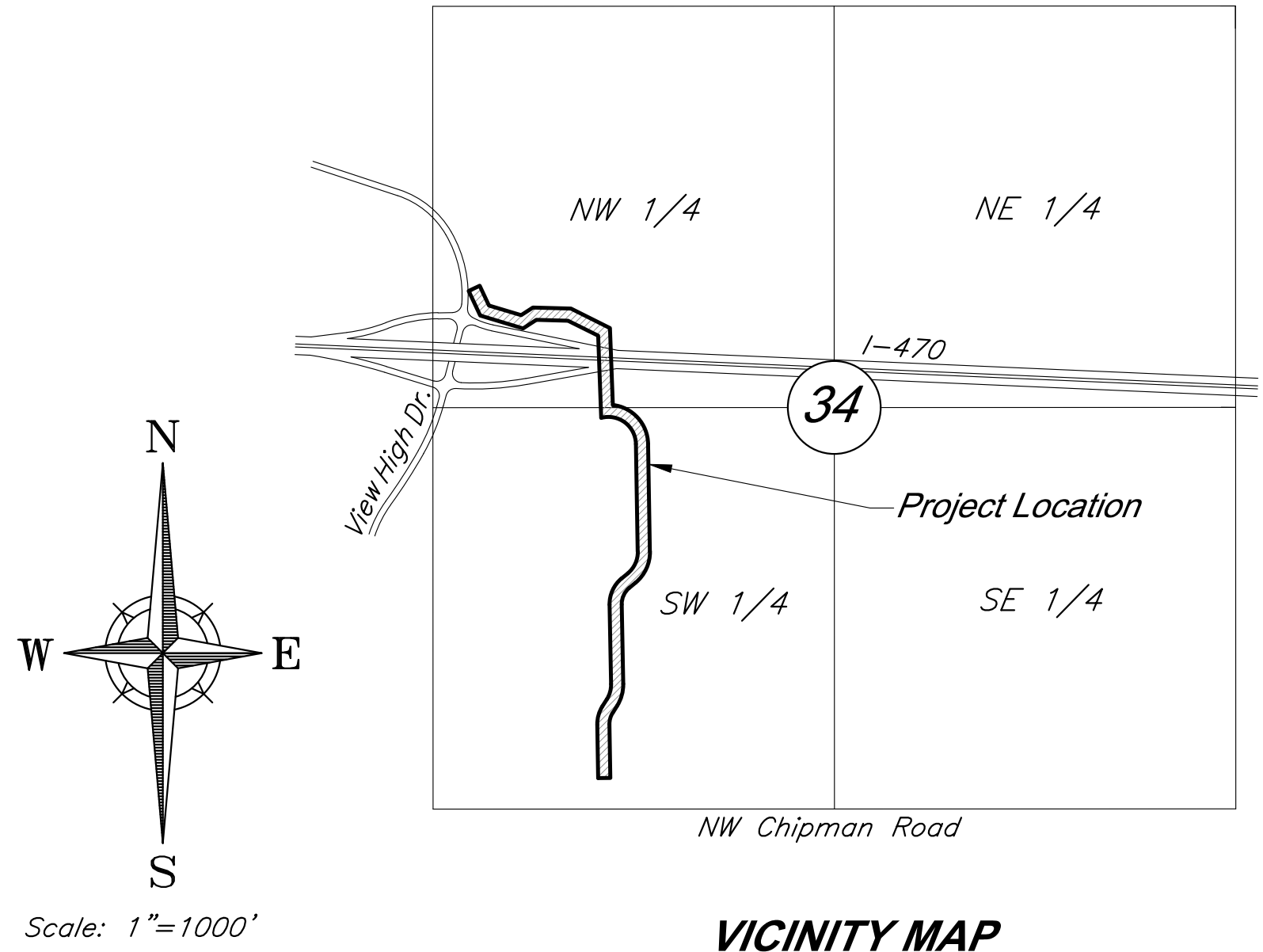


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WATER MAIN EXTENSION PLANS
FOR
PARAGON STAR DEVELOPMENT
Sections 34–Township 48–Range 32
City of Lee’s Summit
Jackson County, Missouri



VICINITY MAP
Section 34-T48N-R32W

UTILITY CONTACTS

Sanitary Sewers	Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1922 email: jeff.thorn@cityofLS.net	Gas	Mr. Donnie Richards Missouri Gas Energy 7500 E. 35th Terrace Kansas City, MO 64129 (816) 472-9464 Fax (816) 472-3488 email: donnie.richards@sug.com
	Mr. Jeff Shook Little Blue Valley Sewer District 21101 East 78 Highway Independence, MO 64057 (816) 285-1522 email: jshook@lbvsd.net		Cable Television
Water	Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1922 email: jeff.thorn@cityofLS.net	Telephone	Ms. Glenda Charles AT&T 1425 Oak Street Kansas City, MO 64106 (816) 365-1669 Fax (816) 275-1109 email: gc6954@att.com
	Mr. Nathan Michael Kansas City Power & Light P.O. Box 418679 Kansas City, MO 64141 (816) 220-5210 Fax (816) 245-3623 email: Nathan.Michael@kcpl.com		
Electric Service			

PROJECT BENCHMARK:

BM #11 – Chiseled “L” on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

INDEX OF SHEETS

Sht. No.	Description
1	Title Sheet
2	General Layout
3-6	Water Main Plan & Profile - Line A
7	Water Main Plan & Profile - Line B
8-9	Water Main Details

APPROVED BY:
STATE OF MISSOURI
DEPARTMENT OF HEALTH & ENVIRONMENT
DIVISION OF ENVIRONMENT



ENGINEER: DATE:

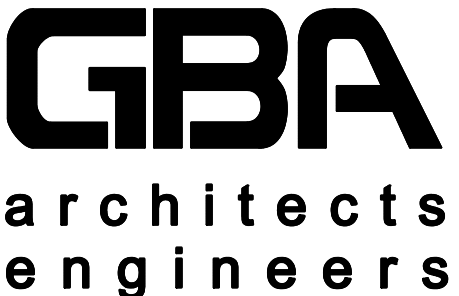
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APPROVED: DATE:

CITY ENGINEER: DATE:

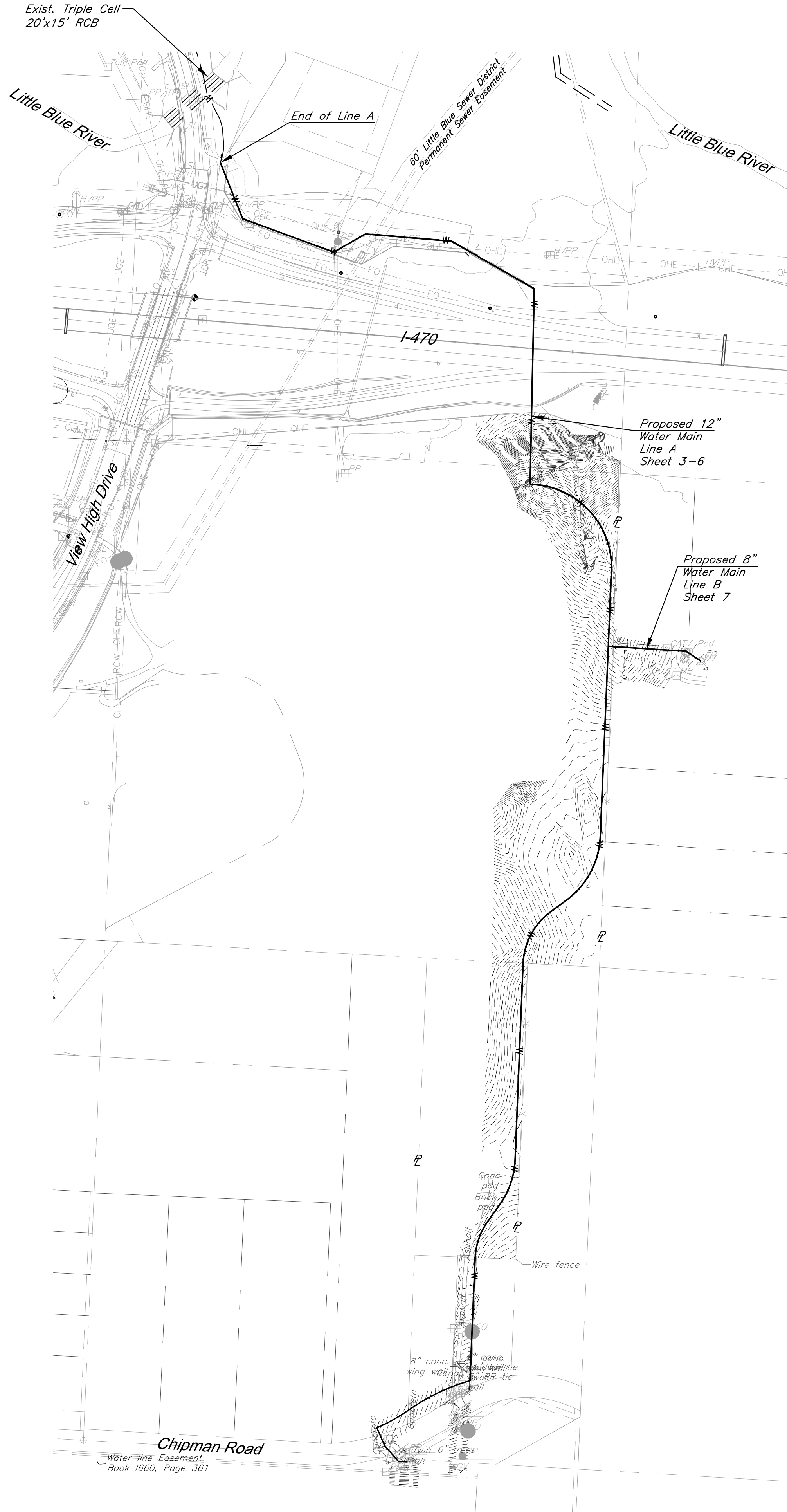
DEVELOPED AND OWNED BY:
PARAGON STAR LLC
801 NORTHWEST COMMERCE CENTER
LEE’S SUMMIT, MISSOURI 64086
PHONE: (816) 802-6801
CONTACT: Mr. Flip Short
EMAIL: fshort@legacytouch.com

