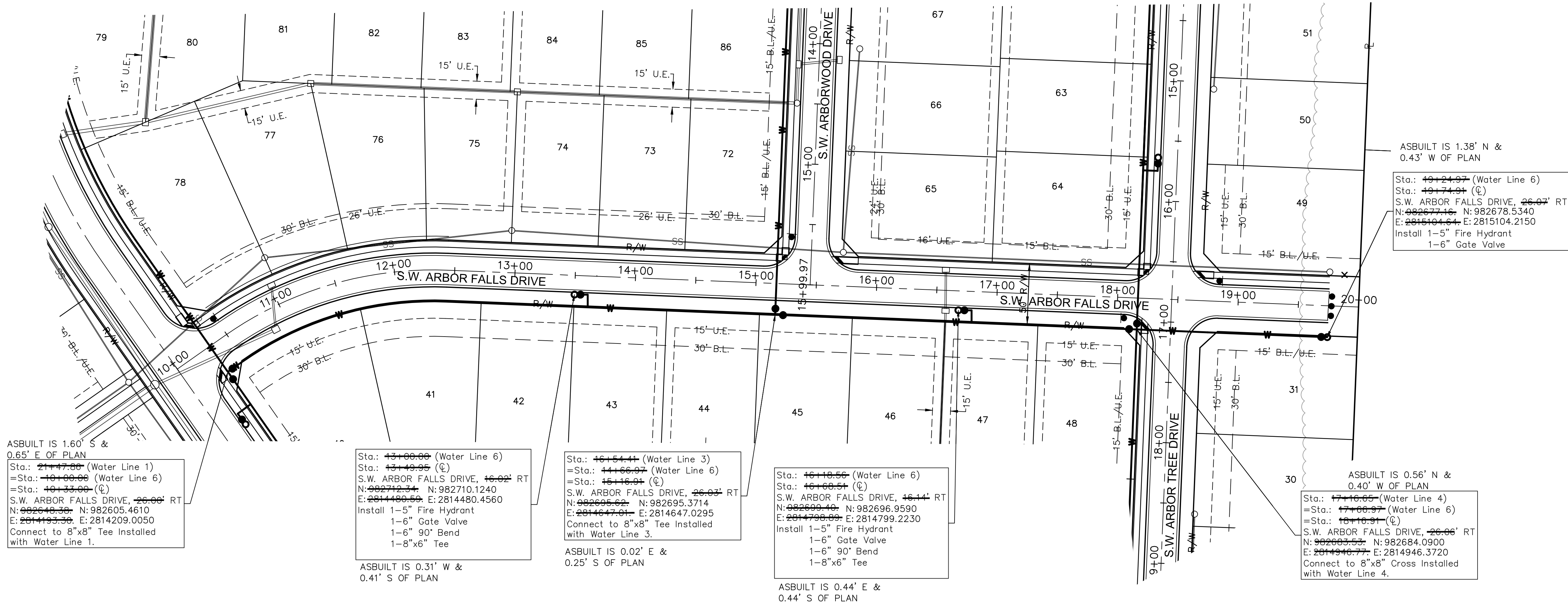


8 WATER MAIN PLAN & PROFILE		2018	
HAWTHORN RIDGE 1ST PLAT		LEE'S SUMMIT, MO	
drawn by: D.A.H.O.		checked by: M.G.D.	
designed by: P.M.D.		QA/QC by: K.S.J.	
project no.: 017-0188		date: 03.03.2017	
SHEET 8		REVISIONS	

