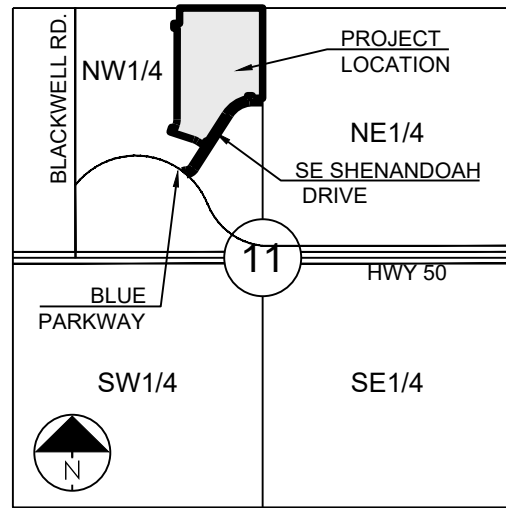


PUBLIC WATER MAIN PLANS
FOR
BLACKWELL RESERVE
IN THE CITY OF LEE'S SUMMIT
JACKSON COUNTY, MO

LEGEND:

A/E	- ACCESS EASEMENT
BC	- BACK OF CURB
B/B	- BACK TO BACK
BM	- BENCHMARK
BL or B.L.	- BUILDING LINE
CO	- CLEANOUT
TJB	- TELEPHONE JUNCTION BOX
C&G	- CURB AND GUTTER
D/E	- DRAINAGE EASEMENT
E/E	- ELECTRICAL EASEMENT
EL	- ELEVATION
FL	- FLOW LINE
G/E	- GAS LINE EASEMENT
HDPE	- HIGH-DENSITY POLYETHYLENE
L/E	- LANDSCAPE EASEMENT
MSFE	- MINIMUM SERVICEABLE FLOOR ELEVATION
PVC	- POLYVINYL CHLORIDE
P/L	- PROPERTY LINE
PUB/E	- PUBLIC EASEMENT
RCP	- REINFORCED CONCRETE PIPE
ROW or R/W	- RIGHT-OF-WAY
S/E	- SANITARY SEWER EASEMENT
SL	- SERVICE LINE
S/W	- SIDEWALK
TE	- TOP ELEVATION
U/E	- UTILITY EASEMENT
WSE	- WATER SURFACE ELEVATION
W/E	- WATERLINE EASEMENT



SECTION 11-47-31

LOCATION MAP
SCALE 1" = 2000'

UTILITY CONTACTS:MISSOURI DEPARTMENT OF
TRANSPORTATION (MODOT)

Steve Holloway
600 NE Colbern Road
Lee's Summit, MO 64086
(816) 607-2186

SPIRE

Brent Jones
3025 SE Clover Drive
Lee's Summit, MO 64082
(816) 399-0663 brent.jones@spireenergy.com

EVERGY

Philip Ingram
1300 SE Hamblin Road
Lee's Summit, MO 64081
Office: (816) 347-347-4339
philip.ingram@evergy.com

CITY OF LEES SUMMIT PUBLIC WORKS

Dena Mezger
220 SE Green Street
Lee's Summit, MO 64063
(816) 969-1800

AT&T

Mark Manion or Marty Loper
500 E. 8th Street, Room 370
Kansas City, MO 64106
(816) 275-2341 or (816) 275-1550

COMCAST CABLE
John Meadows
4700 Little Blue Parkway
Independence, MO 64057
(816) 795-2257

CITY OF LEE'S SUMMIT WATER UTILITIES

Mark Schaufler
1200 SE Hamblen Road
Lee's Summit, MO 64081
(816) 969-1900



811 or
1-800-344-7483
mo1call.com

EARTHWORK:

2. It is recommended that a Geotechnical Engineer observe and document all earthwork activities.
3. Contours have been shown at 1-foot or 2-foot intervals, as indicated. Grading shall consist of completing the earthwork required to bring the physical ground elevations of the existing site to the finished grade (or sub-grade) elevations provided on the plans as spot grades, contours or others means as indicated on the plans.
4. The existing site topography depicted on the plans by contouring has been established by aerial photography and field verified by g.p.s. observation near 11/11/2021. The contour elevations provided may not be exact ground elevations, but rather interpretations of such. Accuracy shall be considered to be such that not more than 10 percent of spot elevation checks shall be in error by more than one-half the contour interval provided, as defined by the National Map Accuracy Standards. Any quantities provided for earthwork volumes are established using this topography contour accuracy, and therefore the inherent accuracy of any earthwork quantity is assumed from the topography accuracy.
5. Proposed contours are to approximate finished grade.
6. Unless otherwise noted, payment for earthwork shall include backfilling of the curb and gutter, sidewalk and further manipulation of utility trench spoils. The site shall be left in a movable condition and positive drainage maintained throughout.
7. Unless otherwise noted, all earthwork is considered Unclassified. No additional compensation will be provided for rock or shale excavation, unless specifically stated otherwise.
8. Prior to earthwork activities, pre-disturbance erosion and sediment control devices shall be in place per the Storm Water Pollution Prevention plan and/or the Erosion and Sediment Control Plan prepared for this site.
9. All topsoil shall be stripped off all areas to be graded and stockpiled adjacent to the site at an area specified by the project owner or his appointed representative. Vegetation (grass, trees, brush, tree roots and limbs, rock fragments greater than 6-inches and other deleterious materials) shall be removed and properly disposed of offsite or as directed by the owner or his appointed representative.
10. Unless otherwise specified in the Geotechnical Report, all fills shall be placed in maximum 6-inch lifts and compacted to 95-percent of maximum density as defined using a standard proctor test (AASHTO T99/ASTM 698).
11. Subgrade for pavements shall be proctor-rolled prior to paving operations utilizing a fully loaded tandem axle dump truck. All areas exhibiting excessive pumping and heaving shall be removed, filled and compacted with suitable materials and retested until acceptable results are achieved and final approval has been obtained from the Geotechnical Engineer.
12. Subgrade for building pad shall include a minimum of 18-inches of Low Volume Change (LVC) material, or as identified in the site specific Geotechnical Report.
13. Fill materials shall be per Geotechnical Report and shall not include organic matter, debris or topsoil. All fills placed on slopes shall be less than 6:1 (horizontal:vertical).
14. The Contractor shall be responsible for redistributing the topsoil over proposed turf and landscaped areas to a minimum depth of 6-inches below final grade.
15. All areas shall be graded for positive drainage. Unless noted otherwise the following grades shall apply:
 - a. Turf Areas – 2.5% Minimum, 4H:1V Maximum
 - b. Paved Areas – 1.2% Minimum, 5% Maximum
16. A.D.A. parking stalls shall not be sloped greater than 2% in any direction and constructed per A.D.A. requirements.
17. All disturbed areas shall be fertilized, seeded and mulched immediately after earthwork activities have ceased. Seeding shall be per the Erosion and Sediment Control Plan and/or Landscape Plan. If not specified seeding shall be per APWA Section 2400, latest edition. Unless otherwise noted, seeding shall be subsidiary to the contract price for earthwork and grading activities.
18. All disturbed areas in the right-of-way shall be sodded.
19. Underdrains are recommended for all paved areas adjacent to irrigated turf and landscaped beds.
20. Contractor shall adhere to the reporting requirements outlined in the Storm Water Pollution Prevention Plan (SWPPP) prepared for this project. Erosion and Sediment control devices shall be properly maintained and kept clean of silt and debris and in good working order. Additional erosion and sediment control measures shall be installed as required.