PREPARED & SUBMITTED BY:
GEORGE BUTLER ASSOCIATES, INC.
9801 RENNER BOULEVARD
LENEXA, KANSAS 66219
PHONE: 913-492-0400
FAX: 913-577-8312
CONTACT: BRAD BURTON P.E.
EMAIL: BBURTON@GBATEAM.COM



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Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

G:\12720\Civil 3D\Production Drawings\Water Main Plans\Lee's Summit\12720C0200.dwg Layout: 2 General Layout --- Friday, September 13, 2019, 1:32pm --- Copyright 2019, George Buller Associates, Inc. 00025, Professional Engineer 000133, Landscape Architect 000025, Professional Land Surveyor 000039



CAUTION!

Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
prior to commencing
construction.

	GBA architects engineers 9801 Renner Boulevard Lenexa, Kansas 66219 913.492.0400 www.gbateam.com	DATE: 7-26-19	
		DESIGN BY: CEL	
		DRAWN BY: DRV	
		PROJECT NO.: 12720	
		SHEET NO.	TOTAL SHEETS
		2	9
Clint Loumaster Professional Engineer License No. 2011009651		Water Main Extension Plans Paragon Star Development Lee's Summit, Missouri	
NO. DATE		REVISIONS BY APPROVED	

GENERAL NOTES:

1. All work shall be done in accordance with the most recent version of the Standards and Specifications for Water Main Extensions and Relocations of the Kansas City, Missouri Water Services Department.
 2. The Contractor shall furnish and install all fittings required to provide proper horizontal and vertical alignment for new water mains, connections to existing water mains, and installation of fire hydrants at the proper location and elevation, whether or not the proper fittings, location or elevations are called out on these drawings, including modification of existing infrastructure required to make all of the work conform to current WSD Standards.
 3. The Contractor shall furnish and install all temporary blow-off assemblies, fittings, thrust blocking, and restraining devices required for temporary connections for flushing, pressure testing, chlorination, and de-chlorination of the new water mains. Prior to placing new mains in service the Contractor shall remove and corporation cocks used for testing or chlorination and replace them with tapered brass plugs.
 4. The Contractor shall install polyethylene encasement on all water mains, valves, fittings, and other appurtenances for the full length of the project in accordance with the Standards and Specifications for Water Main Extensions and Relocations of the Kansas City, Missouri Water Services Department.
 5. Scheduling of water main shuts and connections to existing mains shall be at the discretion of the Water Services Department.
 6. All fire hydrant branches shall be restrained using approved restraining devices. Hydrants shall be installed so that the centerline of the outlet nozzle is between eighteen and twenty-one inches (18"-21") above grade, and so that there is a minimum clear area of 5' in each direction to allow operation of the hydrant.
 7. Sections of water main requiring multiple bends, such as cul-de-sacs, shall be restrained with approved joint restraining devices and straddle blocks in lieu of backing blocks.
 8. The locations of existing utilities, as shown, are approximate. It shall be the responsibility of the Contractor to verify the locations and elevations of all existing utilities.
 9. The Contractor shall comply with state law requiring any person or firm doing excavation on the public right-of-way to do so only after giving notice to and obtaining information from utility companies.
 10. Streets and parking areas are to be to grade and curbs in place prior to construction of water mains. Water mains shall be installed with a minimum ground cover of 42 inches below finished grade. Sixteen (16)-inch and larger water mains shall be installed with a minimum ground cover of 60 inches below finished grade.
 11. Water mains shall be laid at least 10 feet, horizontally from any sewer. When local considerations prevent a horizontal separation of 10 feet, a water main may be laid closer than 10 feet to a sewer, provided that the water main is laid in a separate trench, or on an undisturbed earth shelf located on one side of the sewer, at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer. Water mains shall be laid such that there is a minimum of 18 inches clearance between the pipe wall and the exterior of any manhole and/or inlet on the sewer line.
- Whenever a water main must cross above a sewer, a vertical separation of 18 inches between the bottom of the water main and the top of the sewer shall be maintained. Whenever a water main must cross under a sewer, a vertical separation of 18 inches between the bottom of the sewer and the top of the water main shall be maintained. A full length of water main pipe shall be centered on the sewer to be crossed so that the joints will be equally distant from the sewer and as far away as possible. The 18 inch vertical separation shall be maintained for that portion of the water main located within 10 feet horizontally, of any sewer it crosses.
- When it is impossible to obtain proper horizontal separation as stipulated above, or when a water main must cross under a sewer, the sewer must be reconstructed of ductile iron pipe meeting the requirements of Section 02618 of the Standards and Specifications for Water Main Extensions and Relocations; Pre-stressed concrete cylinder pipe meeting the requirements of Section 02619; of PVC pressure pipe conforming to AWWA C-900 or C905, and shall be pressure tested to assure water tightness before backfilling, the required length of sewer to be replaced or constructed of pressure pipe will be the length necessary to achieve 10 feet horizontal separation.
- Where these conditions cannot be met, the Water Services Department shall be consulted as to the precautions to be taken to protect the public water supply.
12. An excavation permit must be obtained from the City Engineer prior to commencing construction within the public right-of-way. Contact the Public Works Department permit counter at City Hall.
 13. A street closure permit may be required for this work. Contact the Street and Traffic Division at City Hall.
 14. All work shall conform to the latest revision of the Kansas City, Missouri Erosion and Sediment Control Specifications, which are made a part hereof by reference. Erosion control plans shall be submitted to the City Engineer, Public Works Department for review and approval prior to the start of this project.
 15. Proposed fire hydrants shall be installed at the station and offset locations as shown on the plans. Fire hydrant connection to the main shall be constructed per construction detail on sheet 8.

NOTES:

All Water Mains shall be PVC C900, Class 200
Unless otherwise indicated. All Valves and fittings
shall be Ductile Iron unless otherwise noted.

All new Ductile Iron Pipe, Valves, and Fittings
shall be double polywrapped

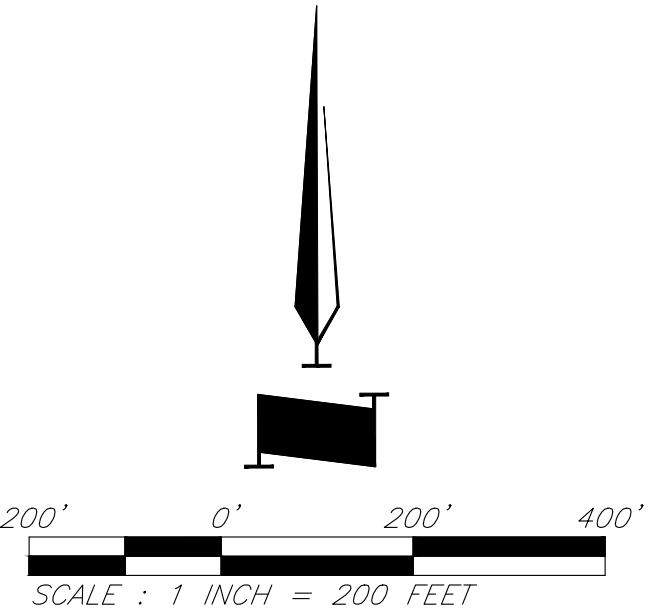
All disturbed areas shall be seeded in accordance
with the specifications.