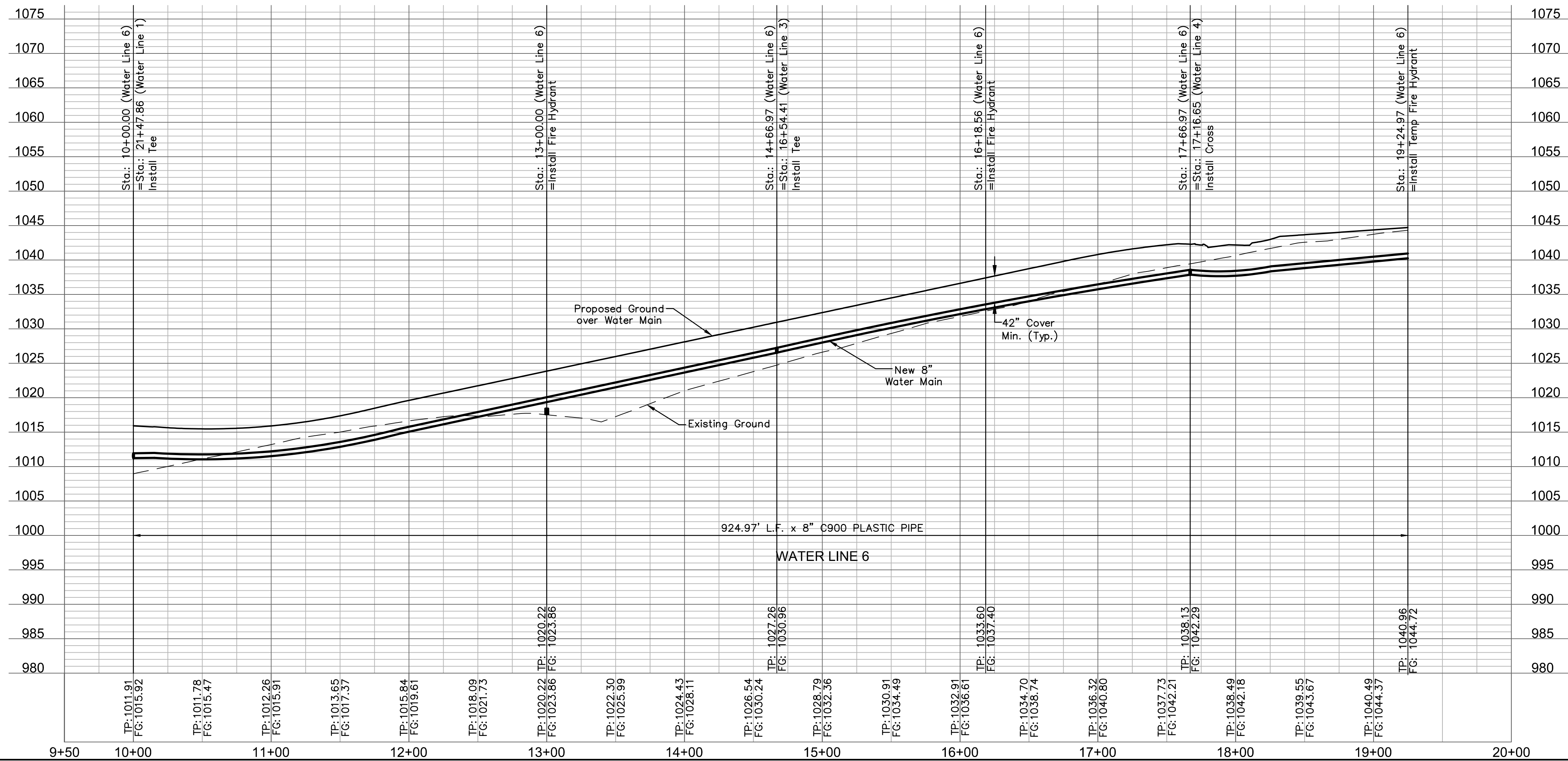
OLSSON ASSOCIATES

Olsson Associates - Civil Engineering
340 S. Main Street, Suite 100
North Kansas City, MO 64116
TEL 816.897.4320
FAX 816.897.1393
www.olssonassociates.com

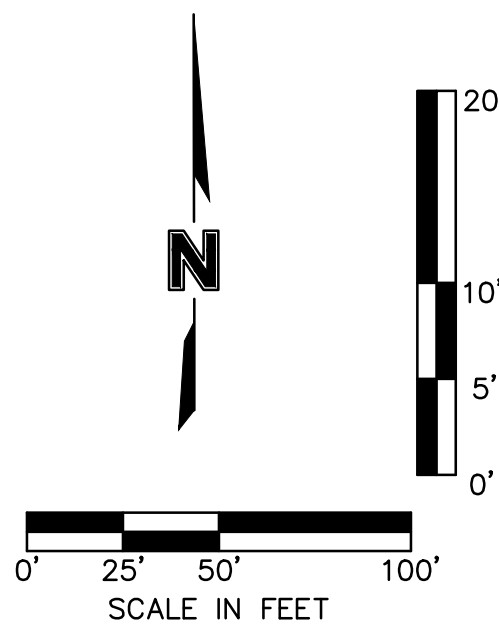
STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
NUMBER 0314/2018



NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018



OLSSON[®]
ASSOCIATES

Olsson Associates - Civil Engineering
330 S. Main Street, Suite 100
North Kansas City, MO 64116
TEL 816.897.4320
FAX 816.897.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
NUMBER
031400682
03/14/2018

BY MGD

REVISIONS

NO.	REV.	DATE	REVISIONS DESCRIPTION
1	04.19.2017	Grading note Added	
3	08.27.2018	Temp Fire Hydrant and main Revised	

2018

9 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

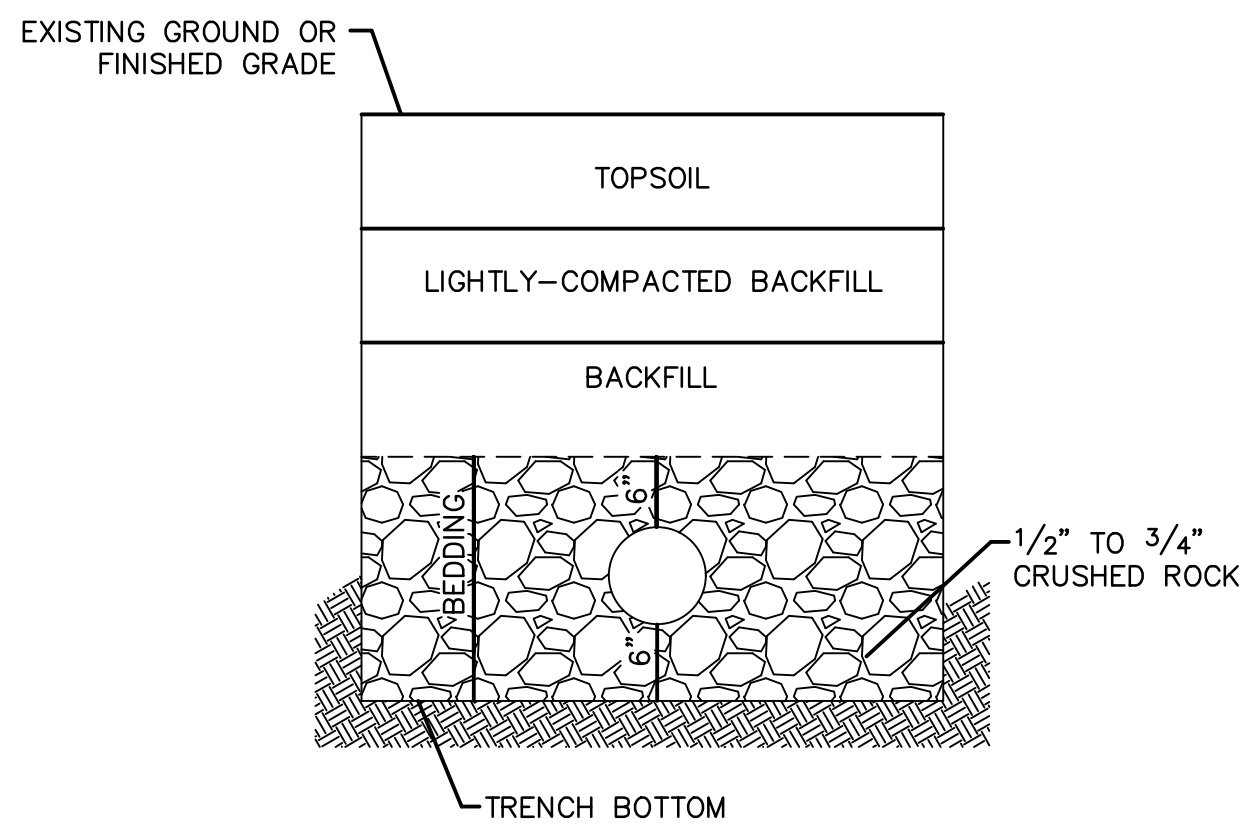
LEE'S SUMMIT, MO

drawn by: DAH
checked by: M.G.D.
designed by: E.M.D.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
9