UTILITIES:

1. Existing utilities have been shown to the greatest extent possible based upon information provided to the Engineer. The contractor is responsible for contacting the respective utility companies and field locating utilities prior to construction and identifying any potential conflicts. All conflicts shall immediately be brought to the attention of the Engineer.
2. The contractor shall be responsible for coordinating any required utility relocations. Utilities damaged through the construction of the project shall be repaired by the contractor.
3. Contractor shall verify flow-lines and structure tops prior to construction, and shall notify Engineer of any discrepancies. Provide shop drawings for all precast and manufactured utility structures for review by the Engineer prior to construction of the structures.
4. Utility Separation: Waterlines shall have a minimum of 10 feet horizontal and 2 feet vertical separation from all sanitary sewer lines, manholes, and sanitary sewer structures, as measured from clean-up edge. If minimum separations cannot be maintained, concrete encasement shall be provided. The sanitary line shall be exposed 10 feet in each direction of the conflict.
5. Payment for trenching, backfilling, pipe embedment, flowable fill, backfill materials, edge up, seeding, sodding and any other items necessary for the construction of the utility line shall be included in the contract price for the utility installation.
6. The Contractor shall be responsible for contacting respective utility companies 48-hours in advance for the inspection of any proposed utility main extension or service line or service connection to any existing main.
7. Excavation shall result in a neatly graded onsite adjacent to the trench, and compacted to prevent rutting and erosion and excess sediment runoff. Unsuitable materials, excess rock and shale, asphalt, concrete, trees, brush etc. shall be properly disposed of offsite. Materials may be waste onsite at the direction of the Owner or his appointed representative.
8. All excavation is considered unclassified, unless noted otherwise. Unclassified excavation for utility trenching is subsidiary to the unit price provided for the pipe. Any quantity provided for rock excavation is physical based on the information provided to the Project Engineer. The Engineer has the authority to identify and define the physical characteristics to determine the classification of the excavation. The excavation shall be paid at a trench width of the nominal pipe diameter of the installed main plus 18 inches. Contractor is required to dispose of excess rock from their trenches by disposing it in areas as specified by the Project Engineer.

SUMMARY OF QUANTITIES			
	ITEM	QUANTITY	UNITS
1	CONNECT TO EXISTING WATER LINE	2	EA
2	INSTALL 8" C900 DR18 PVC WATER MAIN	2,015	LF
3	INSTALL 8" C900 DR18 PVC WATER MAIN (RESTRAIN JOINTS)	22	LF
4	INSTALL 8" X 6" TEE W/ THRUST BLOCK	4	EA
5	INSTALL 8" X 8" TEE W/ THRUST BLOCK	1	EA
6	INSTALL 12" X 8" TEE W/ THRUST BLOCK	1	EA
7	INSTALL 8" 11.25" DIP BEND W/ THRUST BLOCK	7	EA
8	INSTALL 8" 11.25" DIP VERTICAL BEND W/ THRUST BLOCK	2	EA
9	INSTALL 8" 22.5" DIP BEND W/ THRUST BLOCK	2	EA
10	INSTALL 8" 45" DIP BEND W/ THRUST BLOCK	5	EA
11	INSTALL 8" GATE VALVE	5	EA
12	INSTALL 12" GATE VALVE	1	EA
13	INSTALL FIRE HYDRANT ASSEMBLY	4	EA
14	REMOVE END OF LINE TEMPORARY FIRE HYDRANT ASSEMBLY	2	EA
15	REMOVE END OF LINE TEMPORARY 8" X 6" REDUCER	2	EA

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL LAYOUT
3	WATER LINE A - STA 0+00 TO 12+00
4	WATER LINE A - STA 12+00 TO 15+58.18
5	DETAILS
6	DETAILS

PREPARED BY:



09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
PUBLIC WATER MAIN PLANS
HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 06/23/2023	PER CITY COMMENTS
2 09/06/2023	PER CITY COMMENTS
3	
4	
5	
6	
7	
8	

COVER SHEET

SHEET

1

MO GRS BENCHMARK:

STATION NAME - JA-90

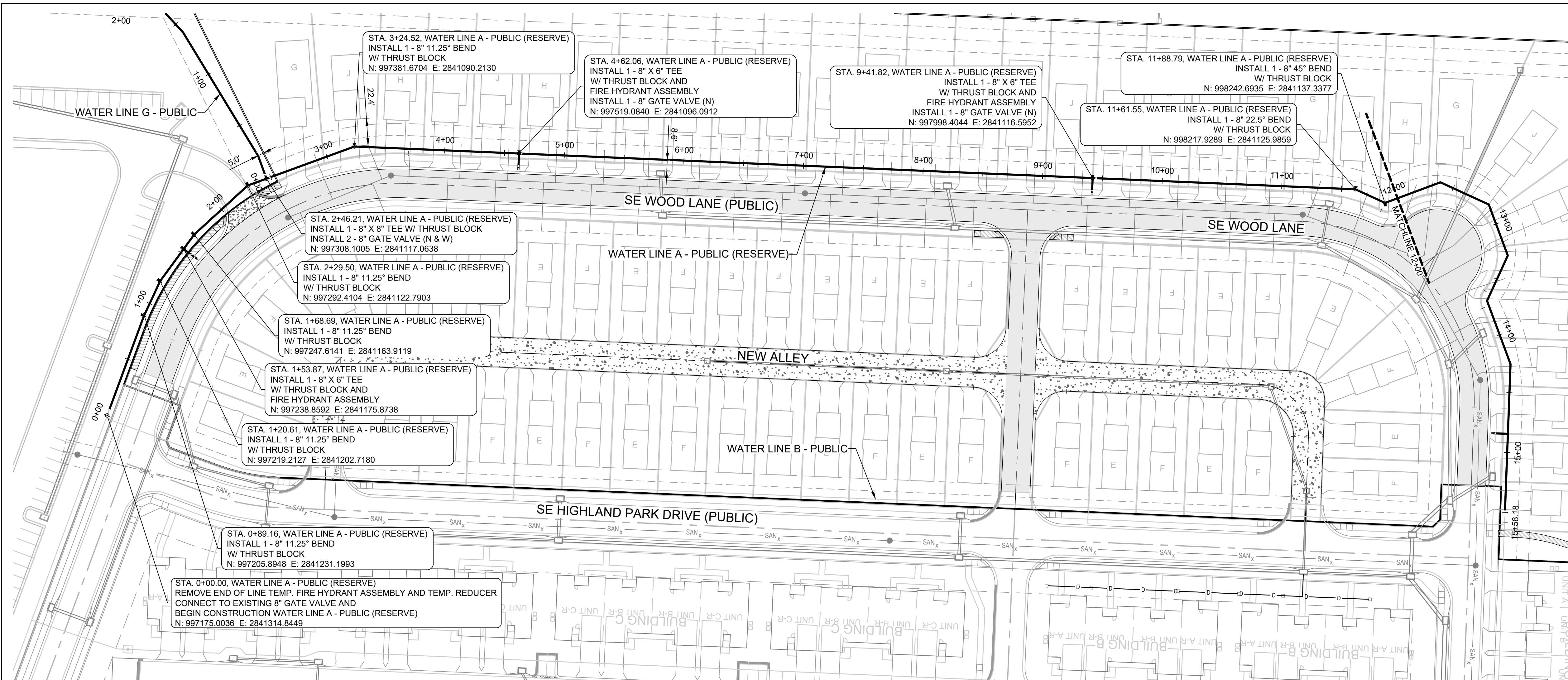
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
 LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD
 LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD
 ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
 N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH
OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719



MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD
LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD
ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

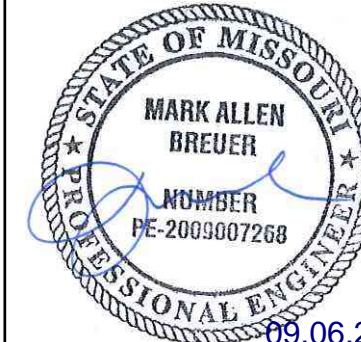
"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH
OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

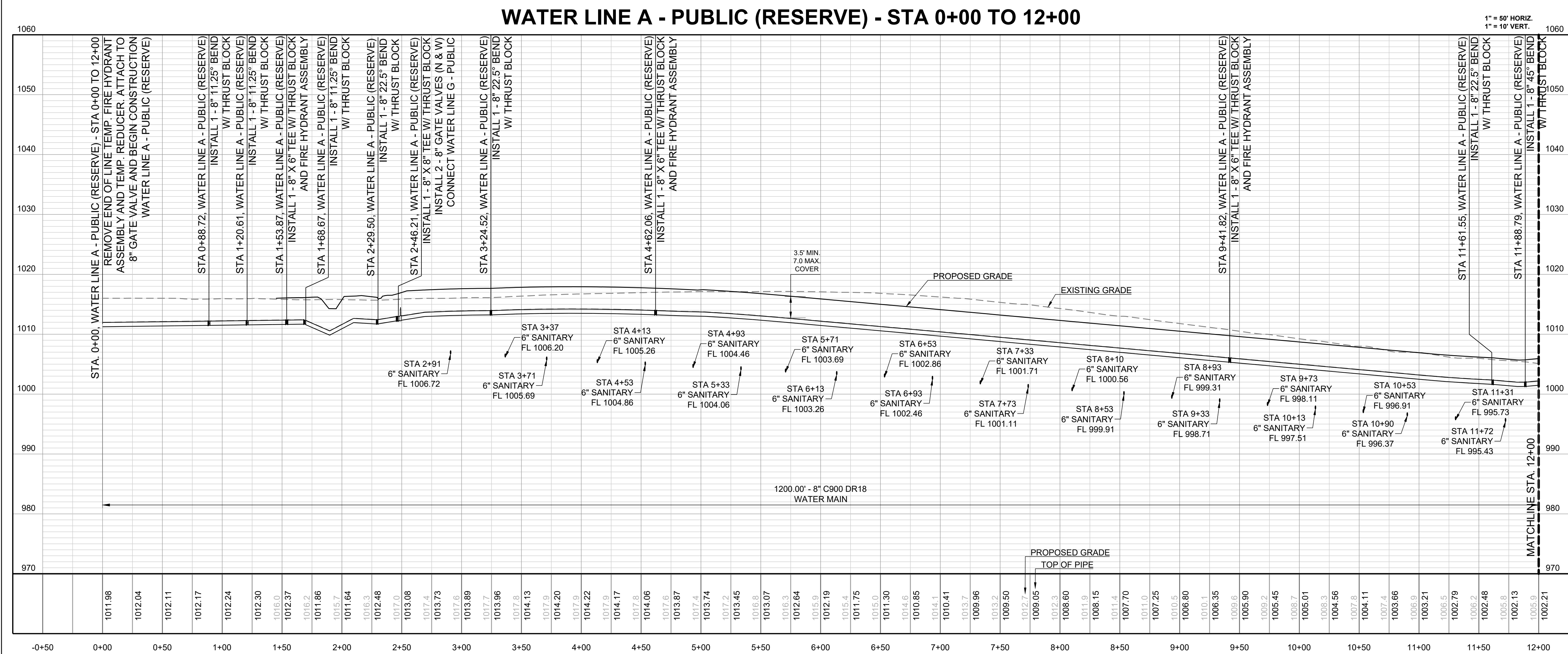
PREPARED BY:



09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
PUBLIC WATER MAIN PLANS

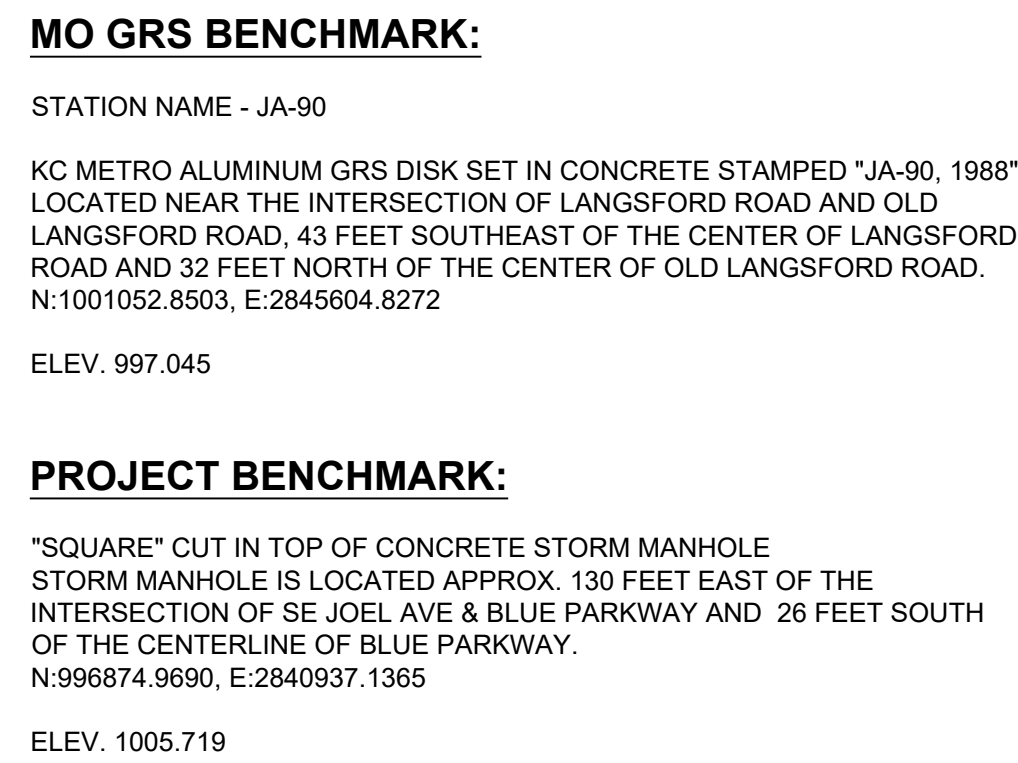


REVISION DATE	DESCRIPTION
1. 06/23/2023	PER CITY COMMENTS
2. 09/06/2023	PER CITY COMMENTS
3.	
4.	
5.	
6.	
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8.	