NOTES:

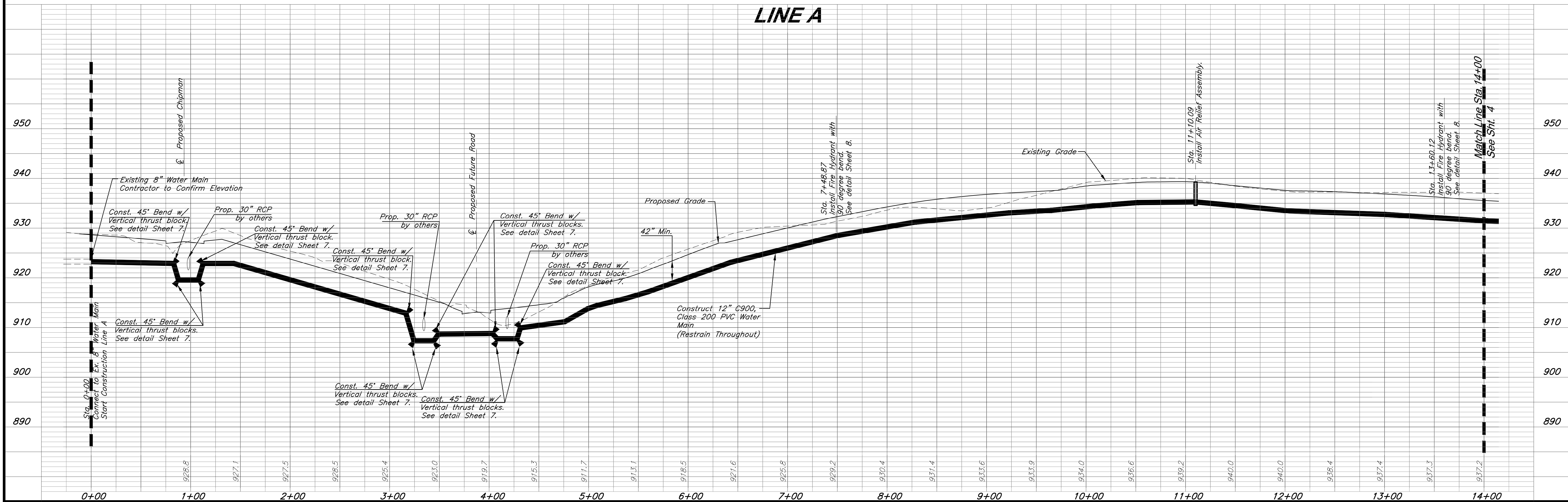
D.E. = Drainage Easement
U.E. = Utility Easement
P = Property Line
R/W = Right-of-Way

BENCHMARK:

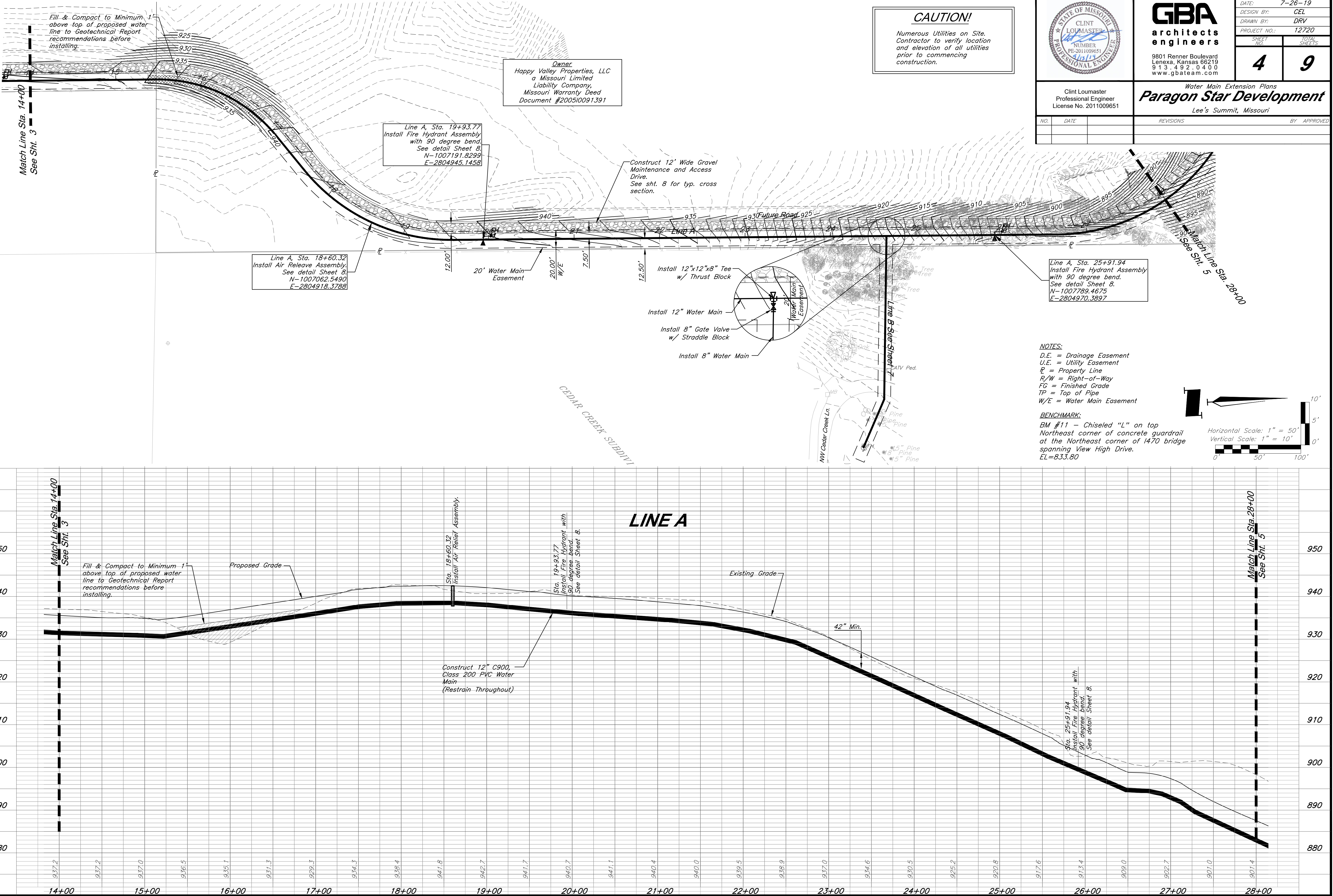
BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

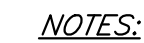
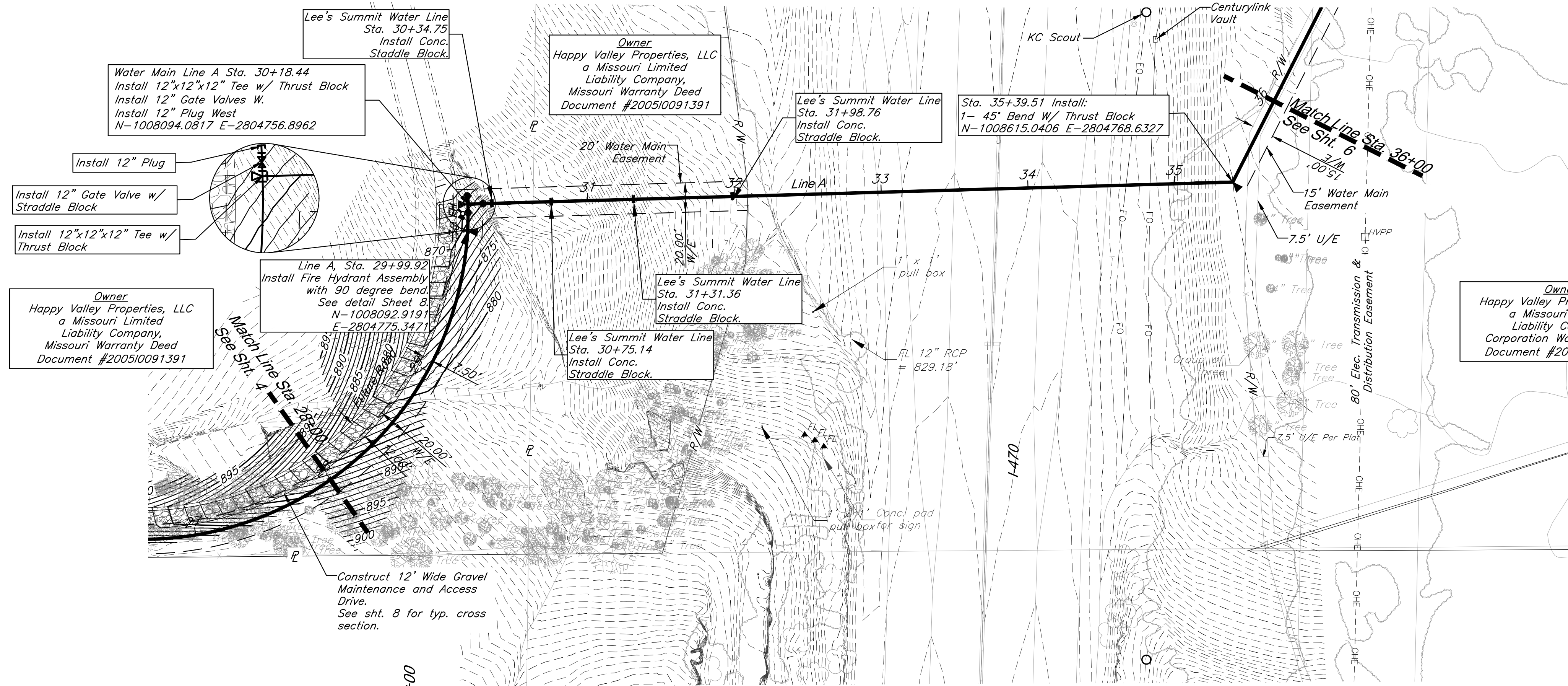


General Layout



C:\12720\Civil 3D\Production Drawings\Water Main Plans\Lee's Summit\12720C1600.dwg Layout: 4 Water Main Plan & Profile - Line A -- Friday, September 13, 2019, 1:36pm -- Copyright 2019 GBA architects engineers, PLLC All Rights Reserved. Engineer: 000025, Professional Land Surveyor: 000029