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\ONCV\01_Water_Set\36.24\C_GEN01_017-0188.dwg
DATE: Feb 19, 2019 6:44pm
USER: dhernandez

NOT AS BUILT



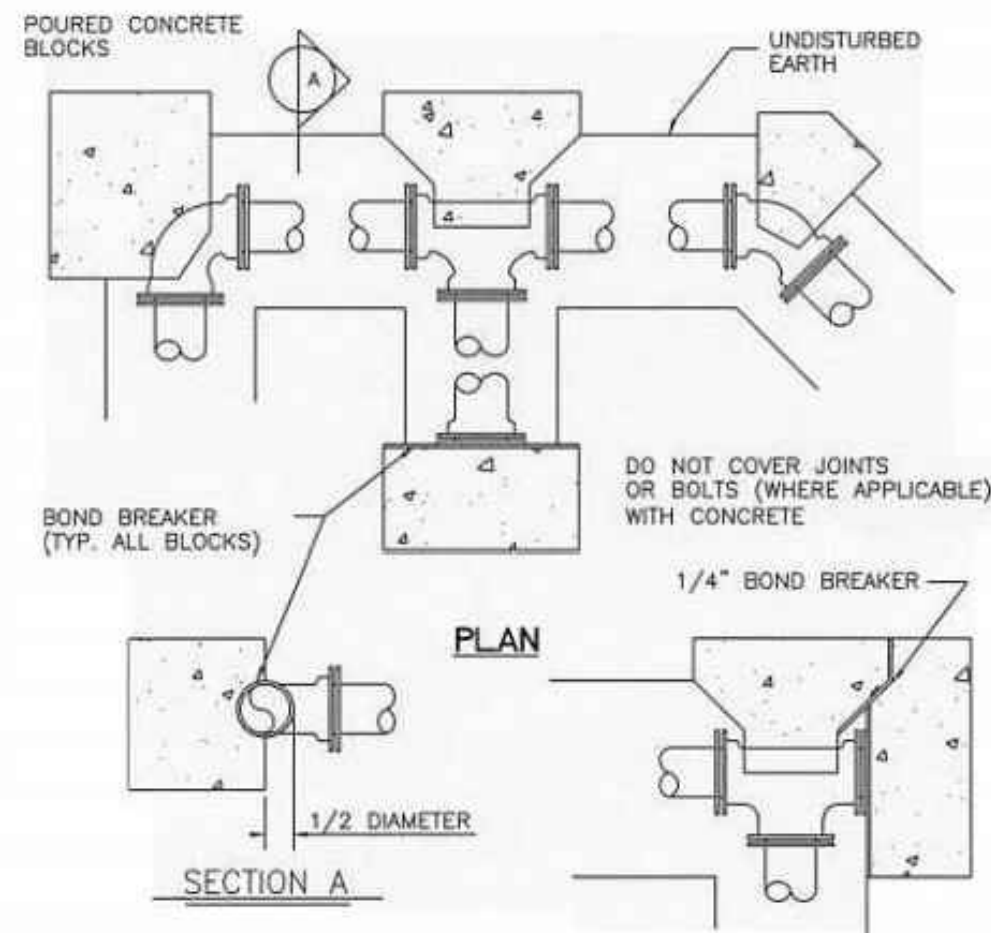
UNDERGROUND PIPE INSTALLATION FOR WATER LINES
N.T.S.

HORIZONTAL CONCRETE THRUST BLOCKING

Working Pressure	150	psi
Surge Allowance	100	psi
Design Pressure	250	psi
Soil Bearing Capacity	1500	psf
Safety Factor	1.0	
Min. Bearing Area	4.0	sf
Max. Bearing Area	50.0	sf

Concrete Bearing Area (sf)					
Nom. Dia. (inches)	180 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	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	19.8	28.7	14.4	7.4	4.0
14	25.9	38.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	58.1	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

ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.



