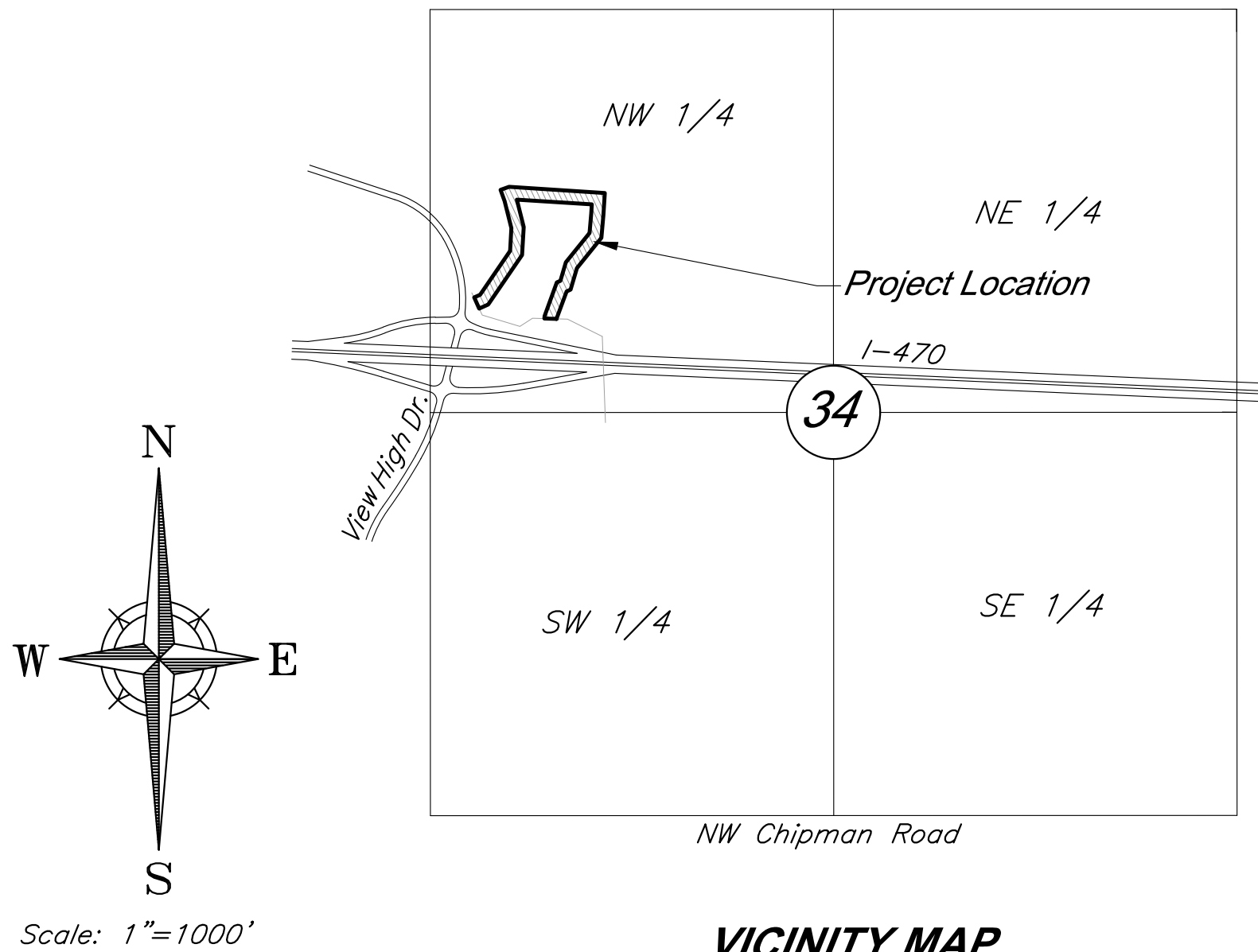


G:\12220\Civil 3D\Production Drawings\Water Main Plans\Lee Village Water Line\1222000100.dwg Layout: 1 Title Sheet --- Friday, June 19, 2020, 4:42pm --- Copyright 2020, George Butler Associates\Architect 00212, Professional Engineer 000133, Landscape Architect 000025, Professional Land Surveyor 000059

# WATER MAIN EXTENSION PLANS FOR THE VILLAGE

NW 1/4 Section 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@lbvwd.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
3-4	Water Main Plan & Profile - Line D
5	Water Main Details

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



ENGINEER: Clint Loumaster P.E.