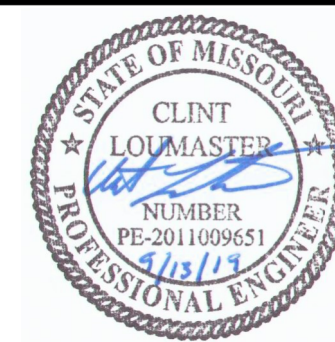
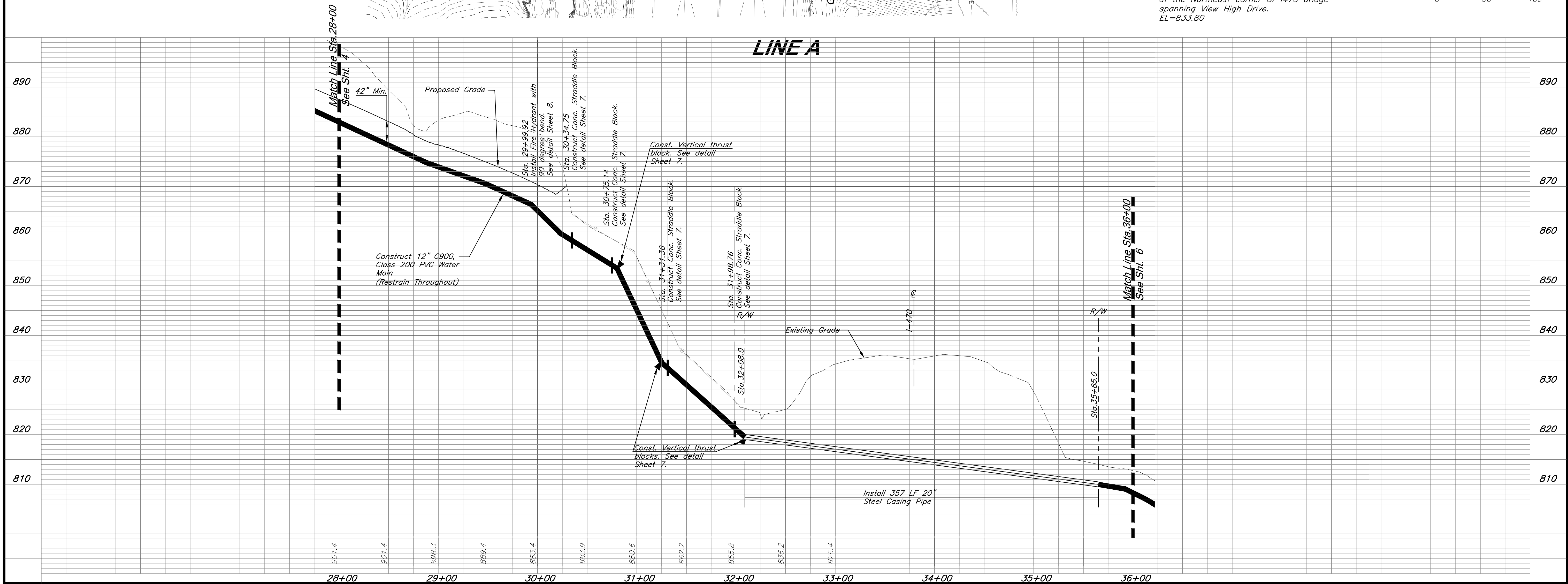
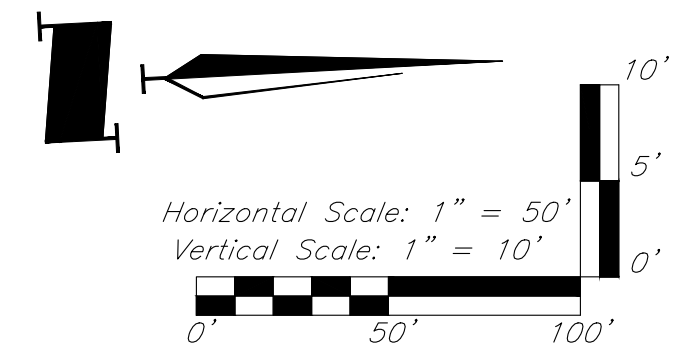




D.E. = Drainage Easement
U.E. = Utility Easement
P = Property Line
R/W = Right-of-Way
FG = Finished Grade
TP = Top of Pipe
W/E = Water Main Easement

BENCHMARK:

BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of 1470 bridge
spanning View High Drive.
EL=833.80



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DATE: 7-26-19	
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DRAWN BY: DRV	
PROJECT NO.: 12720	
SHEET NO.	TOTAL SHEETS
5	9

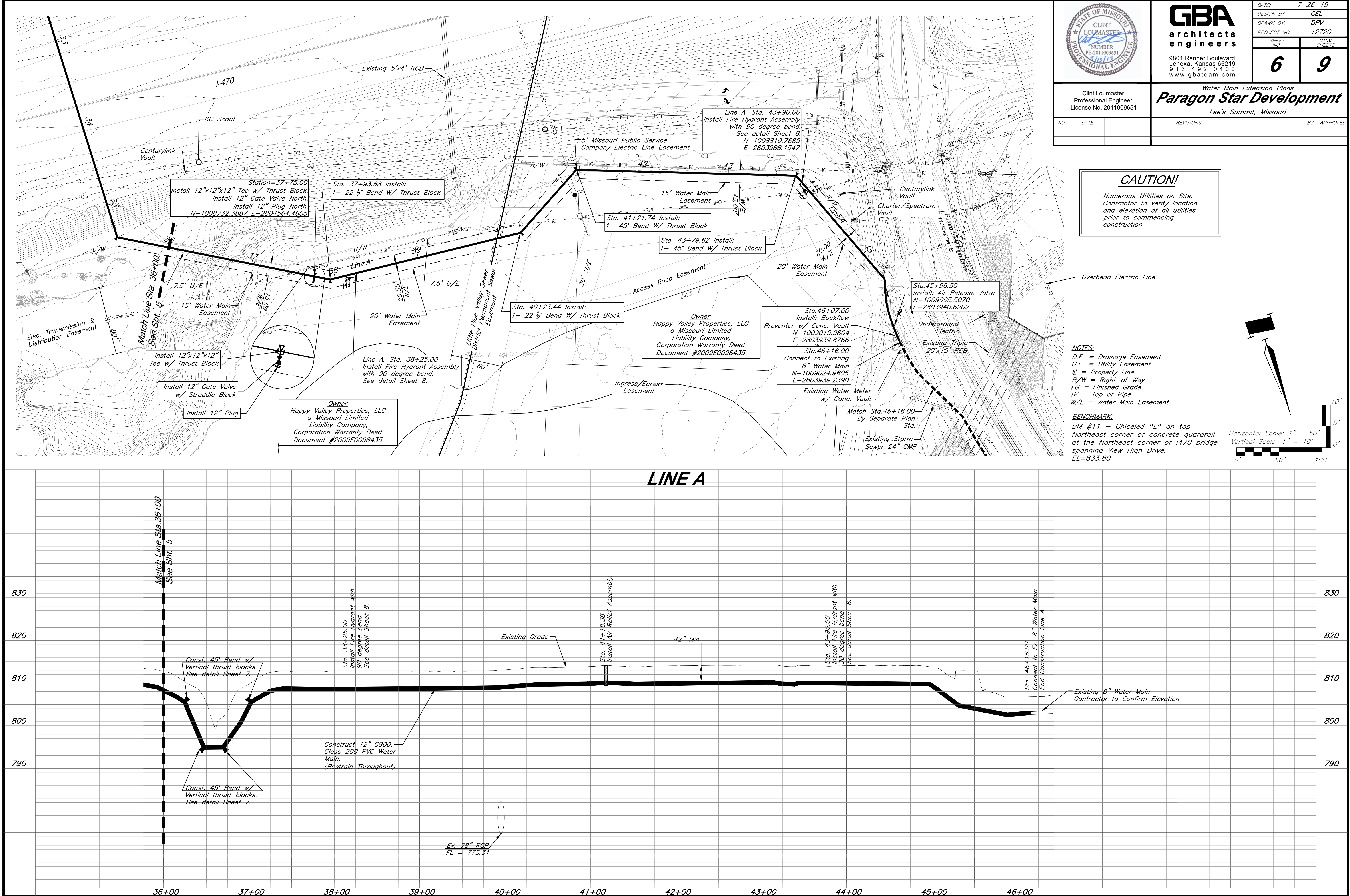
Clint Loumaster
Professional Engineer
License No. 2011009651

Water Main Extension Plans ***Paragon Star Development***

Lee's Summit, Missouri

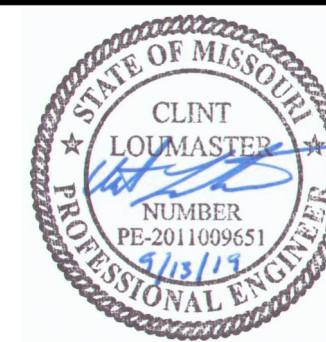
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CAUTION!