THRUST BLOCK DETAILS

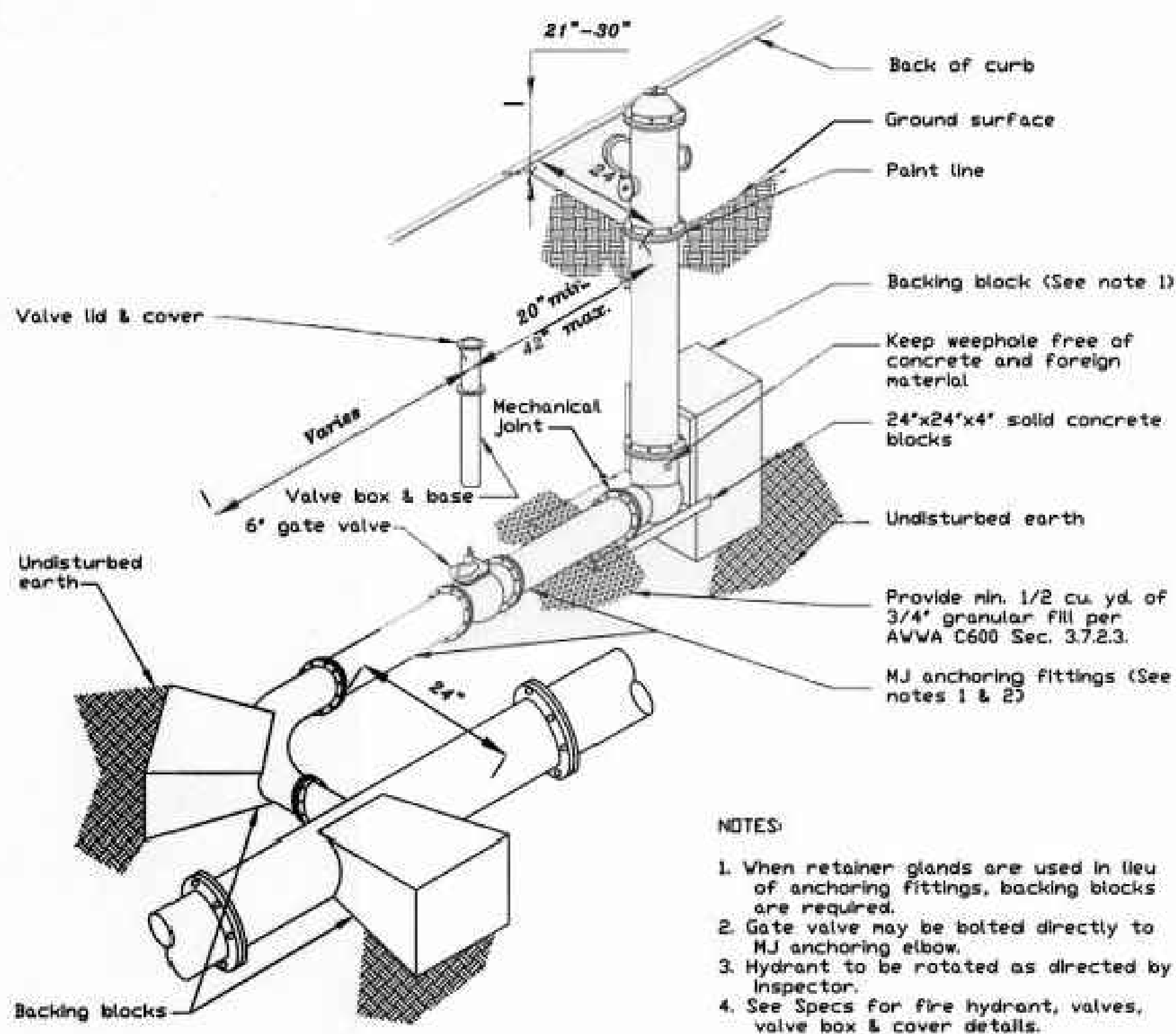