WATER LINE A -
STA 0+00 TO
12+00

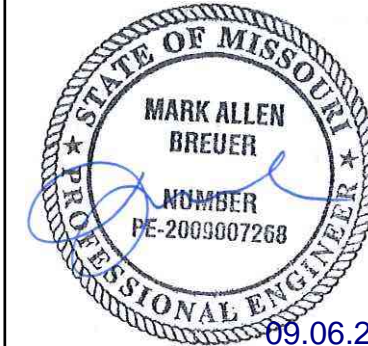
SHEET

3



- NOTES:**
1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
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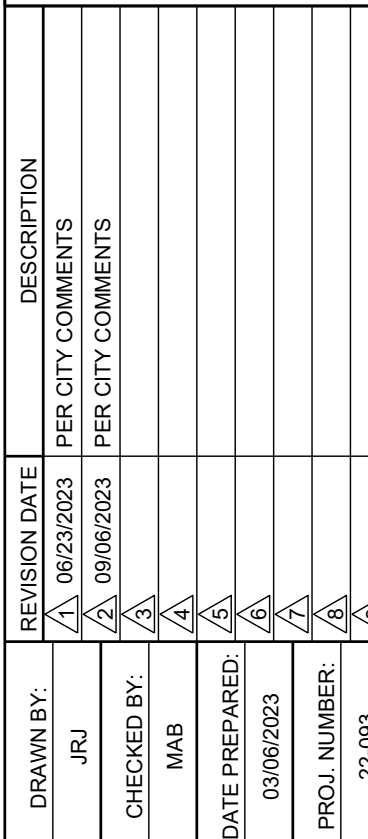
PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
PUBLIC WATER MAIN PLANS