*Numerous Utilities on Site.
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construction.*



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DRAWN BY: DRW

PROJECT NO.: 12720

SHEET NO.	TOTAL SHEET
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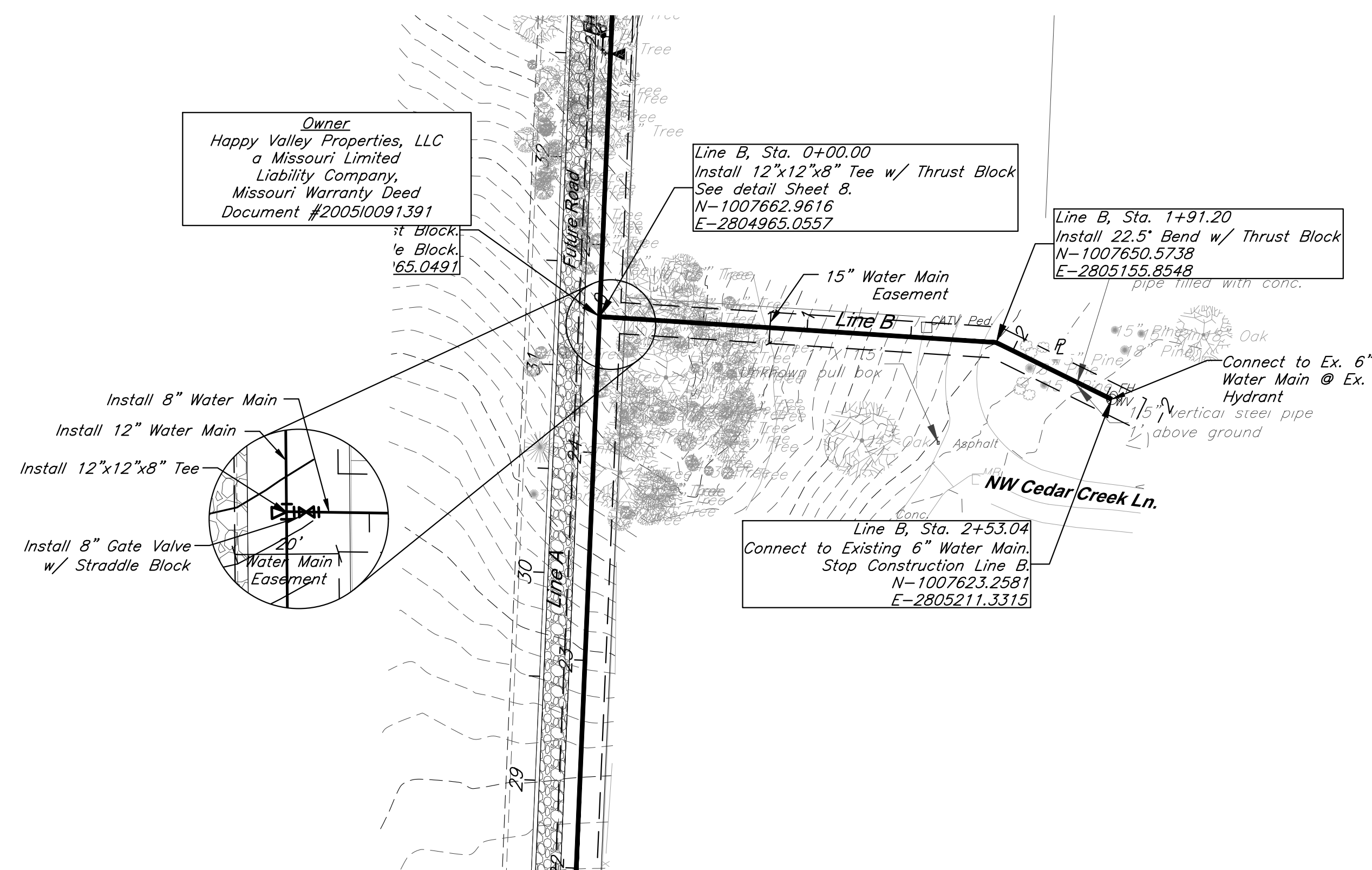
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Professional Engineer
License No. 2011009651

Water Main Extension Plans
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED



NOTES:

D.E. = Drainage Easement

U.E. = Utility Easement

P = Property Line

R/W = Right-of-Way

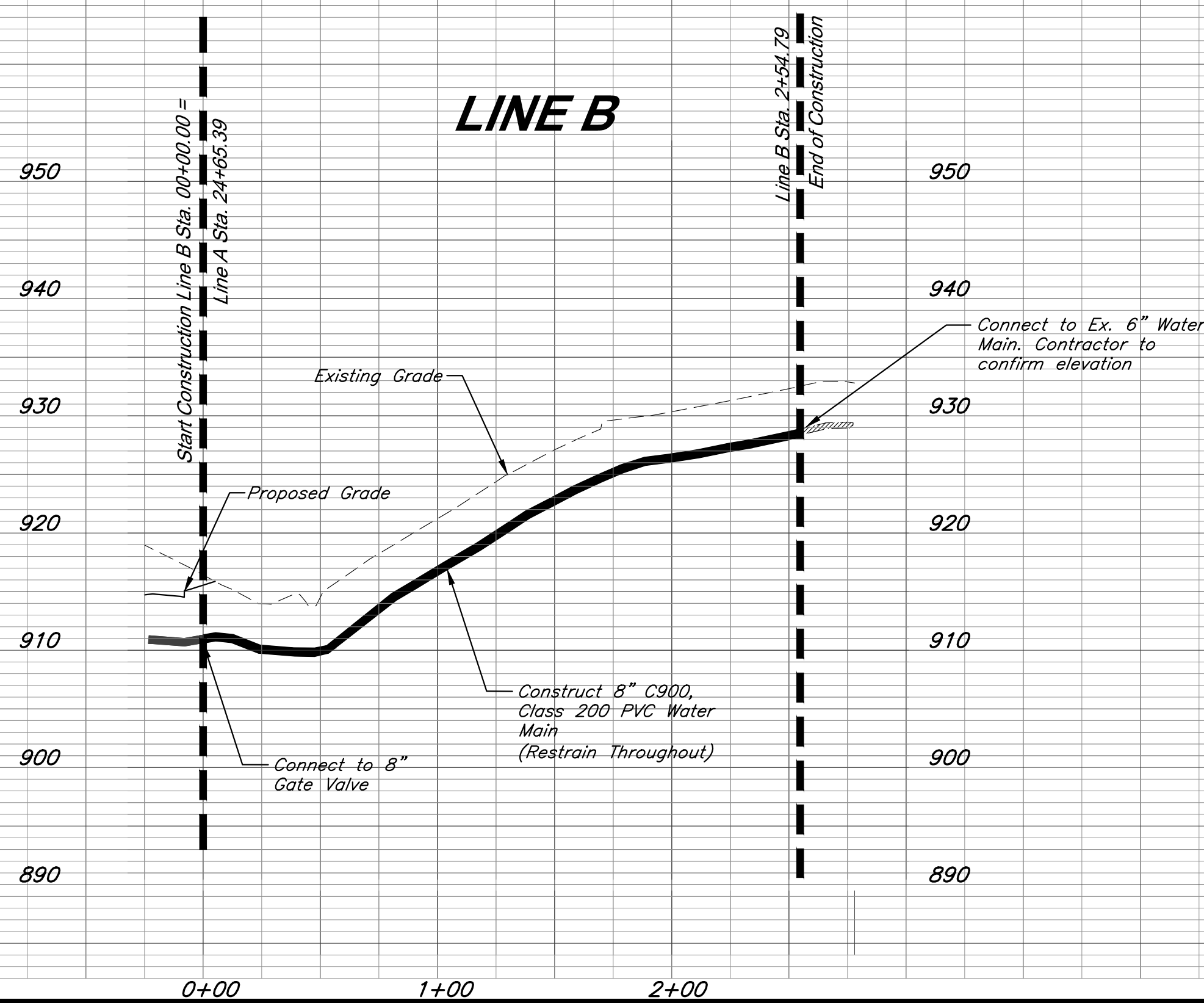
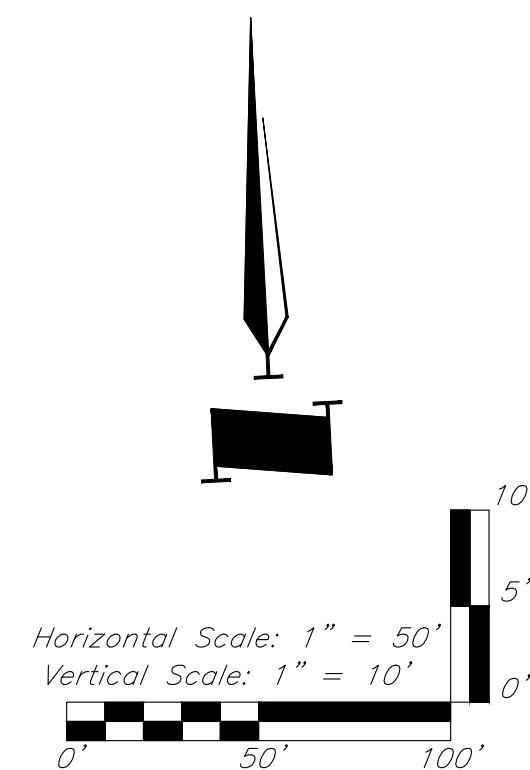
FG = Finished Grade