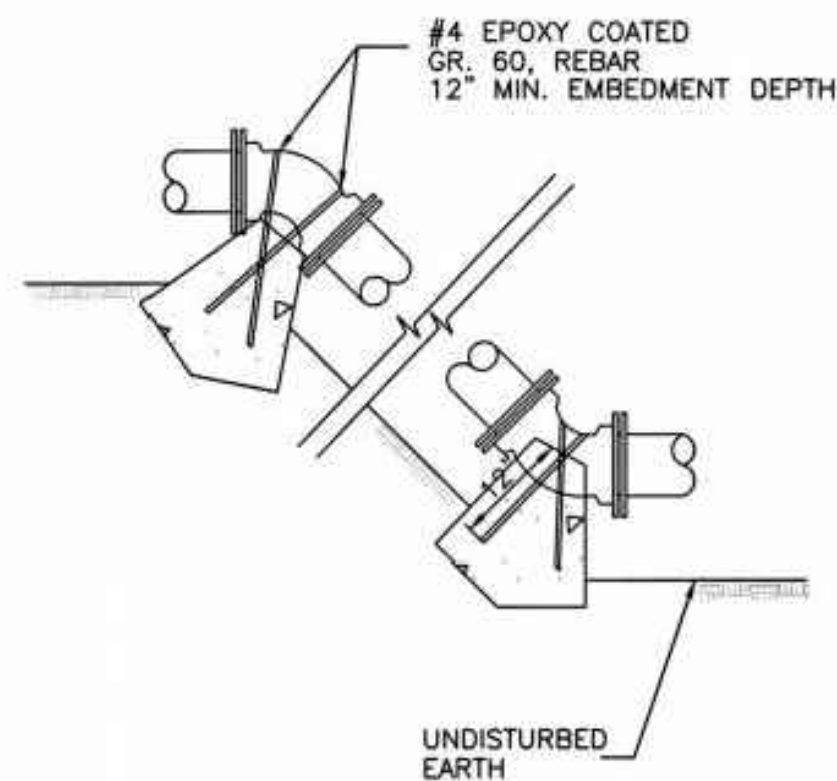
N.T.S.