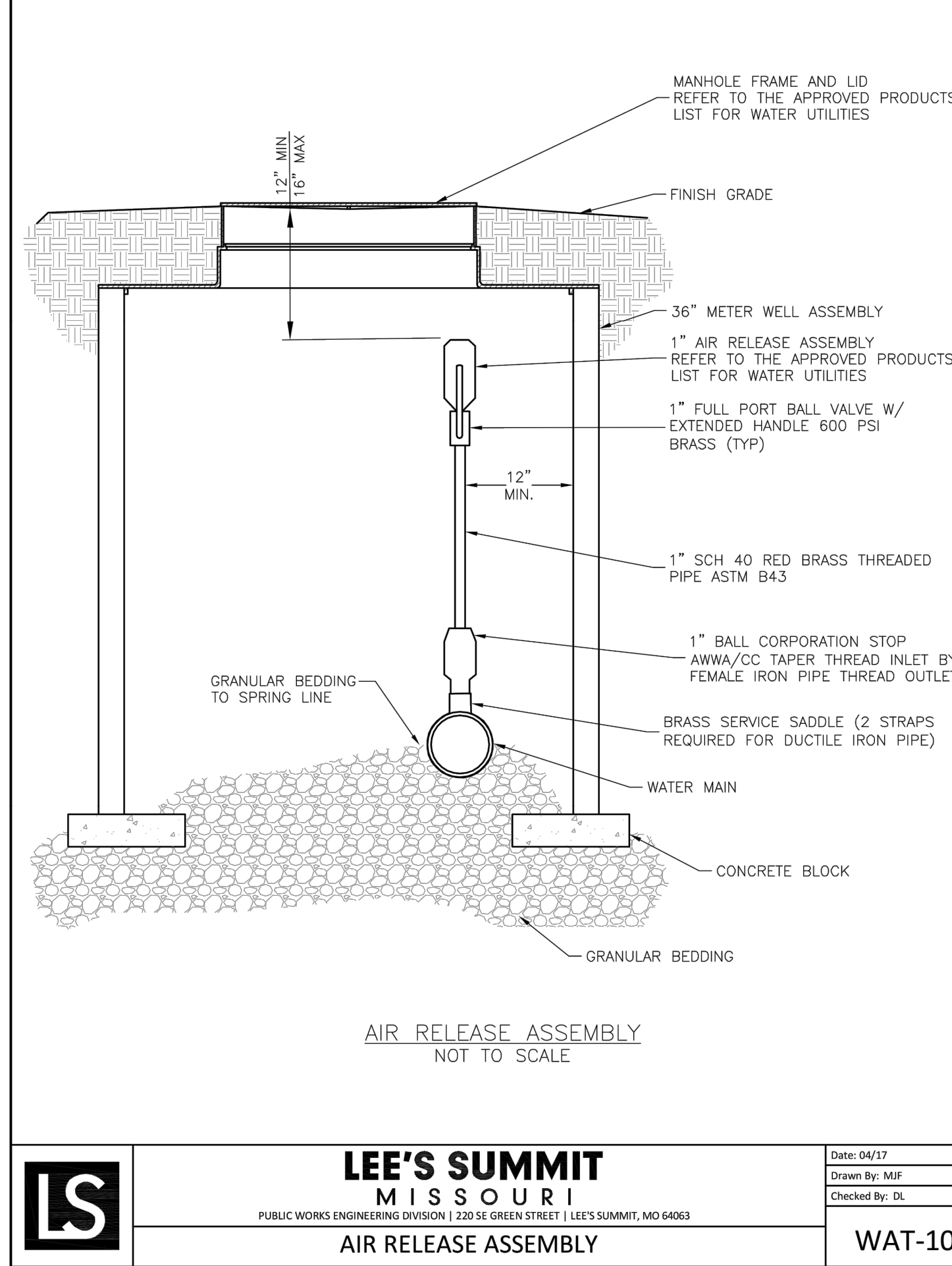
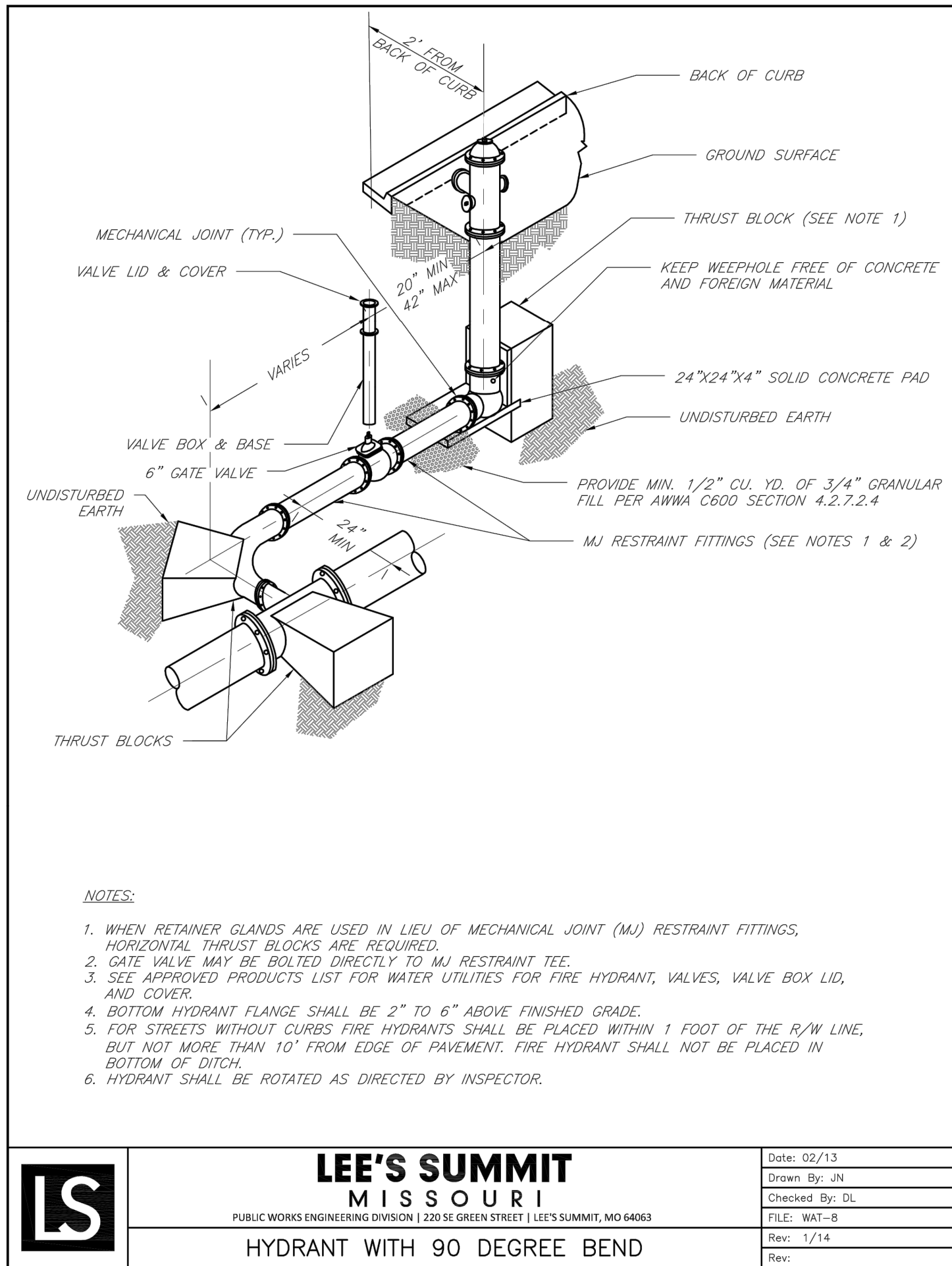