TP = Top of Pipe

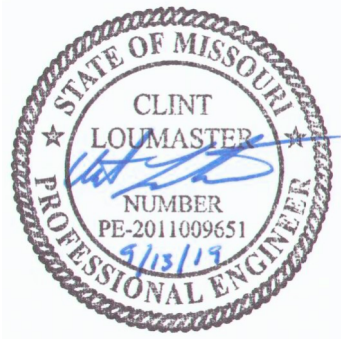
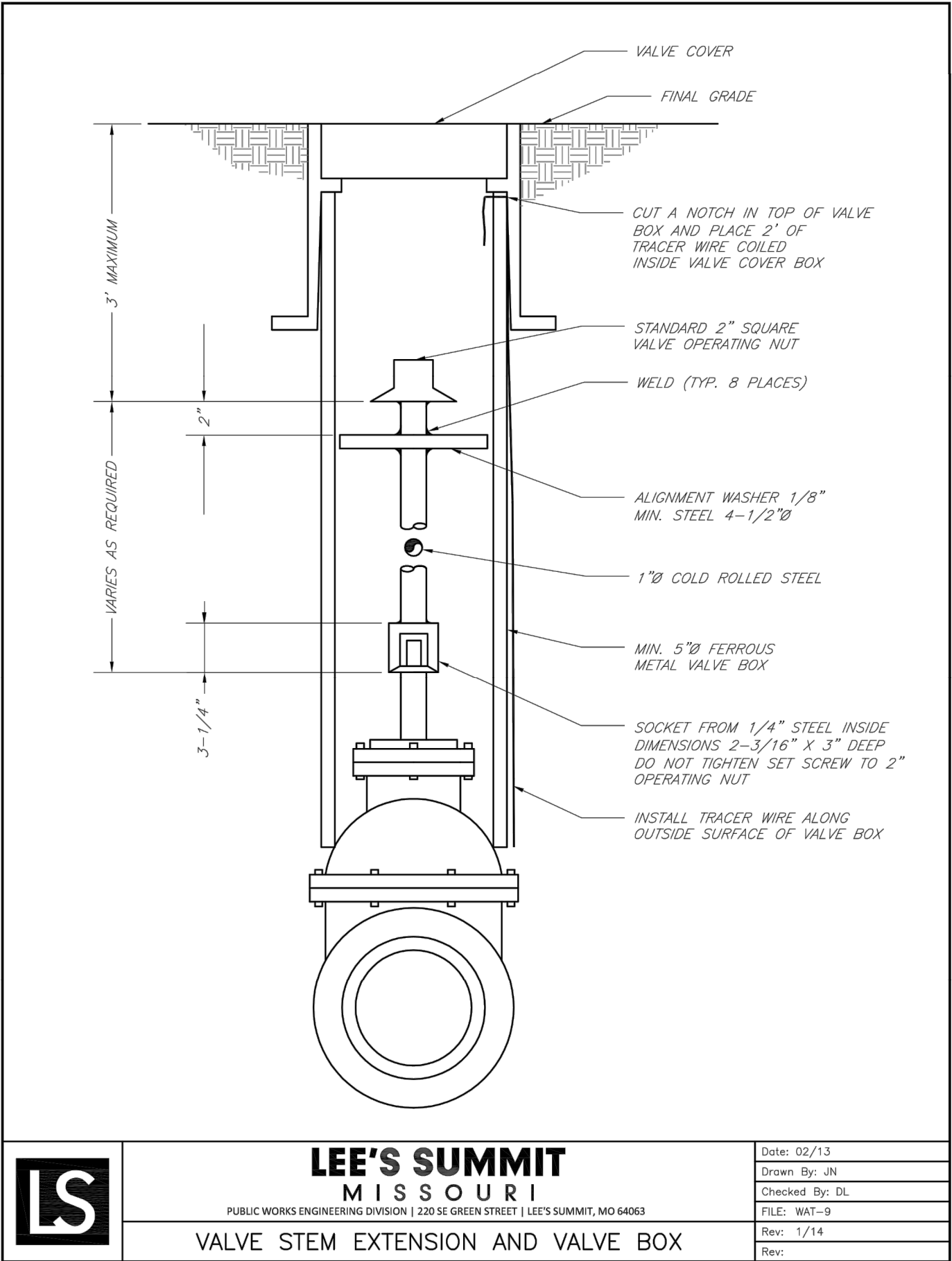
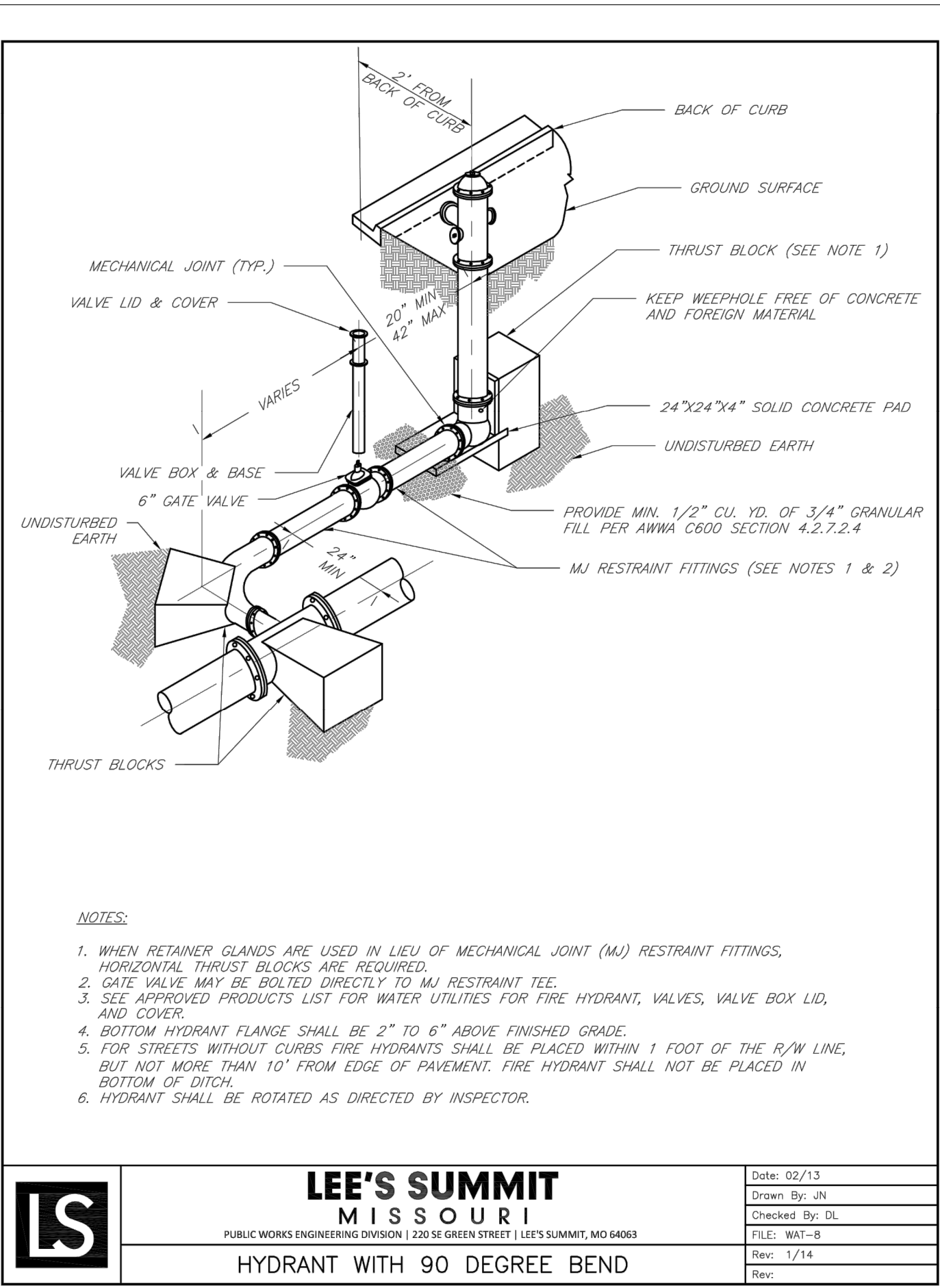
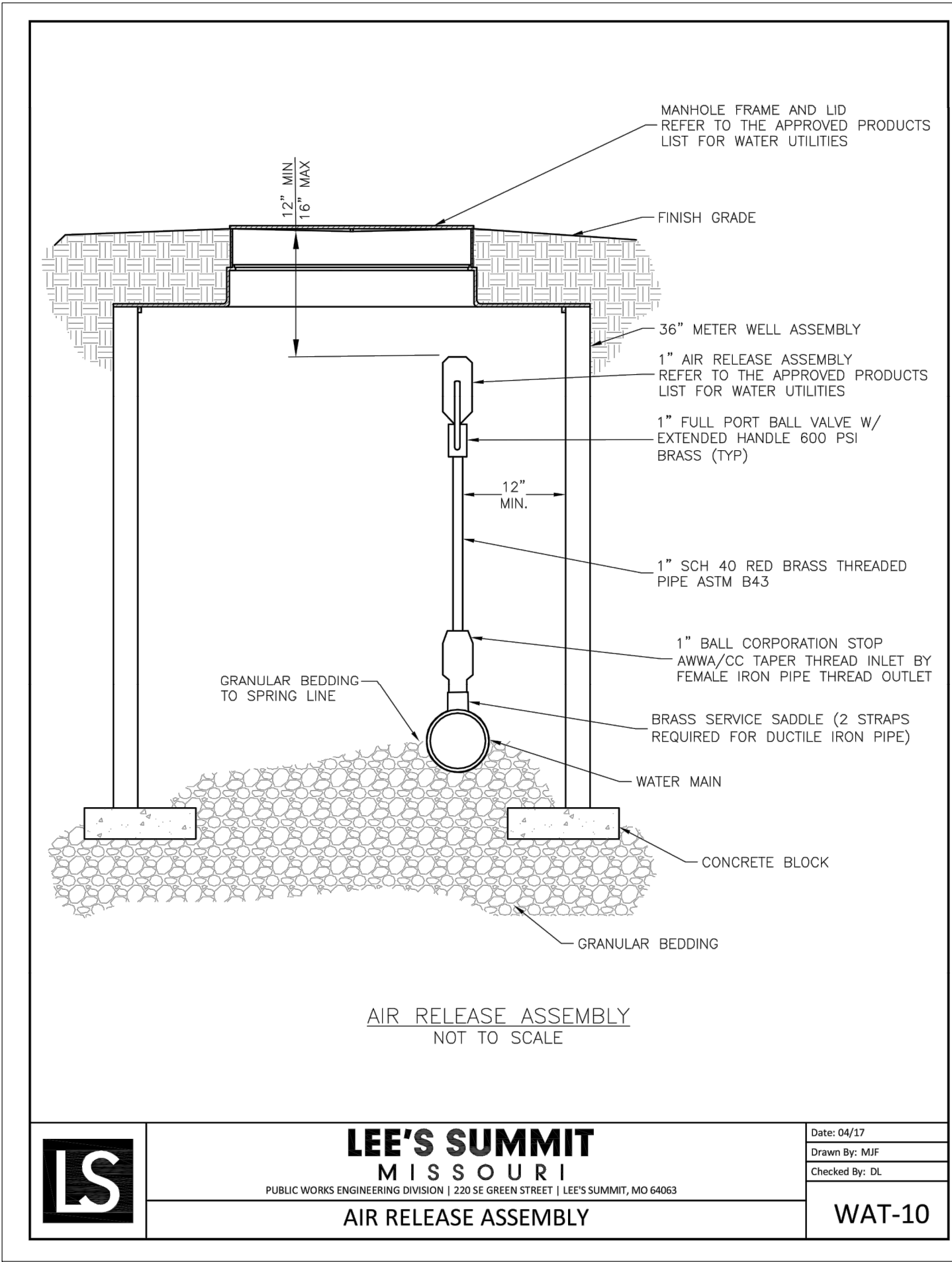
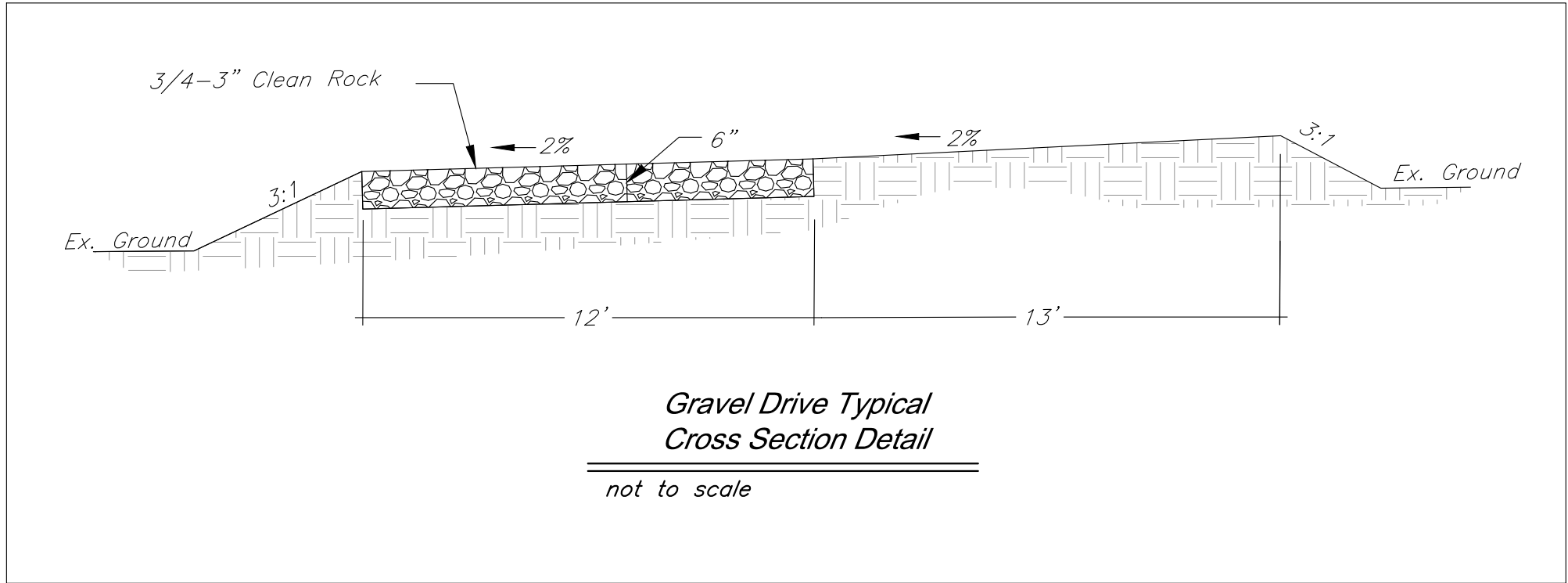
W/E = Water Main Easement