6/19/20

DATE:

PROJECT ENGINEER:

DATE:

APPROVED:

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

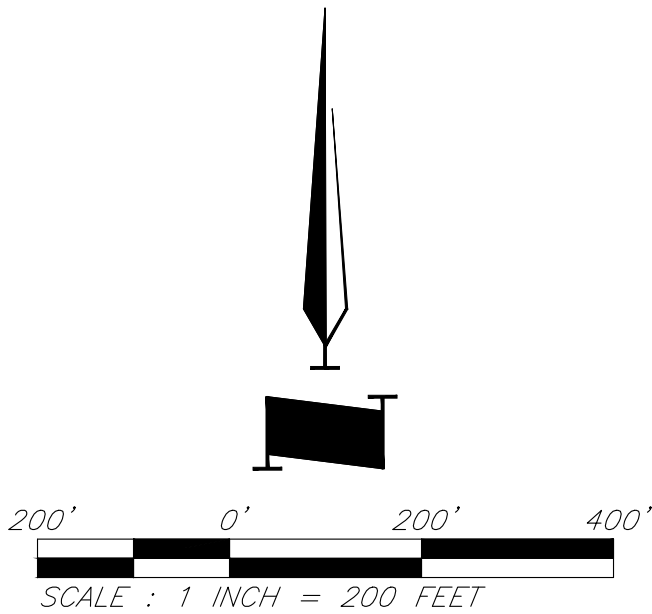
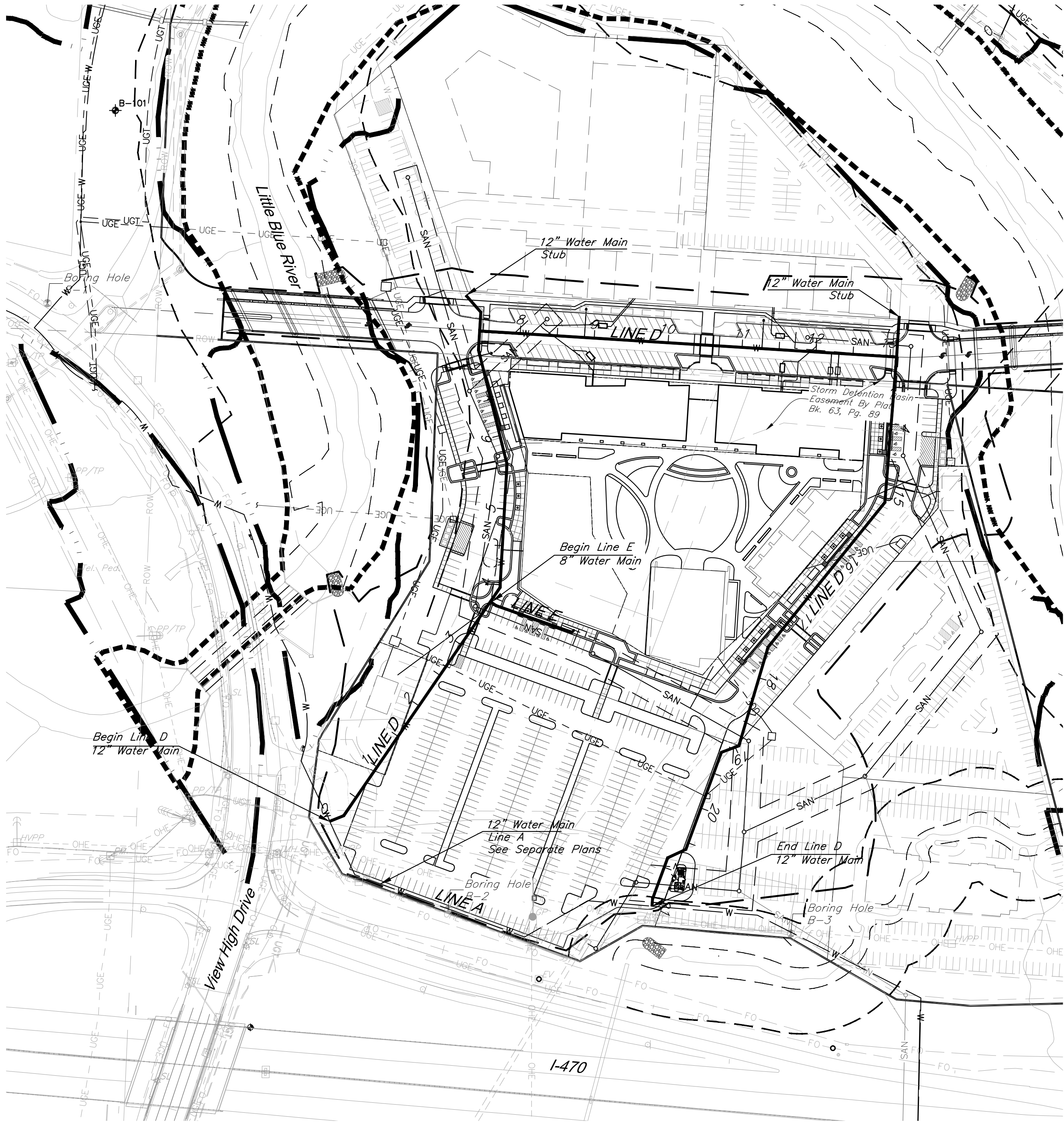
PREPARED & SUBMITTED BY:  
GEORGE BUTLER ASSOCIATES, INC.  
9801 RENNER BOULEVARD  
LENEXA, KANSAS 66219  
PHONE: 913-492-0400  
FAX: 913-577-8312  
CONTACT: CLINT LOUMASTER P.E.  
EMAIL: CLOUMASTER@GBATEAM.COM