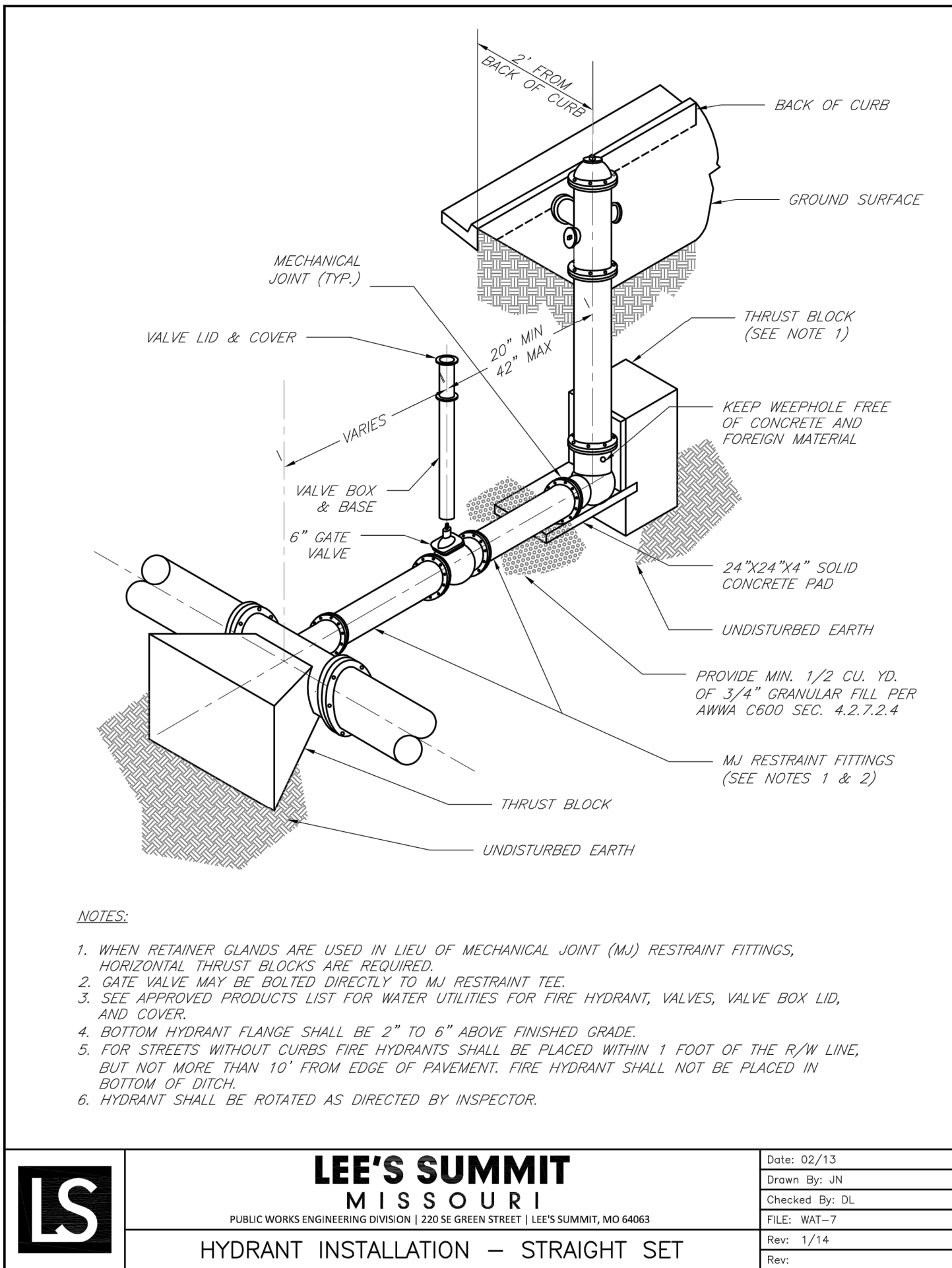
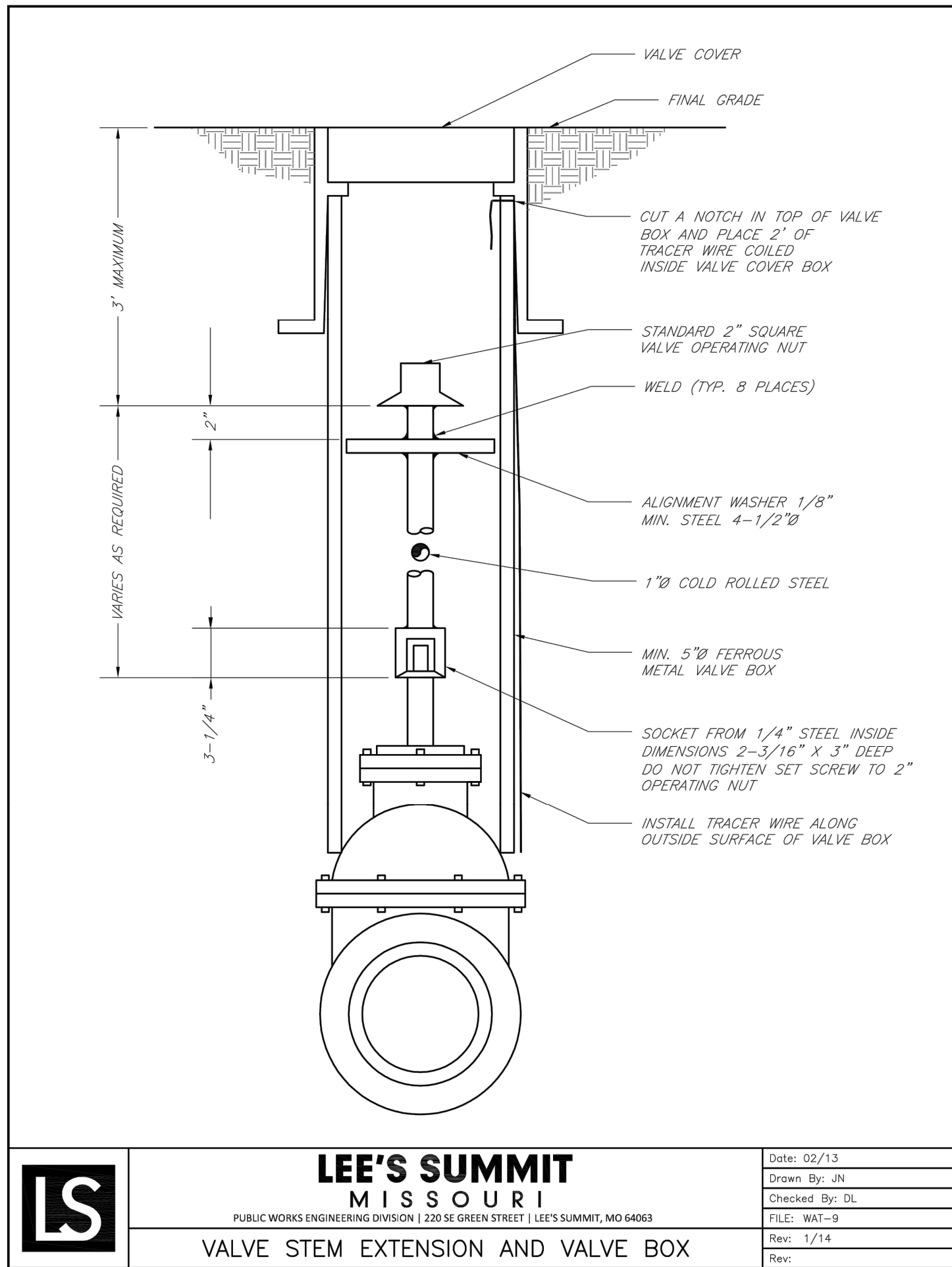
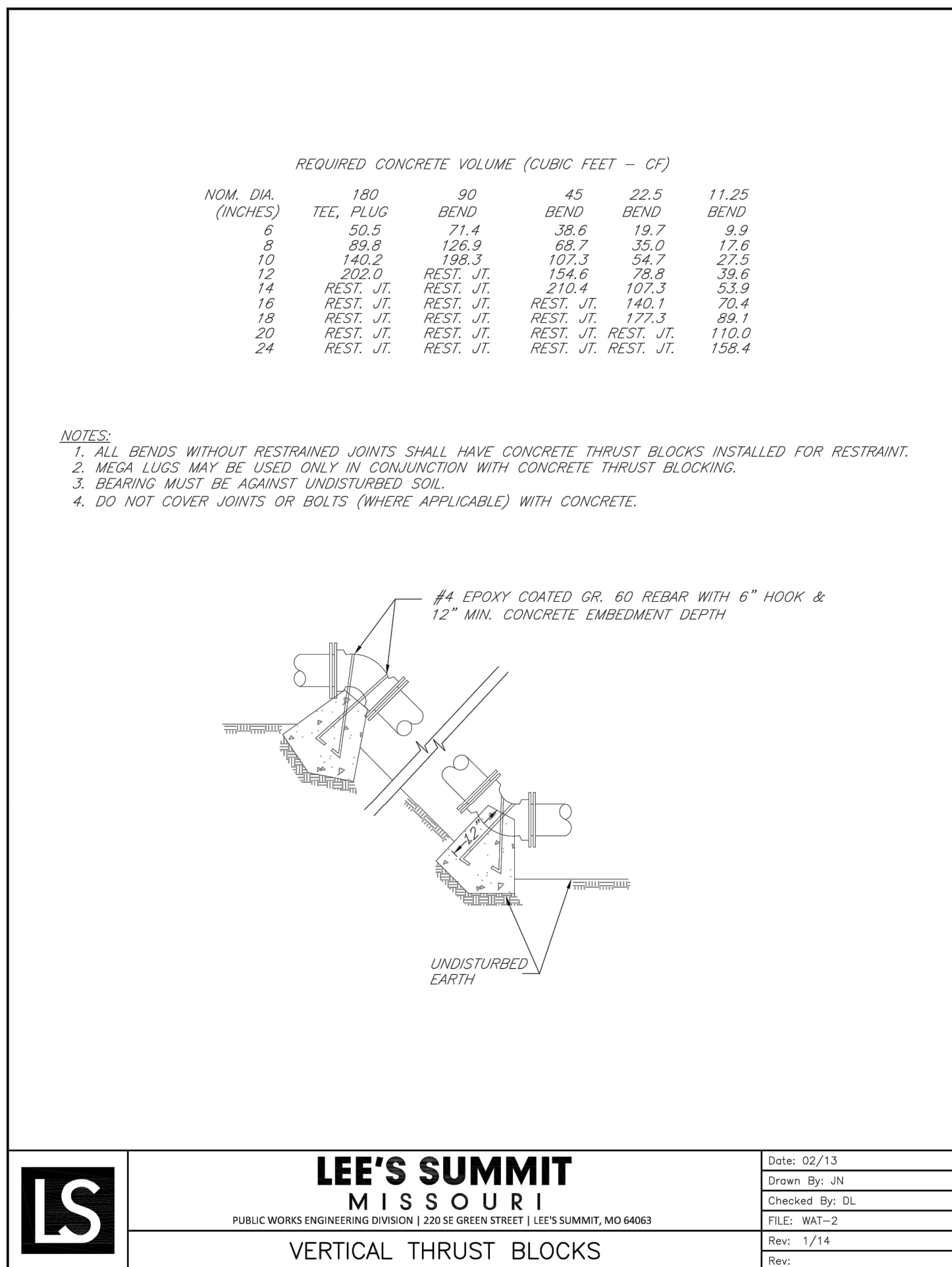