BENCHMARK:

BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of 1470 bridge
spanning View High Drive.
EL=833.80



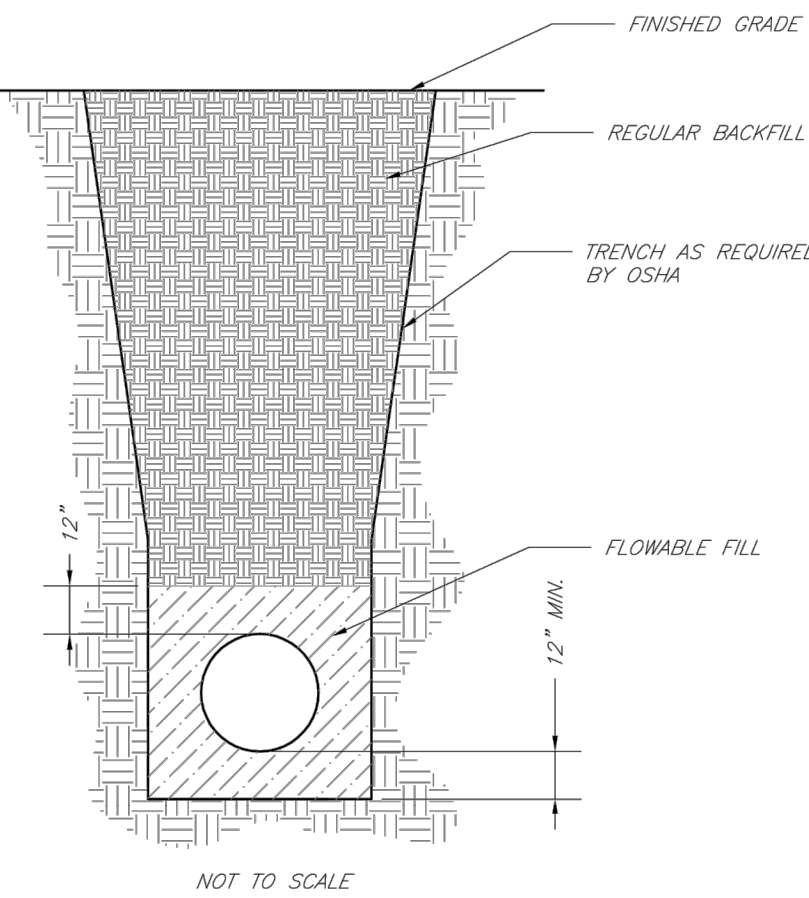
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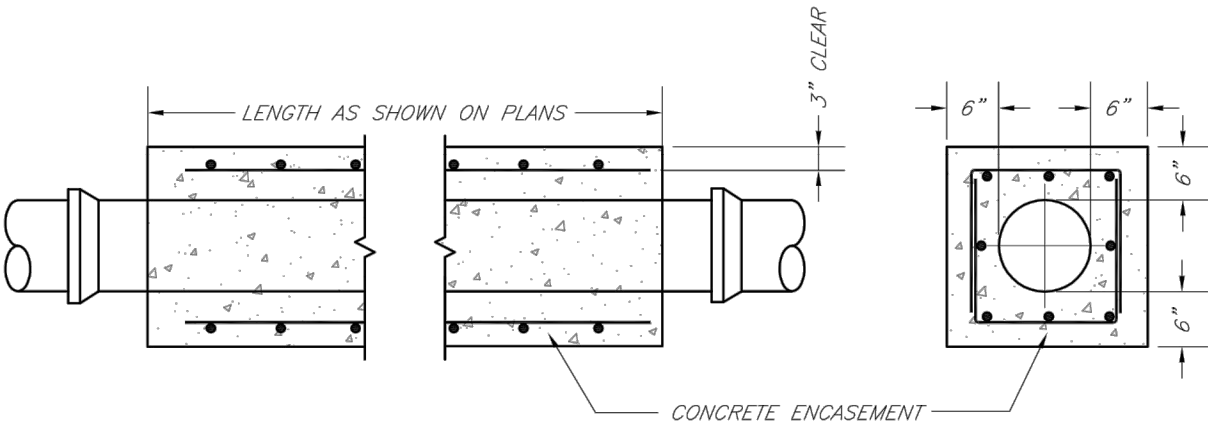
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Lenexa, Kansas 66219
913.492.0400
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DATE:	7-26-19
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
8	9

Clint Loumaster Professional Engineer License No. 2011009651		Water Main Extension Plans Paragon Star Development Lee's Summit, Missouri	
NO.	DATE	REVISIONS	BY APPROVED