VERTICAL (UPWARD) CONCRETE THRUST BLOCKING

Working Pressure	150	psi
Surge Allowance	100	psi
Design Pressure	250	psi
Conc. Unit Weight	140	pcf
Safety Factor	1.0	
Min. Block Size	4.0	cf
Max. Block Size	216.0	cf

Concrete Volume (cf)					
Nom. Dia. (inches)	180 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	198.3	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

ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.

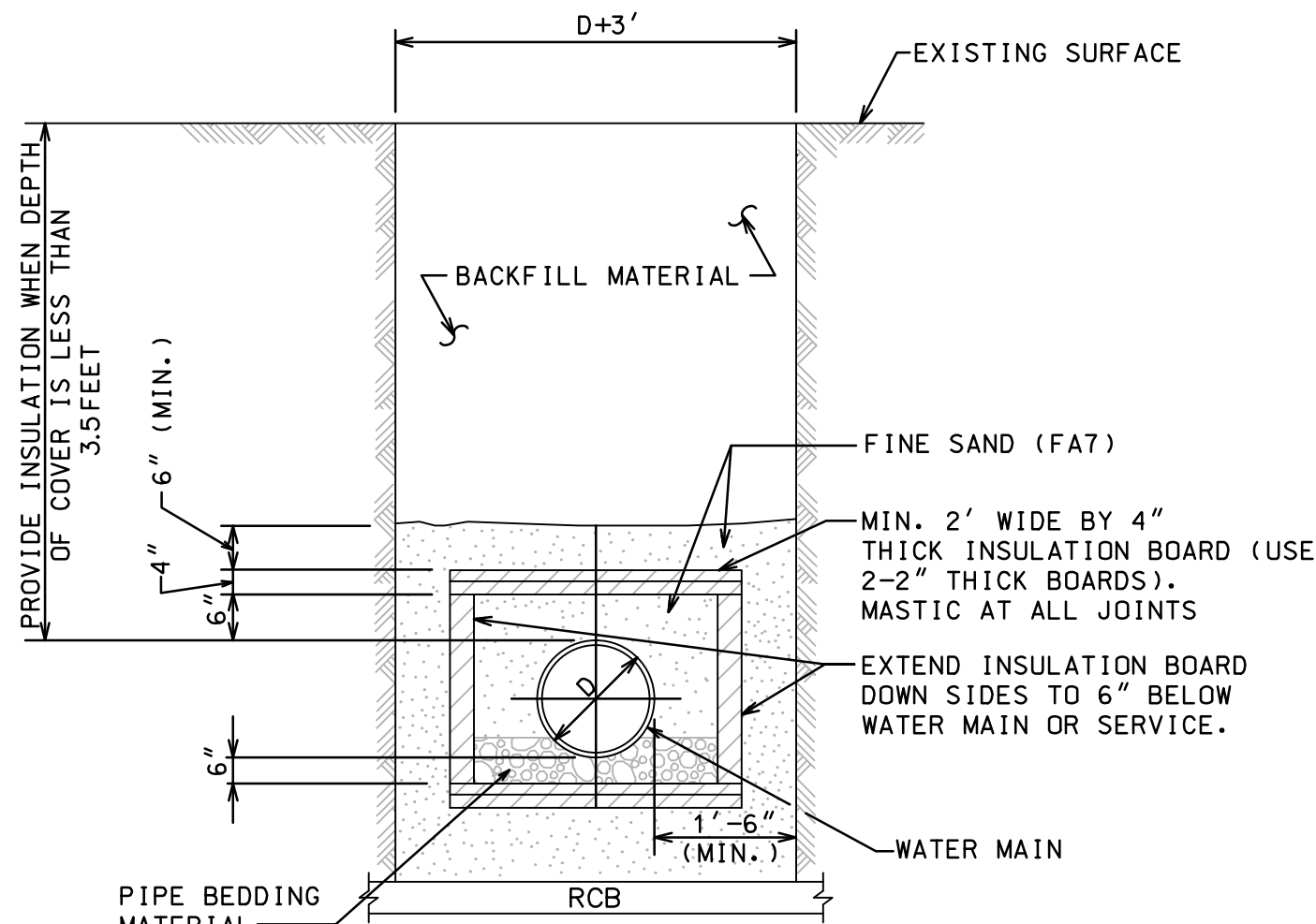


NOTES:

- When retainer glands are used in lieu of anchoring fittings, backing blocks are required.
- Gate valve may be bolted directly to MJ anchoring elbow.
- Hydrant to be rotated as directed by Inspector.
- See Specs for fire hydrant, valves, valve box & cover details.

FIRE HYDRANT DETAIL

N.T.S.