**GBA**  
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engineers

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www.gbateam.com



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### CAUTION!

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



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engineers

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Lenexa, Kansas 66219  
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DATE: 6-19-2020  
DESIGN BY: CEL  
DRAWN BY: JMS/JWM  
PROJECT NO.: 12720  
SHEET NO. TOTAL SHEETS

2

5

Clint Loumaster  
Professional Engineer  
License No. 2011009651

### Water Main Extension Plans Village Water Line

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

#### GENERAL NOTES:

- All work shall be done in accordance with the Standards of the Lee's Summit, Missouri Water Department.
- 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.
- 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.
- 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 of the Lee's Summit, Missouri Water Department.
- Scheduling of water main shuts and connections to existing mains shall be at the discretion of the Water Department.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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; or 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 Department shall be consulted as to the precautions to be taken to protect the public water supply.

- 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.
- A street closure permit may be required for this work. Contact the Street and Traffic Division at City Hall.
- All work shall conform to the Standards of the Lee's Summit. Erosion control plans shall be submitted to the City Engineer, Public Works Department for review and approval prior to the start of this project.
- 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 9.
- Refer to "Geotechnical Engineering Report: Paragon Star Village" dated 8/2/2019 (Terracon Project #02195181) and "Geotechnical Engineering Report: Sanitary Junction Structure" dated 7/22/2019 (Terracon Project #02195076) for boring logs. All earthwork shall conform to the recommendations of the Report. A copy of the final site soils report and all boring logs will be available for review prior to the commencement of construction. The soils information shown in this set of plans has been provided by Terracon. George Butler Associates, Inc. is not responsible for the adequacy or accuracy of the soils information shown or provided. It is provided for informational purposes only. The content of these plans may change based on recommendations found in the final geo-technical report.