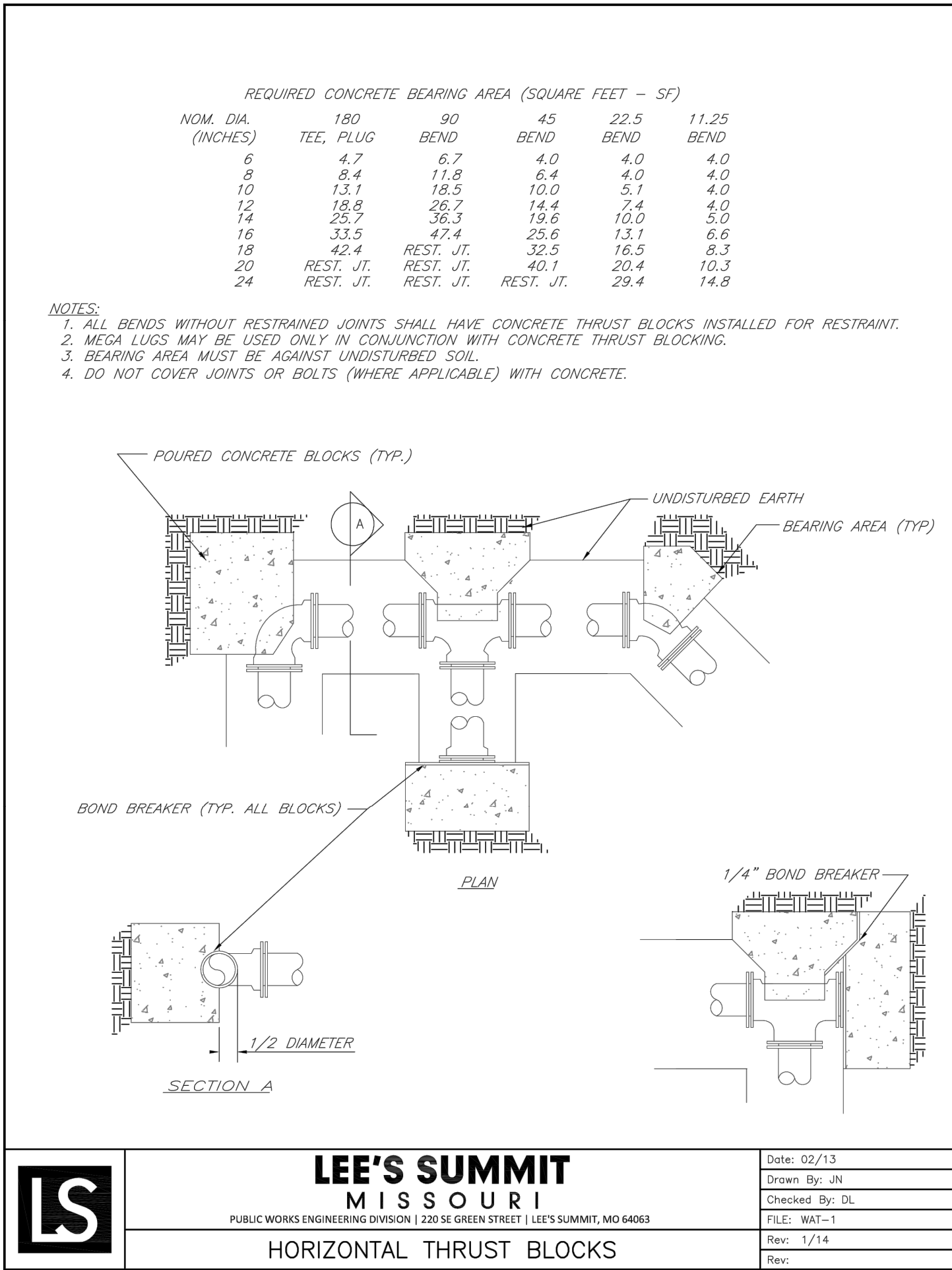
HERITAGE STREET LEE'S SUMMIT, MO



WATER LINE G -
PUBLIC

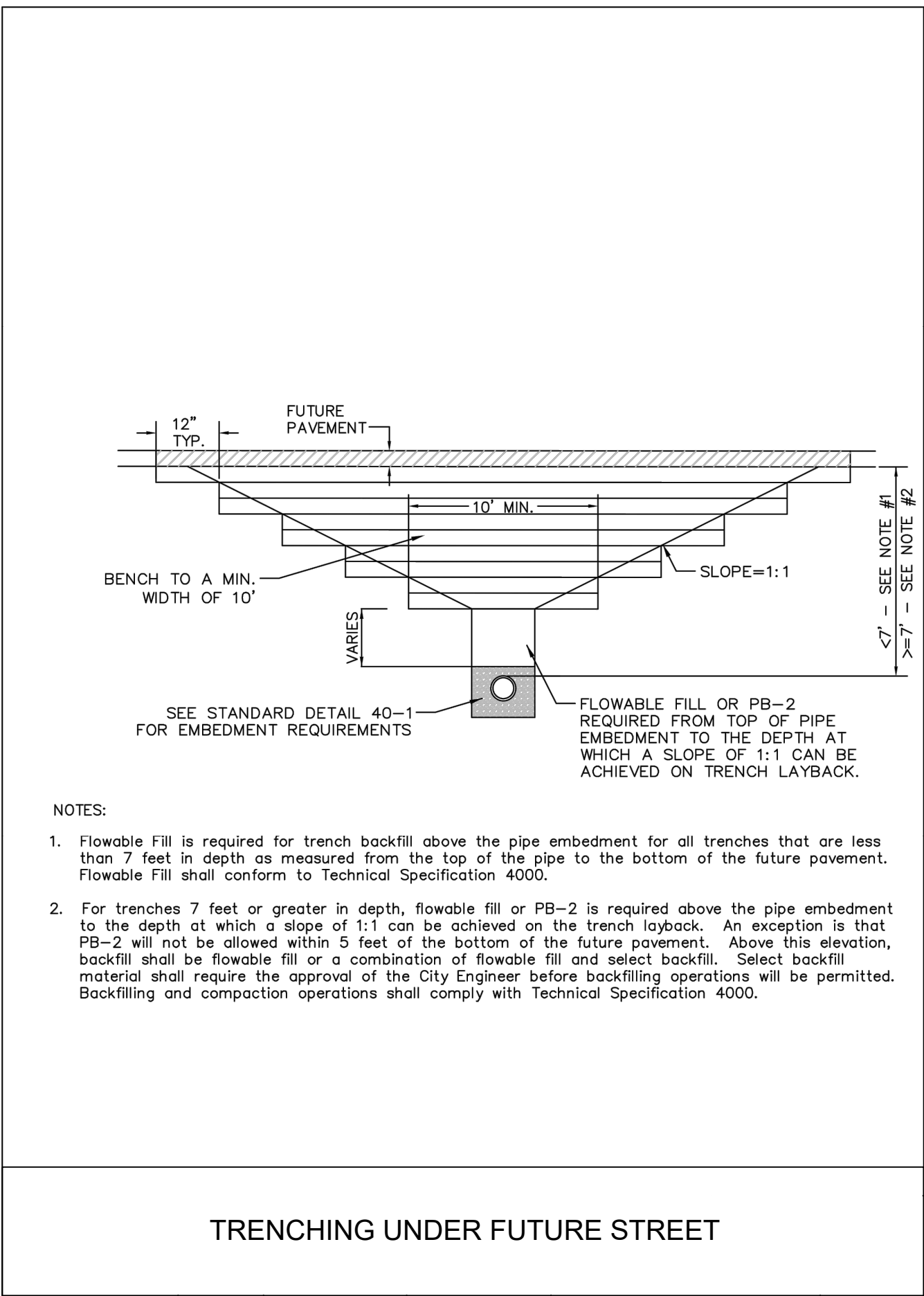
SHEET

5



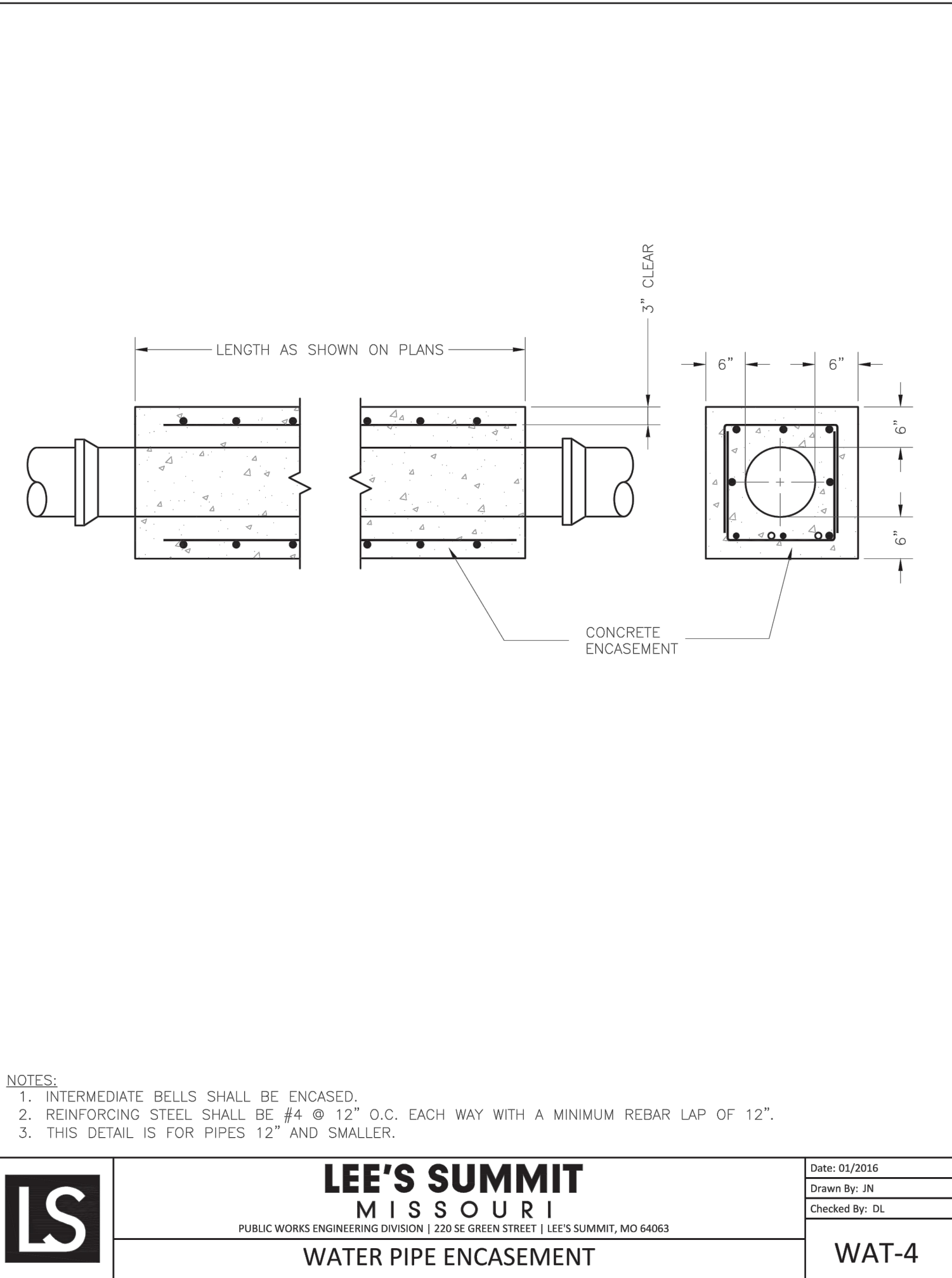
REVISION DATE	DESCRIPTION
06/23/2023	PER CITY COMMENTS
09/06/2023	PER CITY COMMENTS
03/06/2023	DATE PREPARED
22-5693	PROJ. NUMBER

DRAWN BY: JRL	CHECKED BY: MAB	DATE PREPARED: 03/06/2023	PROJ. NUMBER: 22-5693
DETAILS			



- NOTES:
1. Flowable Fill is required for trench backfill above the pipe embedment for all trenches that are less than 7 feet in depth as measured from the top of the pipe to the bottom of the future pavement. Flowable Fill shall conform to Technical Specification 4000.
 2. For trenches 7 feet or greater in depth, flowable fill or PB-2 is required above the pipe embedment to the depth at which a slope of 1:1 can be achieved on the trench layback. An exception is that PB-2 will not be allowed within 5 feet of the bottom of the future pavement. Above this elevation, backfill shall be flowable fill or a combination of flowable fill and select backfill. Select backfill material shall require the approval of the City Engineer before backfilling operations will be permitted. Backfilling and compaction operations shall comply with Technical Specification 4000.

TRENCHING UNDER FUTURE STREET



- NOTES:
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.

LS

LEE'S SUMMIT

MISSOURI

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

WAT-4

Date: 01/2016

Drawn By: JN

Checked By: DL

RECOMMENDED MINIMUM TRENCH WIDTHS	
PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS		
SURFACE LIVE LOADING CONDITION		
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 6" (100mm) .
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

SCHLAGEL

ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS

14920 West 107th Street • Lenexa, Kansas 66215

(913) 492-5158 • Fax: (913) 492-8400

WWW.SCHLAGELASSOCIATES.COM

Missouri State Certificates of Authority

#E2002003600-F #LAC2001005237 #LS2002008659-F

PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
PUBLIC WATER MAIN PLANS
HERITAGE STREET LEE'S SUMMIT, MO

DRAWN BY:	REVISION DATE	DESCRIPTION	
		PER CITY COMMENTS	PER CITY COMMENTS
JRL MAB 03/06/2023 22-593	1	06/23/2023	
	2	09/06/2023	
	3		
	4		
	5		
	6		

DETAILS

SHEET

7