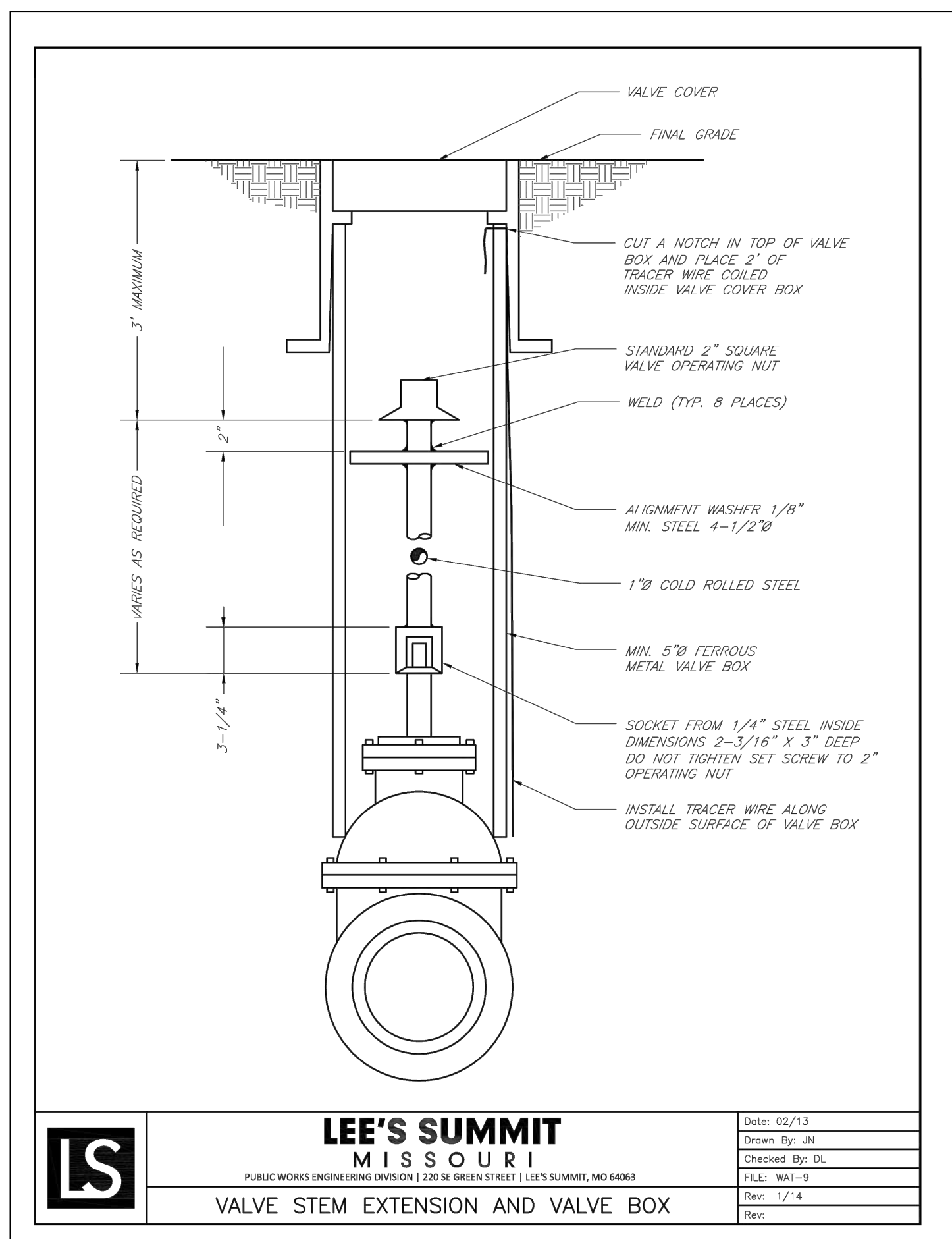


HARDBOARD INSULATION

N.T.S.

NOTES:

- INSULATION BOARD TO BE CLOSED CELL, EXTRUDED POLYSTYRENE FOAM MEETING ASTM 578, TYPE VI, 40 PSI COMPRESSING STRENGTH (ASTM D1621) 0.1% MAX. WATER ABSORPTION (ASTM C272).
- BACKFILL MATERIAL AROUND INSULATION MUST BE FINE SAND FREE FROM ROOTS, ORGANIC MATTER, OR OTHER INJURIOUS MATERIALS.
- OVERLAP ALL INSULATION BOARD JOINTS.



LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

VALVE STEM EXTENSION AND VALVE BOX

Date:	02/13
Drawn By:	MLD
Checked By:	MLD
FILE:	WAT-9
Rev:	1/14
Rev:	

11 WATER DETAILS

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

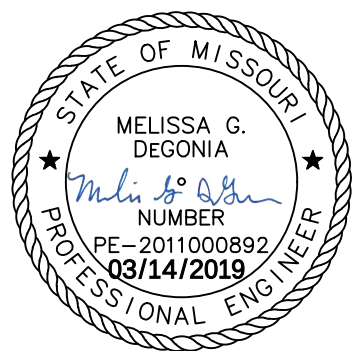
2018

drawn by:	DAHQ
checked by:	M.G.D.
designed by:	R.M.D.
QA/QC by:	K.S.J.
project no.:	017-0188
date:	03.03.2017

SHEET

11

OLSSON
ASSOCIATES[®]
Olsson Associates - Civil Engineering
MO Certificate of Authority # 001892
TEL 816.897.4390
FAX 816.897.1393
North Kansas City, MO 64116
www.olsonassociates.com



BY		REVISIONS DESCRIPTION		DATE		NO. REV.	
M.G.D.		Insulation detail added		11.20.2017		2	