#### FLOODPLAIN:

A portion of the site lies within Zone AE defined as Floodway of the Channel, and as Zone X, defined as areas of 0.2% chance flood; areas of 1% chance flood with average depths less than 1' or with drainage area less than 1 square mile; and areas protected by levees from 1% annual chance flood. Per FEMA Map Number 20091C0053G and 20091C0068G dated August 3, 2009.

#### Seeding Notes:

- Contractor shall uniformly spread the topsoil over disturbed area. Seed and straw mulch shall be placed as soon as practicable.
- Between November 1 and March 15, temporary stabilization shall include a straw mulch cover at 2.25 tons/acre.
- Between March 15 and May 31, drill or hydroseed all disturbed areas with K-31 fescue at 90 lbs PLS per acre and rye grass at 50 lbs PLS per acre. Reapply straw mulch cover at 1.5 tons per acre.
- Immediately water after seeding and continue to water as necessary to establish permanent vegetation.

#### 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:

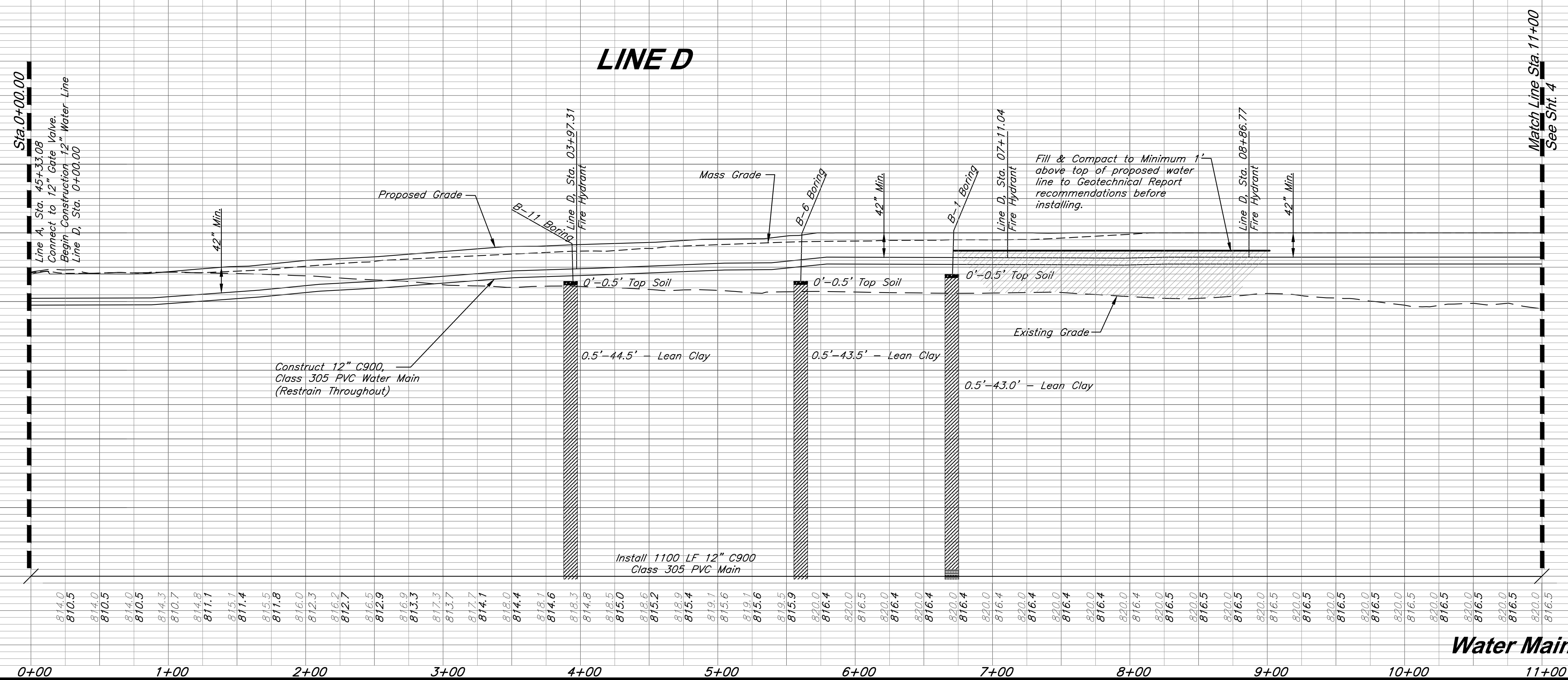
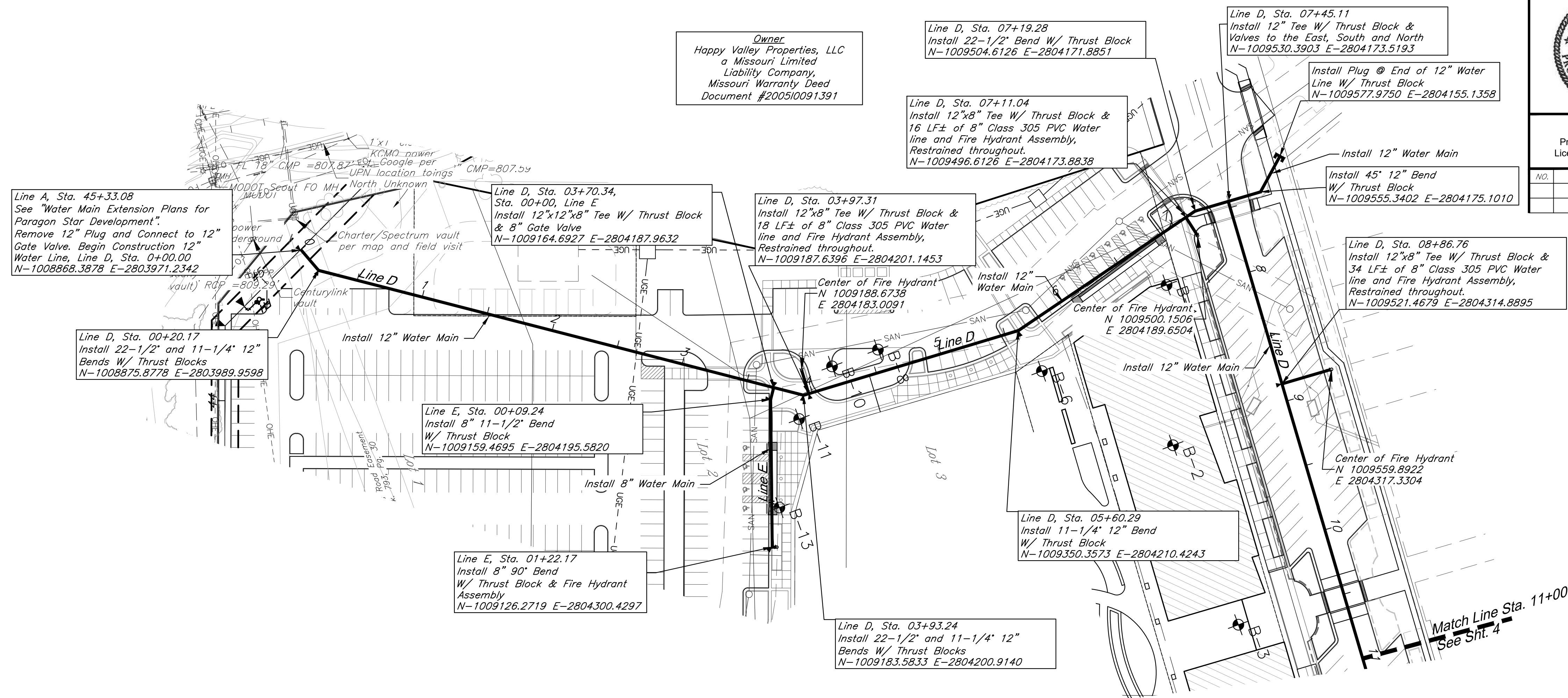
D.E. = Drainage Easement  
U.E. = Utility Easement  
P.L. = Property Line  
R/W = Right-of-Way

#### 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





### ***Water Main Plan & Profile - Line D***



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architects  
engineers

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Lenexa, Kansas 66219  
913.492.0400  
[www.gbateam.com](http://www.gbateam.com)

DATE: 6-19-2020	
DESIGN BY: CEL	
DRAWN BY: JMS/JWM	
PROJECT NO.: 12720	
SHEET NO.	TOTAL SHEETS
3	5

Clint Loumaster  
Professional Engineer  
License No. 2011009651

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

NO.	DATE	REVISIONS	BY	APPROVED

**CAUTION!**

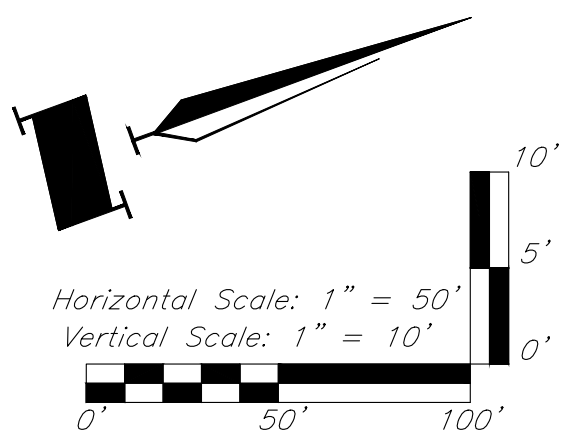
*Numerous Utilities on Site.  
Contractor to verify location  
and elevation of all utilities  
prior to commencing  
construction.*

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

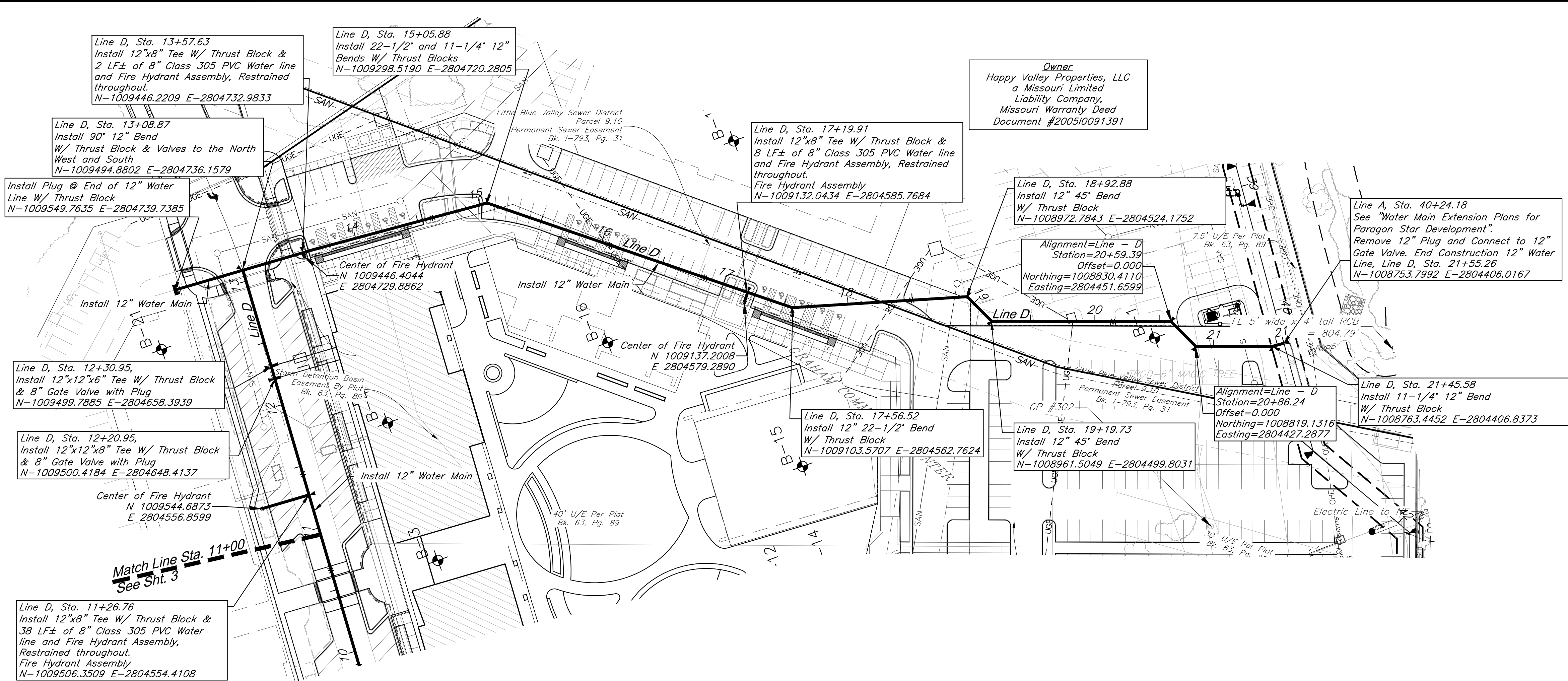
BENCHMARK:

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





C:\12720\Civil\_3D\Production Drawings\Water Main Plans\Paragon Star Development\Layout - 4 Water Main Plan & Profile - Line D.dwg    Friday June 19, 2020, 4:46pm    Copyright 2020\Golder Associates\Professional Engineer, 000133, Landscape Architect, 000025, Professional Land Surveyor, 0000259



**Owner**  
Happy Valley Properties, LLC  
a Missouri Limited Liability Company,  
Missouri Warranty Deed  
Document #200510091391



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architects  
engineers  
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Lenexa, Kansas 66219  
913.492.0400  
www.gbateam.com

DATE:	6-19-2020
DESIGN BY:	CEL
DRAWN BY:	JMS/JWM
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
4	5

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Professional Engineer  
License No. 2011009651

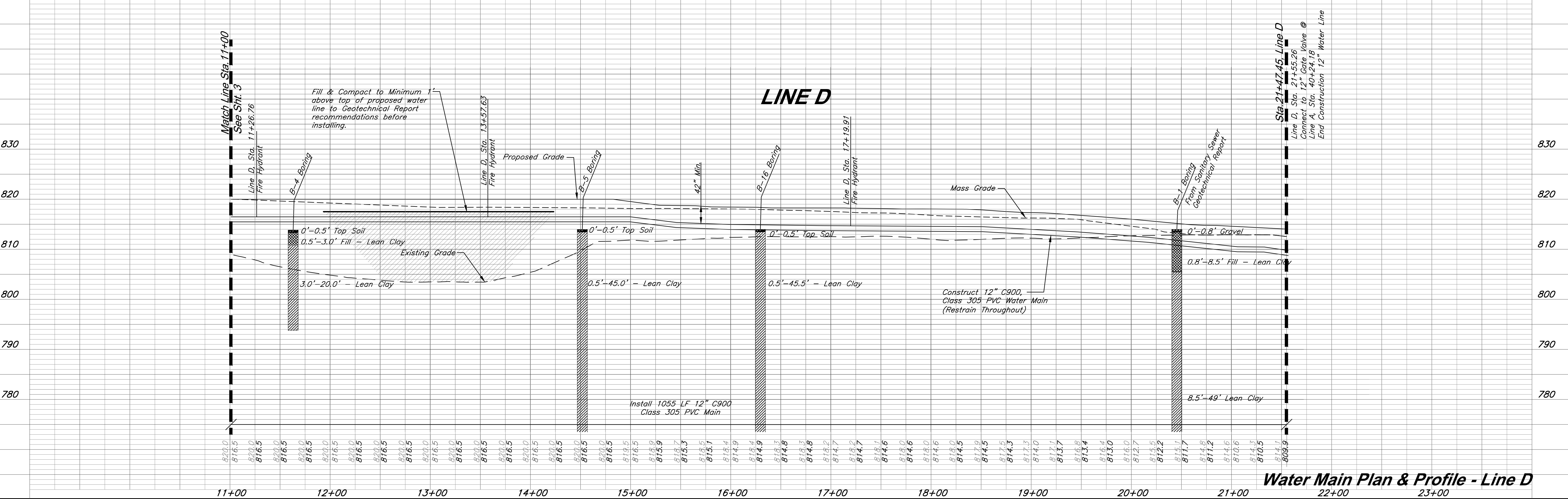
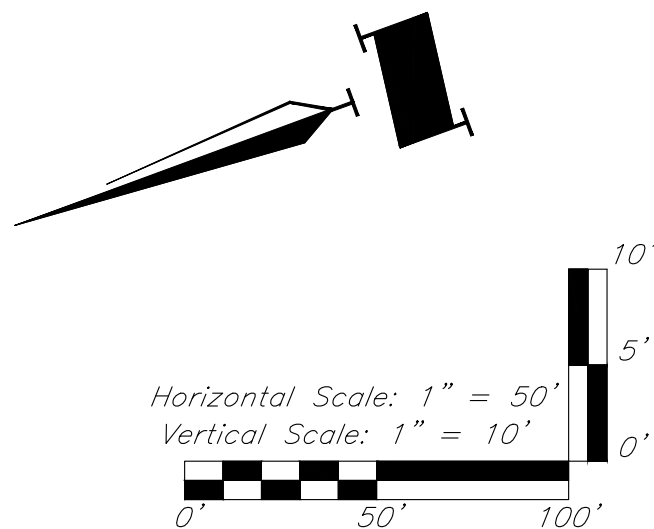
Water Main Extension Plans  
**Paragon Star Development**  
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

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

**NOTES:**  
D/E = Drainage Easement  
U/E = Utility Easement  
R = 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 I470 bridge  
spanning View High Drive.  
EL=833.80



Water Main Plan & Profile - Line D



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NOTES:

- INTERMEDIATE BELLS SHALL BE ENCASED.
- REINFORCING STEEL SHALL BE #4 @ 12" O.C. EACH WAY WITH A MINIMUM REBAR LAP OF 12".
- THIS DETAIL IS FOR PIPES 12" AND SMALLER.

LS

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

WATER PIPE ENCASUREMENT

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-4  
Rev: 1/14  
Rev:

NOTES:

- WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
- GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
- SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
- BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
- 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.
- HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LS

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HYDRANT WITH 90 DEGREE BEND

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-8  
Rev: 1/14  
Rev:

NOTES:

- 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.
- BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
- DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

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HORIZONTAL THRUST BLOCKS

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-1  
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	198.3	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

NOTES:

- 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.
- BEARING MUST BE AGAINST UNDISTURBED SOIL.
- DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

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VERTICAL THRUST BLOCKS

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-2  
Rev: 1/14  
Rev:

NOTES:

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

LS

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VALVE STEM EXTENSION AND VALVE BOX

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

NOTES:

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

LS

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

TRENCH CHECK

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-6  
Rev: 1/14  
Rev:

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DATE: 6-19-2020  
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DRAWN BY: JMS/JWM  
PROJECT NO.: 12720

SHEET NO. 5  
TOTAL SHEETS 5

Clint Loumaster  
Professional Engineer  
License No. 2011009651

Water Main Extension Plans  
**Village Water Line**  
Lee's Summit, Missouri

NO. DATE

REVISIONS

BY APPROVED