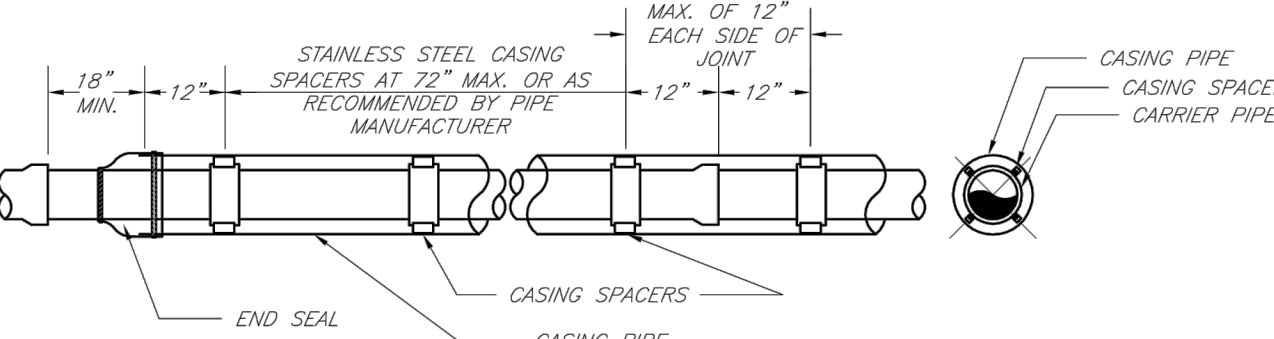


- NOTES:
1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
 2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
 3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.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



DATE: 02/13
DRAWN BY: JN
CHECKED BY: DL
FILE: WAT-4
REV: 1/14

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
WATER PIPE ENCASEMENT



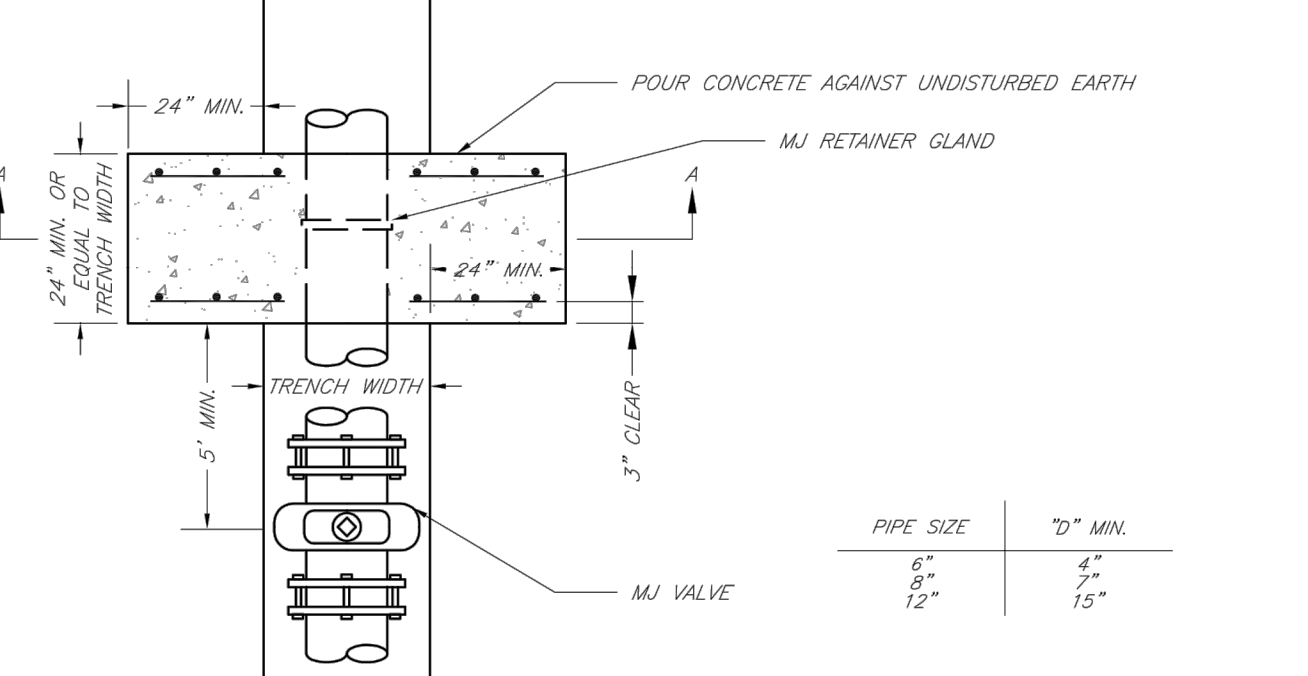
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REV: 1/14

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
WATER CASING PIPE DETAIL

REQUIRED CONCRETE VOLUME (CUBIC FEET - 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	80.9	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	281.1	154.6	78.8	39.6
14	262.0	362.0	210.4	107.3	53.9
16	320.0	441.0	260.0	134.0	67.0
18	376.0	518.0	306.0	157.0	78.5
20	430.0	593.0	349.0	177.0	88.5
24	520.0	708.0	420.0	214.0	107.0

DATE: 02/13
DRAWN BY: JN
CHECKED BY: DL
FILE: WAT-2
REV: 1/14

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VERTICAL THRUST BLOCKS



DATE: 02/13
DRAWN BY: JN
CHECKED BY: DL
FILE: WAT-3
REV: 1/14

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STRADDLE BLOCK

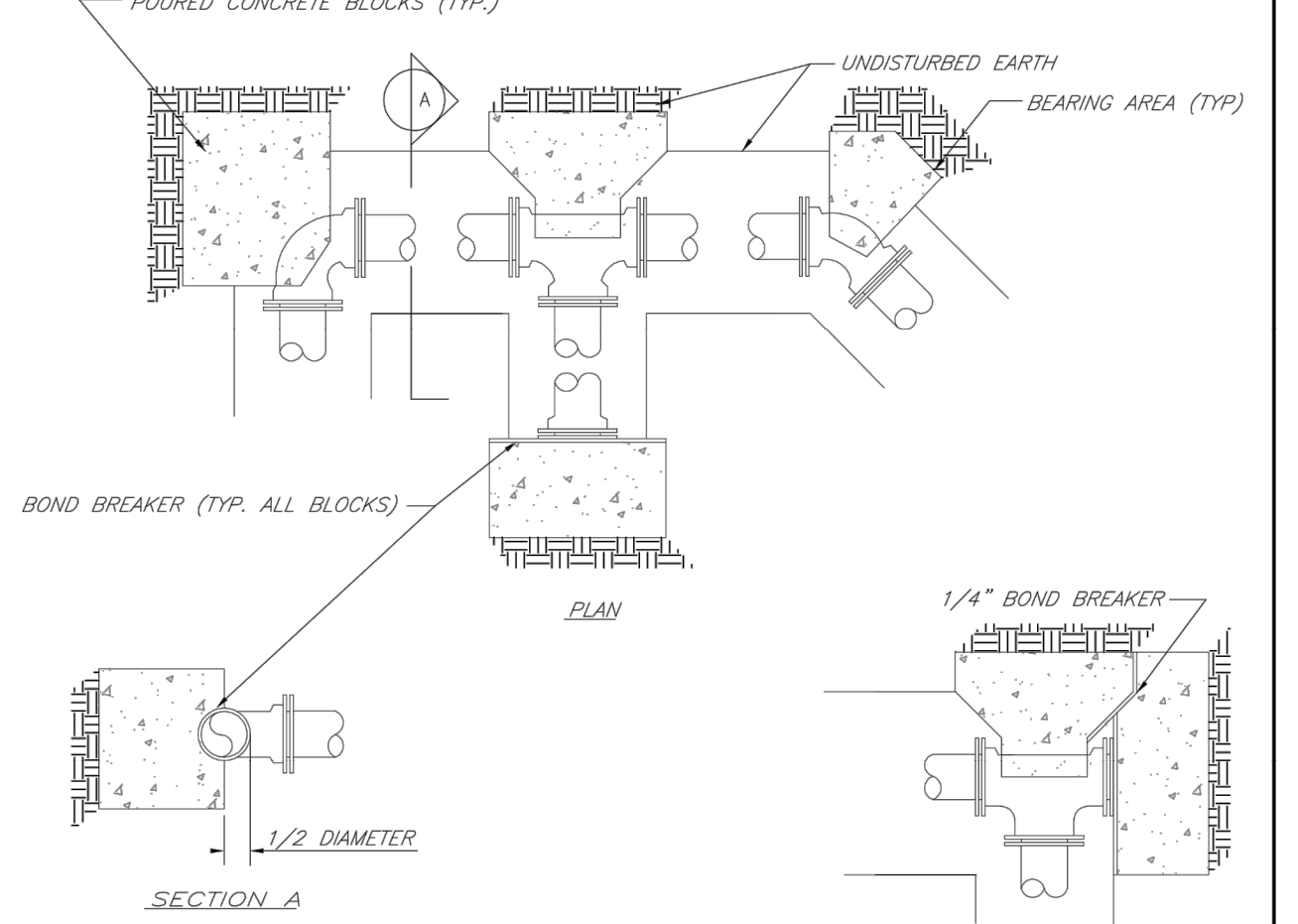


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9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
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DATE: 7-26-19
DESIGN BY: CEL
DRAWN BY: DRV
PROJECT NO.: 12720
SHEET NO. 9
TOTAL SHEETS 9

Water Main Extension Plans
Paragon Star Development
Lee's Summit, Missouri

NO. DATE REVISIONS BY APPROVED



DATE: 02/13
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CHECKED BY: DL
FILE: WAT-1
REV: 1/14

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCKS