

USER: bworthley

DWG: F:\2019\2001-2500\019-2339-A10-Design\AutoCAD\Final Plans\Sheets\QRCV\SANITARY\C_TTL01_A192339.dwg
DATE: Mar 17, 2020 8:31pm XREFS: C_PTBULK_A192339 C_PBD1_A192339

GENERAL NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PLANS IN THEIR POSSESSION ARE THE MOST CURRENT VERSION ISSUED, ARE FULLY COORDINATED WITH ALL SUBCONTRACTORS, AND PRESENT ON SITE AT ALL TIMES. CURRENT PLANS PREPARED BY OLSSON MAY BE OBTAINED AT THE DIRECTION OF OLSSON'S CLIENT. DIRECT REQUESTS TO OLSSON MAY REQUIRE ADDITIONAL AUTHORIZATIONS, AGREEMENTS, AND/OR FEES. PLEASE CONTACT THE ENGINEER FOR INFORMATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS WRITTEN APPROVAL FROM ENGINEER, OWNER, AND DEVELOPER.
- ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
- ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHOWN IN THE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES, AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
- THE CONTRACTOR SHALL NOT ENGAGE IN ACTIVITIES THAT MAY ENCROACH ON WATERS OF THE U.S., INCLUDING WETLANDS, UNTIL ANY NECESSARY PERMITS MAY BE OBTAINED. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL CONDITIONS DESCRIBED IN THE PERMIT.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, THE SAFETY OF ALL PERSONS INCLUDING VISITORS AND THE GENERAL PUBLIC, AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY THROUGHOUT THE PROJECT AND NOT BE LIMITED BY WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
- PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND OBTAIN ANY RELEVANT INFORMATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BOUNDARY CORNERS AND SECTION CORNERS. ANY BOUNDARY CORNER AND/OR SECTION CORNER DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ADJACENT PROPERTIES AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE DURING CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES.
- PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER TO PERFORM A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.

REFERENCES

- UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY:
 - ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.
 - ALL CONSTRUCTION IN MODOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MODOT.
 - ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES.
 - ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DELIVERY MANAGER AND COORDINATING ANY MAILBOXES THAT MAY BE DISTURBED. FAILURE TO DO SO MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.

EXISTING CONDITIONS

- THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS OF THE PROJECT AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THEIR OWN INVESTIGATIONS AND MAKING THEIR OWN ASSUMPTIONS REGARDING SITE SURFACE AND SUBSURFACE CONDITIONS. THIS INCLUDES THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. CONTACT THE ENGINEER REGARDING ANY DISCREPANCIES THAT MAY AFFECT THE ABILITY TO CONSTRUCT FROM THESE PLANS AS DESIGNED.
- EXISTING CONDITIONS WERE DETERMINED THROUGH A VARIETY OF METHODS THAT MAY INCLUDE SURVEY, AERIAL IMAGERY, AVAILABLE RECORDS, GIS DATA, ETC. SUBSURFACE CONDITIONS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES AND OTHER SITE IMPROVEMENTS PRESENT ON SITE. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS WHEN CONFLICTS AND DISCREPANCIES ARE FOUND.

CONSTRUCTION

- THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL WHILE WORKING IN THE PUBLIC RIGHT-OF-WAY AS SHOWN IN THESE PLANS. IF PLANS ARE NOT PROVIDED, CONTRACTOR SHALL COORDINATE AND PROVIDE CONTROLS TO THE SATISFACTION OF THE RIGHT-OF-WAY OWNER.
- THE CONTRACTOR SHALL PROTECT ALL TREES OVER 3" CALIPER FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
- THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING

FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.

- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED. NOT ALL ADJUSTMENTS ARE INDICATED IN THE PLANS.
- THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

SHOP DRAWINGS

- THE CONTRACTOR SHALL SUBMIT SHOP DRAWING A MINIMUM OF 7 DAYS PRIOR TO THE REQUESTED DATE OF APPROVAL. ENGINEER SHALL REVIEW SHOP DRAWINGS OR SAMPLES CONFORMANCE WITH THE DESIGN FOR THIS PROJECT AS DESCRIBED IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS. THE ENGINEER'S REVIEW SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS NOTIFIED ENGINEER OF EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND OBTAINED ENGINEER'S WRITTEN APPROVAL OF EACH SUCH VARIATION. PRIOR TO SUBMITTING EACH SHOP DRAWING OR SAMPLE, CONTRACTOR SHALL HAVE REVIEWED AND VERIFIED:
 - ALL FIELD MEASUREMENTS, QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR INFORMATION WITH RESPECT THERETO;
 - ALL MATERIALS WITH RESPECT TO INTENDED USE, FABRICATION, SHIPPING, HANDLING, STORAGE, ASSEMBLY AND INSTALLATION PERTAINING TO THE PERFORMANCE OF THE WORK;
 - ALL INFORMATION RELATIVE TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO;
 - CONTRACTOR SHALL ALSO HAVE REVIEWED AND COORDINATED EACH SHOP DRAWING OR SAMPLE WITH OTHER SHOP DRAWINGS AND SAMPLES, AND WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS.
 - ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY COMPLETED THE ABOVE TASKS.
- SHOP DRAWINGS AS DESCRIBED ABOVE ARE REQUIRED FOR, BUT NOT LIMITED TO, THE FOLLOWING:
 - ALL SANITARY SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
 - ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN "APPROVED EQUAL" ALTERNATIVE.

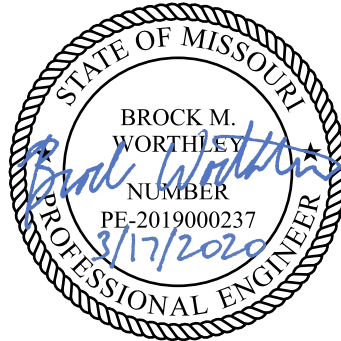
SANITARY SEWER GENERAL NOTES

- PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH CITY OF LEE'S SUMMIT, MISSOURI.
- ALL PIPE LENGTHS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
- ALL STRUCTURE DIMENSIONS ARE TO INSIDE FACE OF STRUCTURE.
- COORDINATES ARE PROVIDED AT THE CENTER OF STRUCTURE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING THE LID DURING INSTALLATION.
- THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF SANITARY SEWER.
- SANITARY SEWER TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
- MANHOLE INVERT CHANNELS SHALL BE SMOOTH, CIRCULAR, AND CONFORMING TO ½ THE ADJACENT PIPE SECTION (INVERT TO CENTER). CHANGES IN DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE AND MAINTAIN SHAPE THROUGHOUT. CHANGES IN GRADE OF ADJACENT PIPES SHALL BE TRANSITIONED SMOOTHLY AND EVENLY THROUGH THE MANHOLE.
- PIPE PENETRATIONS SHALL BE USE GASKETS TO ENSURE WATERTIGHT SEALS.
- TRACING TAPE SHALL BE INSTALLED ALONG ALL NON-METALLIC SURFACES OR AS DIRECTED BY LOCAL CODES AND ORDINANCES.
- SEWER LINE INSPECTIONS AND TESTING MUST BE SCHEDULED A MINIMUM OF TWO FULL BUSINESS DAYS IN ADVANCE. CONTRACTOR SHALL FURNISH ALL TESTING EQUIPMENT. TESTING SHALL INCLUDE
 - MANDREL TEST OF ALL GRAVITY SEWERS. IF THE MANDREL TEST FAILS ON ANY SECTION OF PIPE, THAT SECTION SHALL BE UNCOVERED AND REPLACED.
 - AIR PRESSURE TEST OF ALL GRAVITY SEWERS.
 - VACUUM TEST OF ALL MANHOLES.
- REFER TO SHEET C215 FOR SANITARY DESIGN & SEWER LATERAL INFORMATION.
- ALL SERVICE LINE CONNECTIONS SHALL BE MADE WITH AN 8"x4" PVC WYE, 4"PVC 45° BEND, AND THE APPROPRIATE LENGTH OF 4" PVC LATERAL (UNLESS OTHERWISE SHOWN) AND CAP. SEE DETAIL SHEET C216.
- MSFE- INDICATES LOWEST FLOOR SERVICEABLE BY PROPOSED SANITARY SEWER.
- MAXIMUM DEVIATION FROM LATERAL STATION LOCATIONS AS CALLED OUT SHALL BE 2.0' TO AVOID PIPE JOINT.
- SANITARY LATERALS ARE DESIGNED @ 2.00% SLOPE. IF RISER IS INDICATED, IT IS TO BE AT THE SANITARY MAIN, UNLESS OTHERWISE NOTED.
- REFER TO CURRENT CITY SPECIFICATIONS FOR MINIMUM PIPE SLOPES.
- CONTRACTOR MAY BE REQUIRED TO RECONSTRUCT PIPE AND STRUCTURE IF MINIMUM INVERT DROP OR PIPE SLOPE REQUIREMENTS ARE NOT MET.
- SANITARY STRUCTURES SHALL BE PER CURRENT CITY DETAILS. IF CITY DOES NOT HAVE PUBLISHED DETAILS STRUCTURES SHALL BE PER CURRENT APWA SPECIFICATIONS.
- GRAVITY SANITARY SEWER AND WATER LINES SHALL BE SEPARATED BY A MINIMUM OF 10' HORIZONTALLY WHEN PARALLEL AND 2' VERTICALLY WHEN CROSSING. WATER LINES SHALL CROSS ABOVE SANITARY SEWERS.

CONTROL POINT TABLE				
POINT NUMBER	NORTHING	EASTING	POINT ELEVATION	DESCRIPTION
11	978424.224	2811650.442	1030.85	8" IB/CAP SET IN THE CENTER MEDIAN OF ROUTE 150. IT IS DUE NORTH OF THE CENTER LINE OF THE DRIVEWAY TO PROPERTY ADDRESS 2025 ROUTE 150. IT IS 12.15 FT WEST OF A LIGHT POLE, 8.5 FT SOUTH OF THE BACK OF CURB, AND 8.1 FT NORTH OF THE BACK OF CURB
12	978340.573	2812332.280	1036.11	8" IB/CAP SET ON THE EAST SIDE OF SW PRYOR RD AT THE SOUTHEAST CORNER OF THE INTERSECTION OF ROUTE 150 AND SW PRYOR RD. IT IS 2.15 FT EAST OF THE BACK OF CURB, 19 FT WEST OF THE TRAFFIC SIGNAL POLE, AND 9.6 FT WEST OF A VAULT.
13	977064.448	2812265.992	1012.10	8" IB/CAP SET ON THE NORTHEAST CORNER OF THE INTERSECTION OF SW PRYOR RD AND SW NAPA VALLEY DR. IT IS 6 FT EAST OF THE BACK OF CURB, 10.2 FT NORTH OF THE CORNER OF THE SIDEWALK, AND 7.25 FT WEST OF ROCK LANDSCAPE BORDER.
14	977092.478	2810924.856	1040.93	8" IB/CAP SET IN THE NORTHWEST CORNER OF THE SOUTH ADJOINING PROPERTY. IT IS 7.5 FT EAST OF THE FENCE LINE, AND 45 FT SOUTH OF OF THE TREE LINE.
18	978446.811	2810956.695	1050.47	8" IB/CAP SET IN THE CENTER MEDIAN OF ROUTE 150. THE POINT IS DIRECTLY SOUTH OF A WHITE MAILBOX ON AN ORANGE POST FOR HOUSE ADDRESS 2144 ROUTE 150. IT IS 6.6 FT SOUTH OF THE BACK OF CURB, 5.8 FT NORTH OF THE BACK OF CURB, AND 31 FT EAST OF A LIGHT POLE.
BENCHMARK				
BMK1	977045.350	2812211.924	1014.83	CHISELED PLUS ON THE EAST FLANGED BOLT OF THE FIRE HYDRANT ON THE WEST SIDE OF SW PRYOR ROAD ON ADJOINING PROPERTY SOUTH OF THE SOUTHWEST CORNER OF SUBJECT PROPERTY.
BMK2	978357.416	2811627.737	1031.31	RAILROAD SPIKE IN THE NORTH FACE OF POWER POLE LOCATED ON THE SOUTH SIDE MISSOURI STATE HIGHWAY 150 AT THE WEST SIDE OF THE DRIVEWAY TO 2025 MISSOURI STATE HIGHWAY 150, LEE'S SUMMIT, MO.

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
STREET				
1	8" SANITARY PVC (SDR-26)	L.F.	4175.11	
2	12" SANITARY PVC (SDR-26)	L.F.	820.47	
3	MANHOLES, STD. 4' DIA.	EA.	21	
4	CONNECTION TO EXISTING STUB	EA.	1	
5	TRACER WIRE	L.F.	3349.81	
6	TRACER WIRE BOX	EA.	101	
7	SERVICE WYE	EA.	101	
8	4" LATERAL PIPE	L.F.	3349.81	

SUMMARY OF QUANTITIES AS INDICATED ABOVE AND ANY QUANTITIES AS SHOWN WITHIN THE PLANS HAVE BEEN PROVIDED FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR USE IN PREPARATION OF CONTRACT DOCUMENTS. QUANTITIES INTENDED FOR, BUT NOT LIMITED TO, THE PREPARATION OF PROPOSALS AND BID DOCUMENTS SHALL BE INDEPENDENTLY EVALUATED BY THE ESTIMATING PARTY BASED UPON THE CONTENTS OF THESE PLANS.



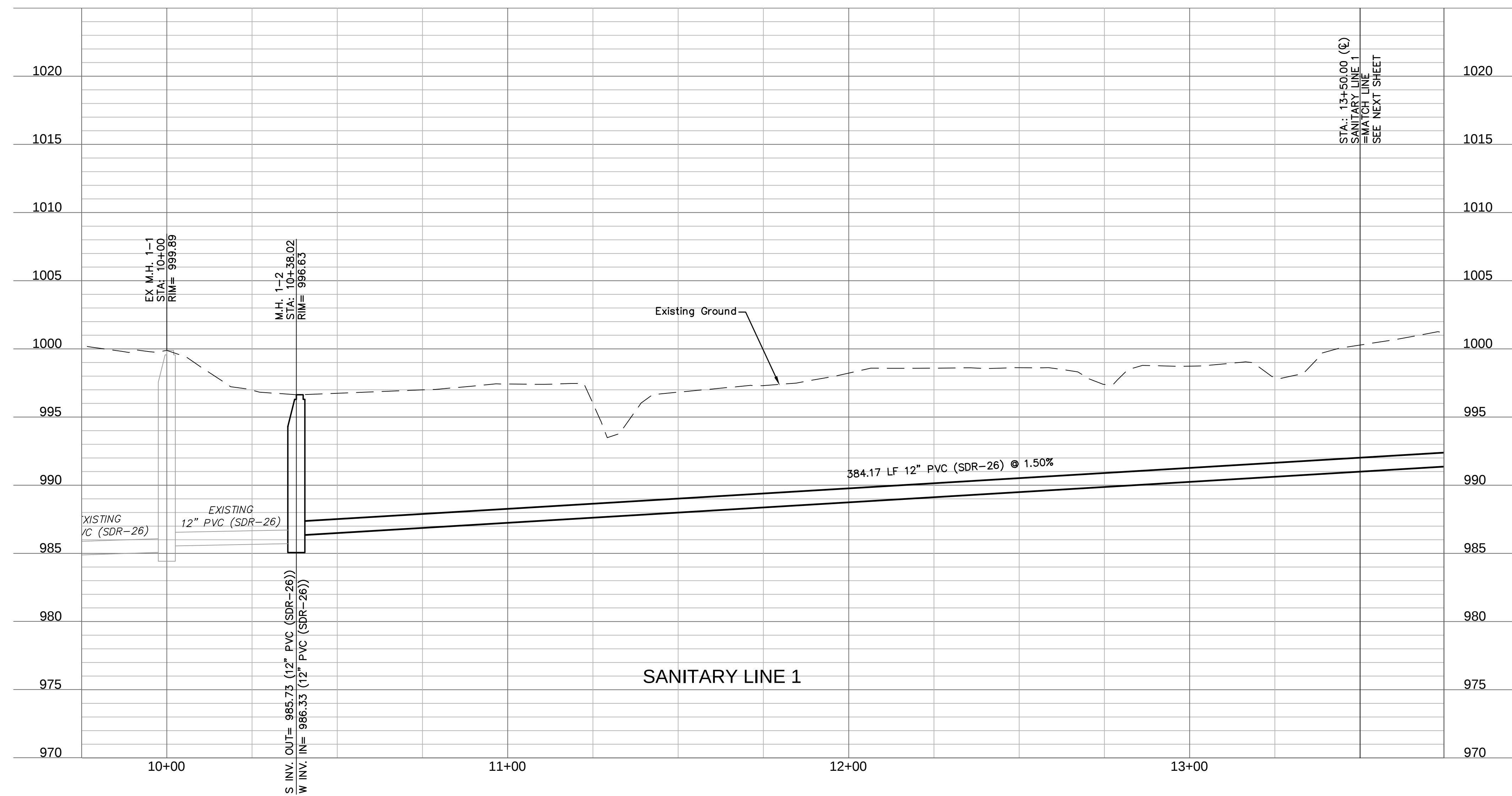
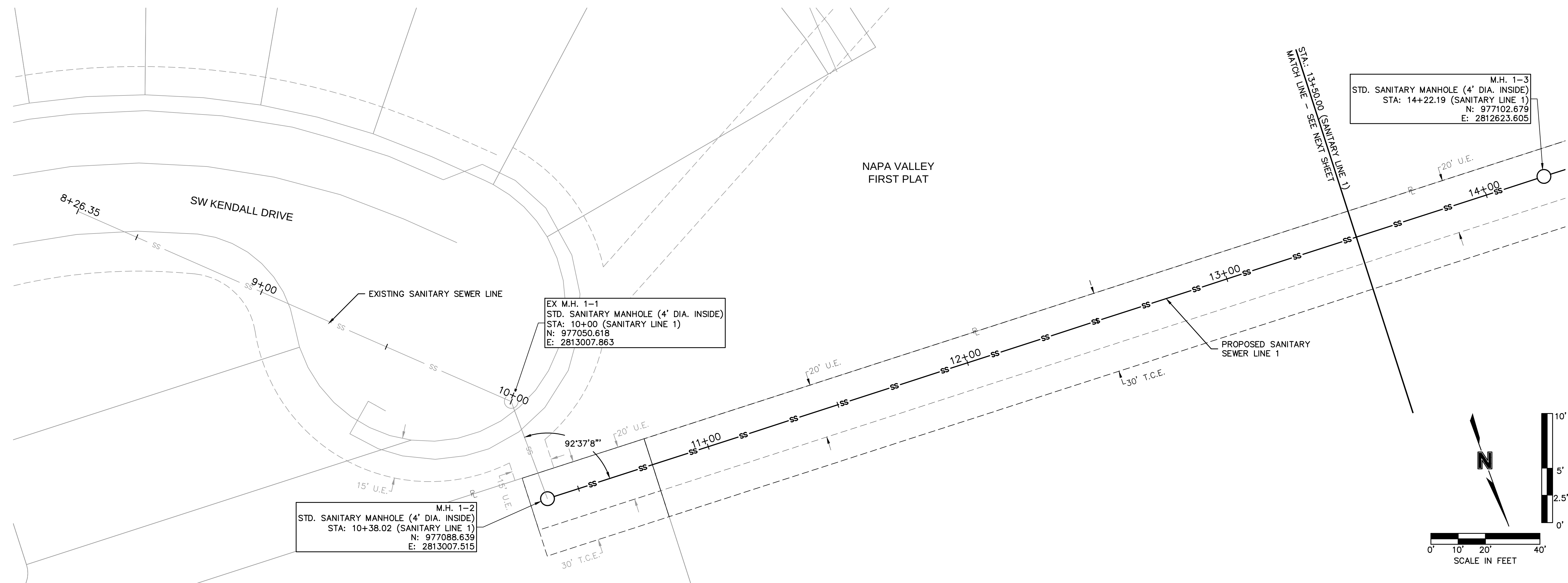
BY		REVISIONS DESCRIPTION		DATE		REV. NO.	

GENERAL NOTES		SANITARY SEWER PLANS		OSAGE FIRST PLAT		LEE'S SUMMIT, MISSOURI	

drawn by: _____ GS
checked by: _____ SS
designed by: _____ BMW
QA/QC by: _____ JES
project no.: _____ A19-2339
drawing no.: _____ C_TTL01_A192339
date: _____ 3/17/2020

SHEET
C202

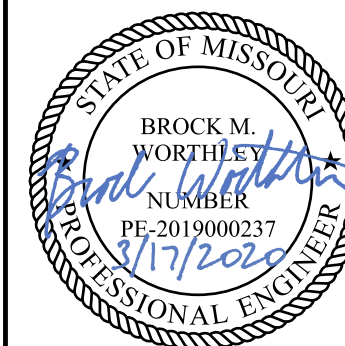
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Olsson - Civil Engineering
Missouri Certificate of Authority #: 001592
1301 Burlington Street
North Kansas City, MO 64116
TEL 816.361.1177
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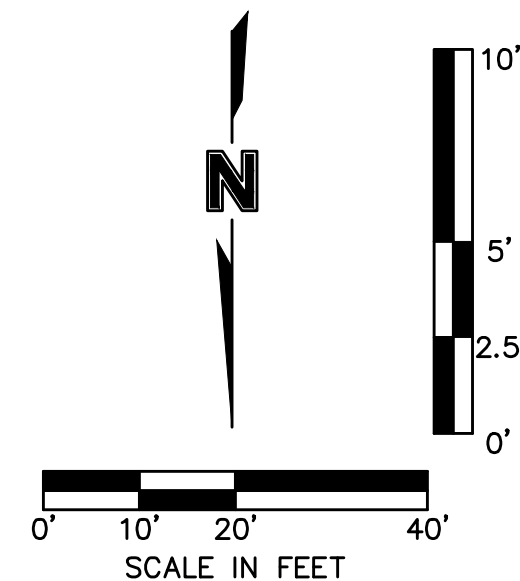
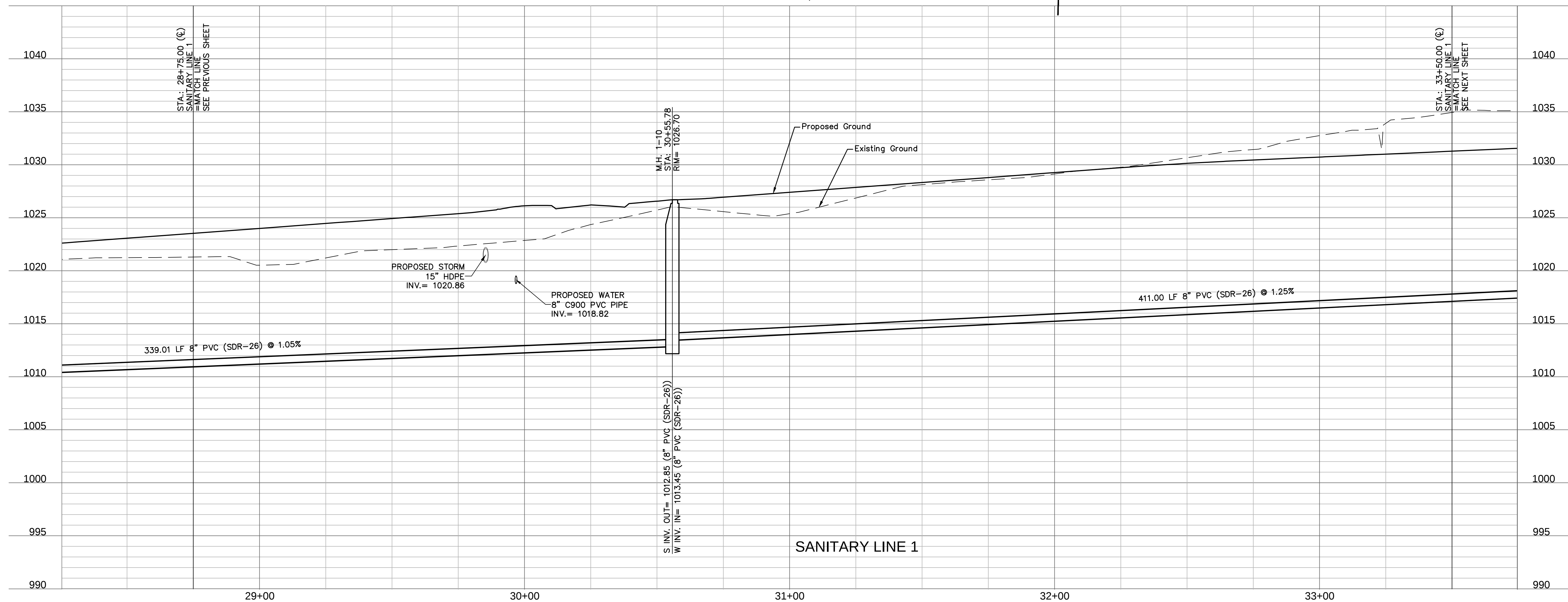
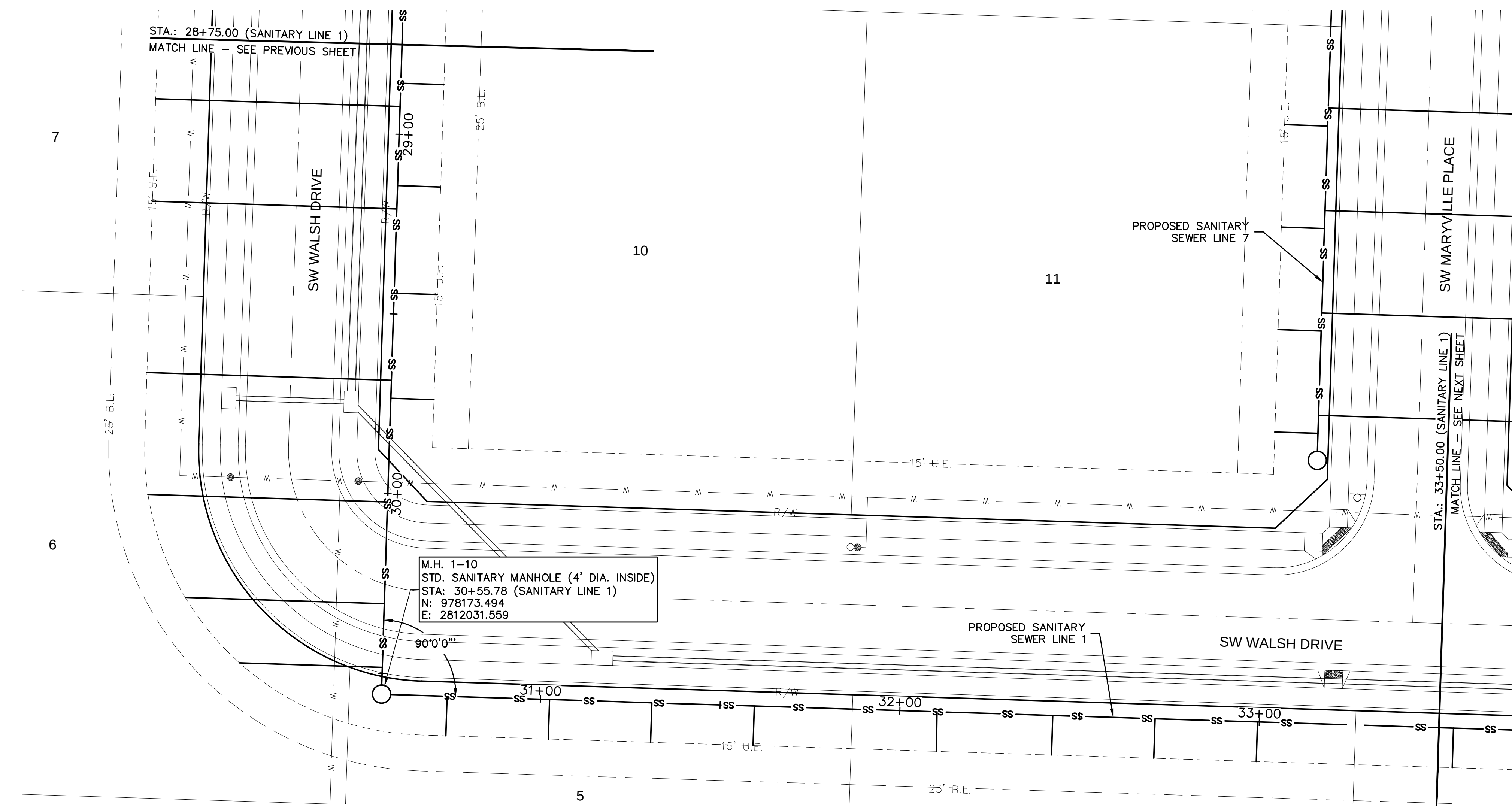
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SANITARY PLAN & PROFILE (LINE 1) SANITARY SEWER PLANS	OSAGE FIRST PLAT
drawn by: _____ GS checked by: _____ SS designed by: _____ BMW QA/QC by: _____ JES project no.: _____ A19-2339 drawing no.: C <u>SSWR01</u> <u>A192339</u> date: _____ 3/17/2020	LEE'S SUMMIT, MISSOURI 2020
SHEET C204	

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SANITARY PLAN & PROFILE (LINE 1 CONT'D)
SANITARY SEWER PLANS

OSAGE
FIRST PLAT

LEE'S SUMMIT, MISSOURI

2020

DEVISIONS

BY

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LINE 1

PLAN & PROC

SANITARY

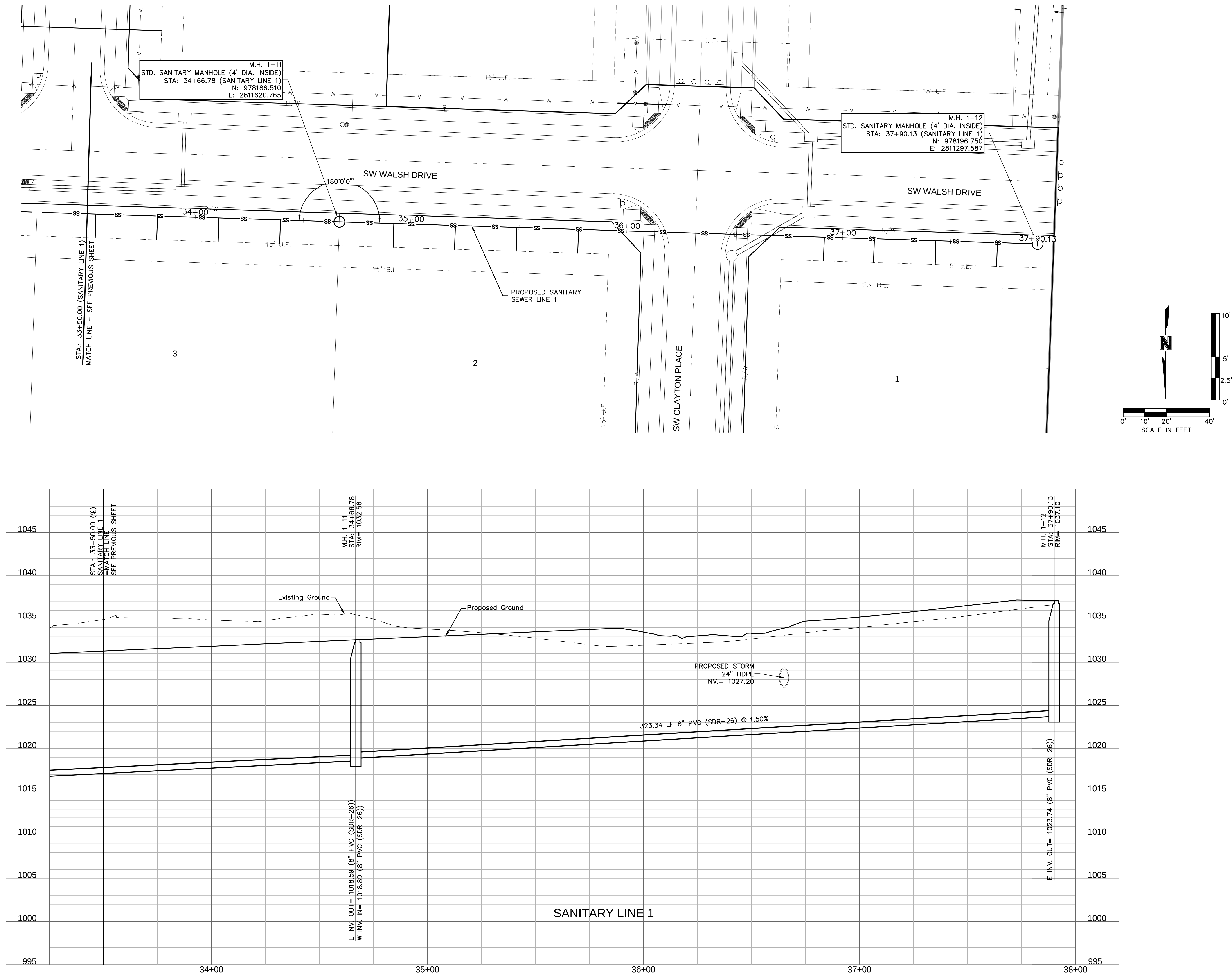
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checked by: _____ SS
designed by: _____ BMW
QA/QC by: _____ JES
project no.: _____ A19-2339
drawing no.: C SSWR01 A192339
date: _____ 3/17/2020

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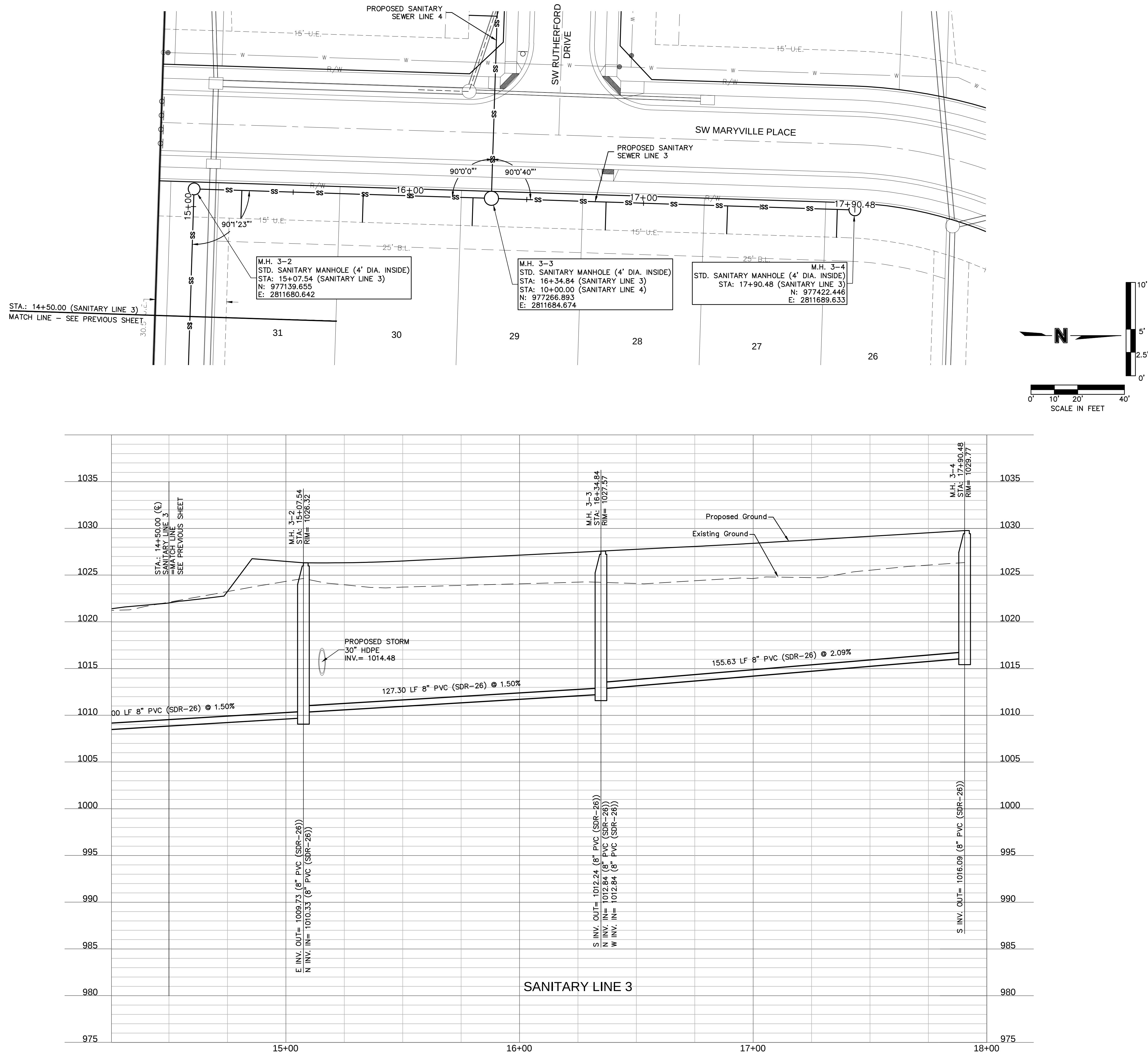


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checked by: _____ SS
designed by: _____ BMW
QA/QC by: _____ JES
project no.: _____ A19-2339
drawing no.: C_SSWR02_A192339
date: _____ 3/17/2020

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SANITARY PLAN & PROFILE (LINE 3 CONT'D)
SANITARY SEWER PLANS

OSAGE
FIRST PLAT

LEE'S SUMMIT, MISSOURI

2020

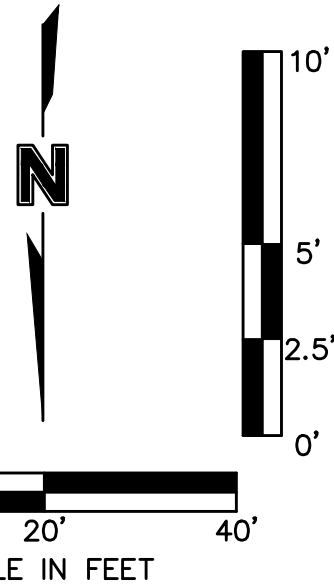
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Sanitary Sewer Laterals						
Lot Number	Lateral Station	Lateral Length	Riser	Flowline at Main	Flowline at End of Lateral	Minimum Servicable Floor Elevation
		(ft)	(ft)	(ft)	(ft)	(ft)
1A	37+71.53	11.00	0.0	1023.5	1024.7	1027.49
1B	37+43.03	11.00	0.0	1023.0	1024.3	1027.06
1C	37+14.53	11.00	0.0	1022.6	1023.8	1026.63
1D	36+91.36	11.00	0.0	1022.3	1023.5	1026.29
2A	35+77.53	11.00	0.0	1020.6	1021.8	1024.58
2B	35+49.03	11.00	0.0	1020.1	1021.4	1024.15
2C	35+20.53	11.00	0.0	1019.7	1020.9	1023.72
2D	34+92.03	11.00	0.0	1019.3	1020.5	1023.30
3A	34+39.53	11.00	1.0	1018.3	1020.5	1023.26
3B	34+11.03	11.00	1.0	1017.9	1020.1	1022.90
3C	33+82.53	11.00	1.0	1017.5	1019.7	1022.54
3D	33+54.03	11.00	1.0	1017.2	1019.4	1022.19
4A	32+99.53	11.00	1.0	1016.5	1018.7	1021.51
4B	32+71.03	11.00	1.0	1016.2	1018.4	1021.15
4C	32+42.53	11.00	1.0	1015.8	1018.0	1020.79
4D	32+10.46	11.00	1.0	1015.4	1017.6	1020.39
5A	31+59.53	11.00	0.0	1014.8	1016.0	1018.78
5B	31+31.03	11.00	0.0	1014.4	1015.6	1018.42
5C	31+02.53	11.00	1.0	1014.0	1016.2	1019.04
5D	30+74.03	11.00	1.0	1013.7	1015.9	1018.69
6A	30+48.33	39.74	0.0	1012.8	1014.6	1017.38
6B	30+30.62	55.38	0.0	1012.6	1014.7	1017.50
6C	30+02.33	66.65	0.0	1012.3	1014.6	1017.43
6D	29+68.45	68.00	0.0	1011.9	1014.3	1017.10
7A	29+20.77	68.00	0.0	1011.4	1013.8	1016.60
7B	28+92.27	68.00	0.0	1011.1	1013.5	1016.30
7C	28+62.35	68.00	0.0	1010.8	1013.2	1015.99
7D	28+32.90	68.00	0.0	1010.5	1012.9	1015.68
8A	27+82.77	68.00	0.0	1010.0	1012.4	1015.15
8B	27+53.84	68.00	0.0	1009.7	1012.1	1014.85
8C	27+24.53	68.00	0.0	1009.4	1011.7	1014.54
8D	27+02.19	68.00	0.0	1008.9	1011.2	1014.04
9A	28+37.58	12.00	0.0	1010.6	1011.8	1014.61
9B	28+06.22	12.00	0.0	1010.2	1011.5	1014.28
9C	27+76.30	12.00	0.0	1009.9	1011.2	1013.97
9D	27+48.53	12.00	0.0	1009.6	1010.9	1013.67
10A	29+73.45	12.00	0.0	1012.0	1013.2	1016.04
10B	29+44.21	12.00	0.0	1011.7	1012.9	1015.73
10C	29+14.29	12.00	0.0	1011.4	1012.6	1015.41
10D	28+85.79	12.00	0.0	1011.1	1012.3	1015.12
11A	15+30.75	12.00	0.0	1018.6	1019.9	1022.66
11B	15+02.25	12.00	0.0	1018.3	1019.6	1022.39
11C	14+73.75	12.00	0.0	1018.1	1019.3	1022.12
11D	14+45.25	12.00	0.0	1017.8	1019.0	1021.85
12A	13+92.75	12.00	0.0	1017.3	1018.5	1021.35
12B	13+64.25	12.00	0.0	1017.0	1018.3	1021.08
12C	13+35.75	12.00	0.0	1016.8	1018.0	1020.81
12D	13+07.25	12.00	0.0	1016.5	1017.7	1020.54
13A	15+25.75	68.00	0.0	1018.6	1020.9	1023.73
13B	14+97.25	68.00	0.0	1018.3	1020.7	1023.46
13C	14+68.75	68.00	0.0	1018.0	1020.4	1023.19
13D	14+40.25	68.00	0.0	1017.8	1020.1	1022.92
14A	13+87.75	68.00	0.0	1017.3	1019.6	1022.42
14B	13+59.25	68.00	0.0	1017.0	1019.4	1022.15
14C	13+30.75	68.00	0.0	1016.7	1019.1	1021.88
14D	13+02.25	68.00	0.0	1016.4	1018.8	1021.61
15A	12+46.86	68.00	0.0	1015.7	1018.0	1020.81
15B	12+21.55	68.00	0.0	1015.5	1017.8	1020.61
15C	11+93.05	68.00	0.0	1015.2	1017.6	1020.38
15D	11+64.55	68.00	0.0	1015.0	1017.4	1020.16
16A	11+27.50	68.00	3.0	1014.7	1020.0	1022.80
16B	10+82.50	68.00	3.0	1014.3	1019.6	1022.44
17A	14+42.62	10.00	2.0	1020.1	1023.3	1026.10
17B	13+92.52	10.00	3.0	1018.4	1022.5	1025.33
18A	12+44.97	10.00	6.0	1012.8	1019.8	1022.64
18B	12+05.37	10.00	7.0	1011.8	1019.9	1022.66
19A	11+85.37	10.00	5.0	1011.3	1017.4	1020.21
19B	11+35.37	10.00	6.0	1010.1	1017.2	1019.98
20A	11+15.37	10.00	4.0	1009.6	1014.7	1017.53
20B	10+72.00	10.00	5.0	1008.6	1014.7	1017.46
21A	23+76.10	64.81	3.0	1005.1	1010.3	1013.11
21B	23+71.10	64.22	3.0	1005.0	1010.3	1013.06
22A	23+38.47	49.06	4.0	1004.8	1010.7	1013.48
22B	23+06.12	15.00	5.0	1004.5	1010.7	1013.52
23A	24+36.67	68.00	3.0	1006.2	1011.5	1014.28
23B	23+11.12	15.00	6.0	1004.6	1011.7	1014.54
24A	24+84.28	68.00	3.0	1007.1	1012.4	1015.24
24B	24+56.78	68.00	3.0	1006.9	1012.2	1015.02
25A	25+66.64	68.00	1.0	1007.8	1011.1	1013.94
25B	25+26.78	68.00	2.0	1007.5	1011.8	1014.60
26	17+82.98	11.97	1.0	1015.9	1018.2	1020.97
27	17+35.98	11.98	1.0	1015.0	1017.2	1019.98
28	16+83.98	11.99	2.0	1013.9	1017.1	1019.88
29	16+26.98	12.00	3.0	1012.1	1016.3	1019.11
30	15+79.98	12.00	3.0	1011.4	1015.6	1018.41
31	15+27.98	12.00	3.0	1010.6	1014.8	1017.63
32	10+78.00	12.00	0.0	1013.6	1014.9	1017.66
33	11+29.62	12.00	0.0	1014.1	1015.4	1018.18
34	11+84.62	12.00	1.0	1014.7	1016.9	1019.71
35	12+39.62	12.00	2.0	1016.1	1019.3	1022.10
36	12+94.62	12.00	2.0	1019.1	1022.3	1025.12
37	12+89.62	68.00	1.0	1018.8	1022.2	1024.99
38	12+34.62	68.00	1.0	1015.8	1019.2	1021.98
39	11+79.62	68.00	0.0	1014.6	1017.0	1019.80
40	11+24.62	68.00	0.0	1014.1	1016.4	1019.25
41	11+07.12	68.00	0.0	1013.9	1016.3	1019.07
50A	15+12.62	10.00	0.0	1022.6	1023.8	1026.59
50B	14+62.62	10.00	2.0	1020.8	1024.0	1026.80
71	13+49.62	12.00	2.0	1022.1	1025.3	1028.15
72	13+44.62	68.00	1.0	1021.9	1025.2	1028.01
Tract E	11+59.55	12.00	3.0	1015.0	1019.1	1021.94

Note: Lots are labeled assuming A is the farthest North of West Unit and B-D is farthest South or East Unit

Sanitary Sewer Design Information											
Upstream Manhole	Downstream Pipe Slope	Downstream Pipe Diameter	Proposed Cumulative Area	Future Cumulative Area	Peak Base Flow	Peak Infiltration Flow	Peak Inflow	Total Peak Flow	Downstream Pipe Mannings N	Downstream Pipe Capacity	Downstream Pipe Full Flow Velocity
	(%)	(in)	(Ac.)	(Ac.)	(gpd)	(gpd)	(cfs)	(cfs)		(cfs)	(fps)
EX MH 1-1	0.80%	12	15.66	48.95	96915.00	32305.000	1.416	1.616	0.013	3.19	4.06
MH 1-2	0.50%	12	14.32	48.95	94905.00	31635.000	1.393	1.589	0.013	2.52	3.21
MH 1-3	1.50%	12	14.32	38.66	79470.00	26490.000	1.208	1.372	0.013	4.36	5.56
MH 1-4	1.25%	12	14.32	29.19	65265.00	21755.000	1.029	1.164	0.013	3.98	5.07
MH 1-5	1.25%	12	14.32	29.19	65265.00	21755.000	1.029	1.164	0.013	3.98	5.07
MH 1-6	1.10%	8	11.21	18.68	44835.00	14945.000	0.752	0.844	0.013	1.27	3.63
MH 1-7	0.80%	8	11.21	18.68	44835.00	14945.000	0.752	0.844	0.013	1.08	3.10
MH 1-8	0.80%	8	10.34	18.68	43530.00	14510.000	0.733	0.823	0.013	1.08	3.10
MH 1-9	0.80%	8	5.76	9.41	22755.00	7585.000	0.417	0.464	0.013	1.08	3.10
MH 1-10	1.05%	8	4.88	9.41	21435.00	7145.000	0.396	0.440	0.013	1.24	3.55
MH 1-11	1.25%	8	2.50	9.41	17865.00	5955.000	0.337	0.374	0.013	1.35	3.87
MH 1-12	1.50%	8	1.10	9.41	15765.00	5255.000	0.301	0.334	0.013	1.48	4.24
MH 2-1	2.43%	8	4.44	9.27	20565.00	6855.000	0.382	0.424	0.013	1.88	5.40
MH 2-2	3.50%	8	0.46	8.17	12945.00	4315.000	0.252	0.279	0.013	2.26	6.48
MH 3-1	2.06%	8	3.11	10.51	20430.00	6810.000	0.379	0.422	0.013	1.73	4.97
MH 3-2	1.50%	8	3.11	10.51	20430.00	6810.000	0.379	0.422	0.013	1.48	4.24
MH 3-3	1.50%	8	3.11	10.51	20430.00	6810.000	0.379	0.422	0.013	1.48	4.24
MH 3-4	2.09%	8	0.53	0.00	795.00	265.000	0.018	0.020	0.013	1.75	5.00
MH 4-1	1.00%	8	2.06	10.51	18855.00	6285.000	0.353	0.392	0.013	1.21	3.46
MH 4-2	5.50%	8	0.73	10.51	16860.00	5620.000	0.320	0.354	0.013	2.83	8.12
MH 7-1	0.80%	8	2.93	1.10	6045.00	2015.000	0.125	0.138	0.013	1.08	3.10
MH 7-2	0.95%	8	2.11	0.00	3165.00	1055.000	0.069	0.075	0.013	1.18	3.37

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Olsson - Civil Engineering

Missouri Certificate of Authority #: 001592

1301 Burlington Street

North Kansas City, MO 64116

TEL 816.361.1177

www.olsson.com

STATE OF MISSOURI

BROCK M. WORTHLEY

Brock M. Worthley

PE-2019080237

3/17/2020

PROFESSIONAL ENGINEER

BY

REV. NO.

DATE

REVISIONS DESCRIPTION

REVISIONS

SANITARY SEWER DESIGN TABLES

SANITARY SEWER PLANS

OSAGE

FIRST PLAT

LEE'S SUMMIT, MISSOURI

2020

drawn by: _____ GS

checked by: _____ SS

designed by: _____ BMW

QA/QC by: _____ JES

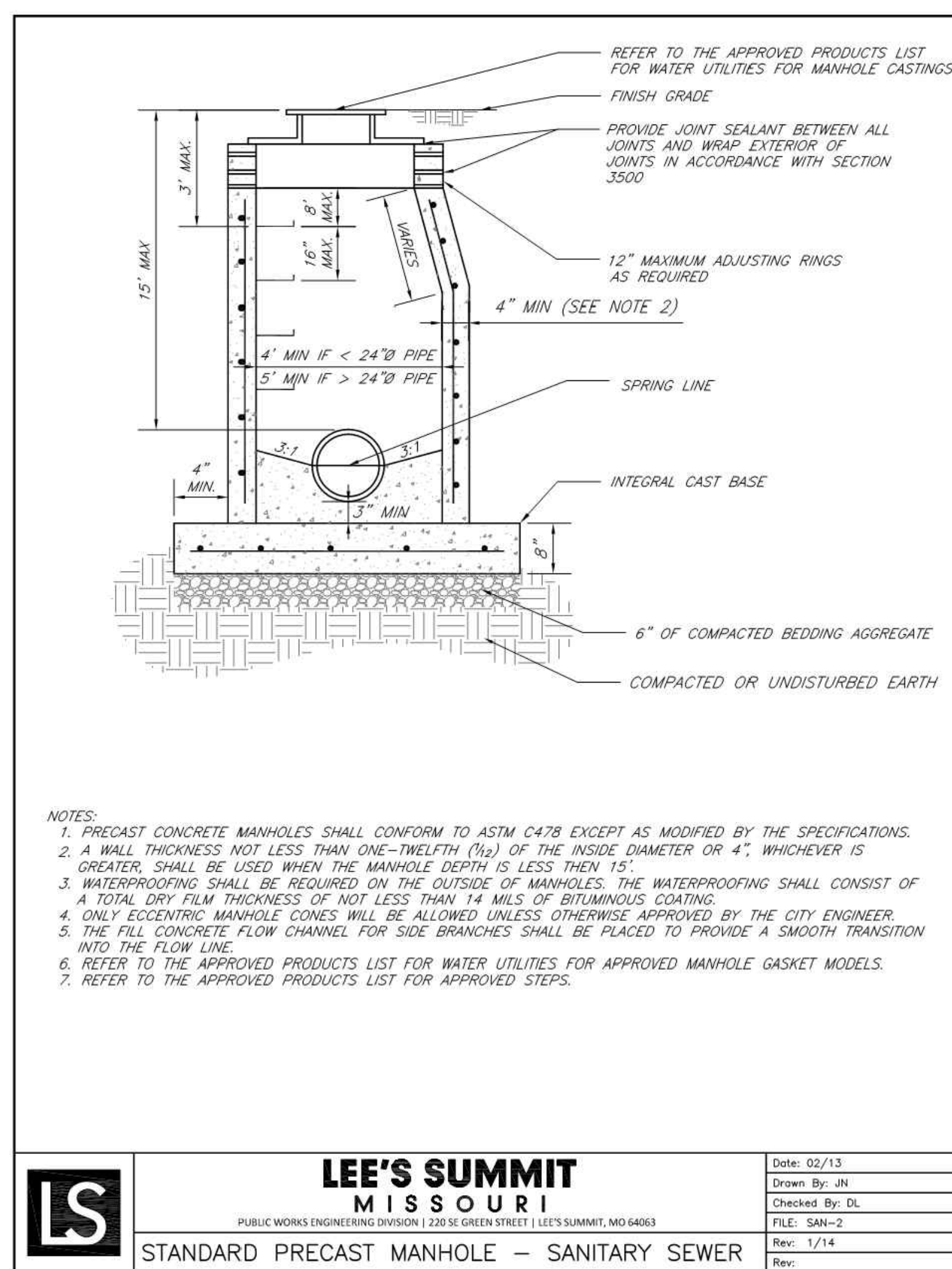
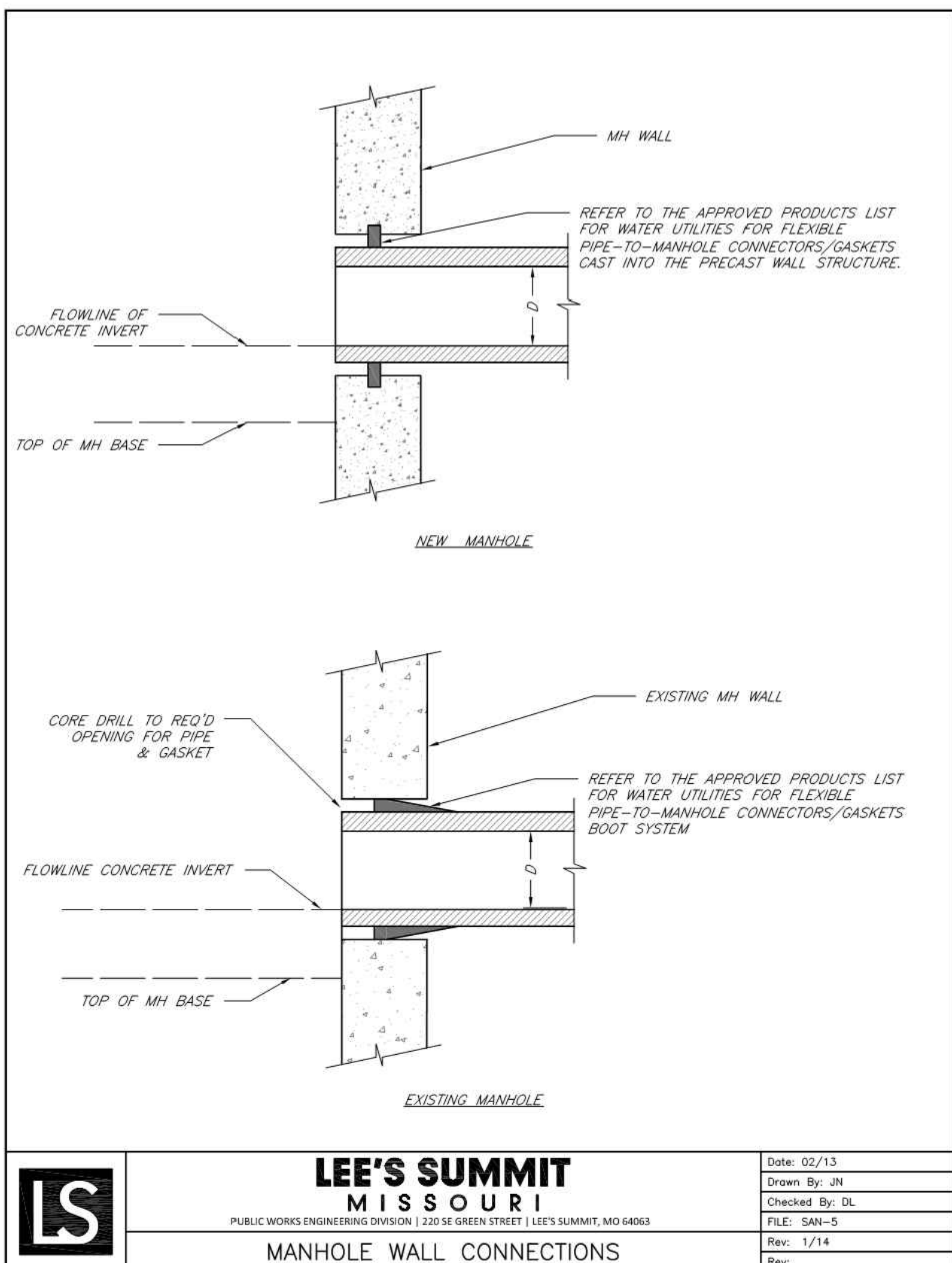
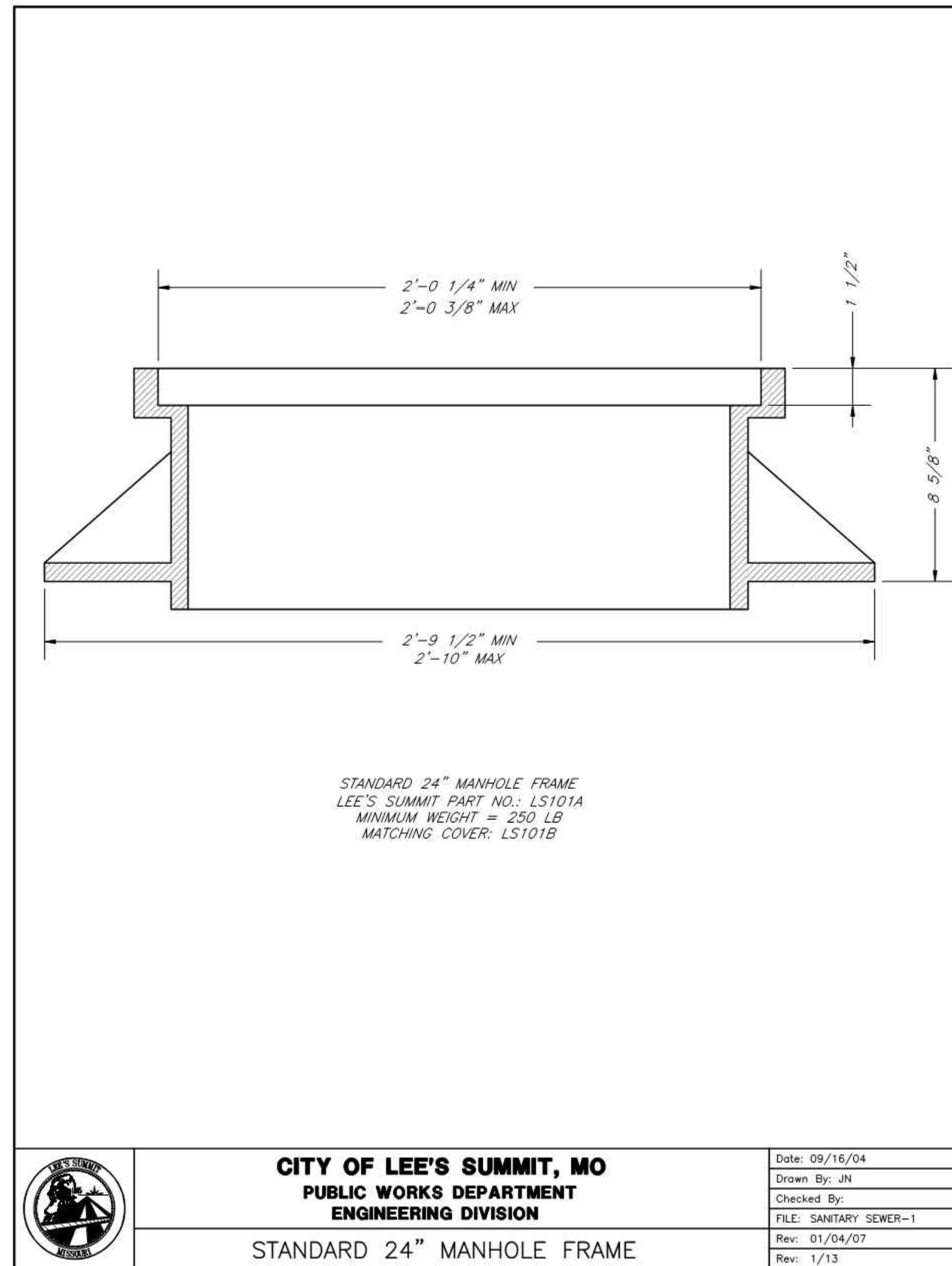
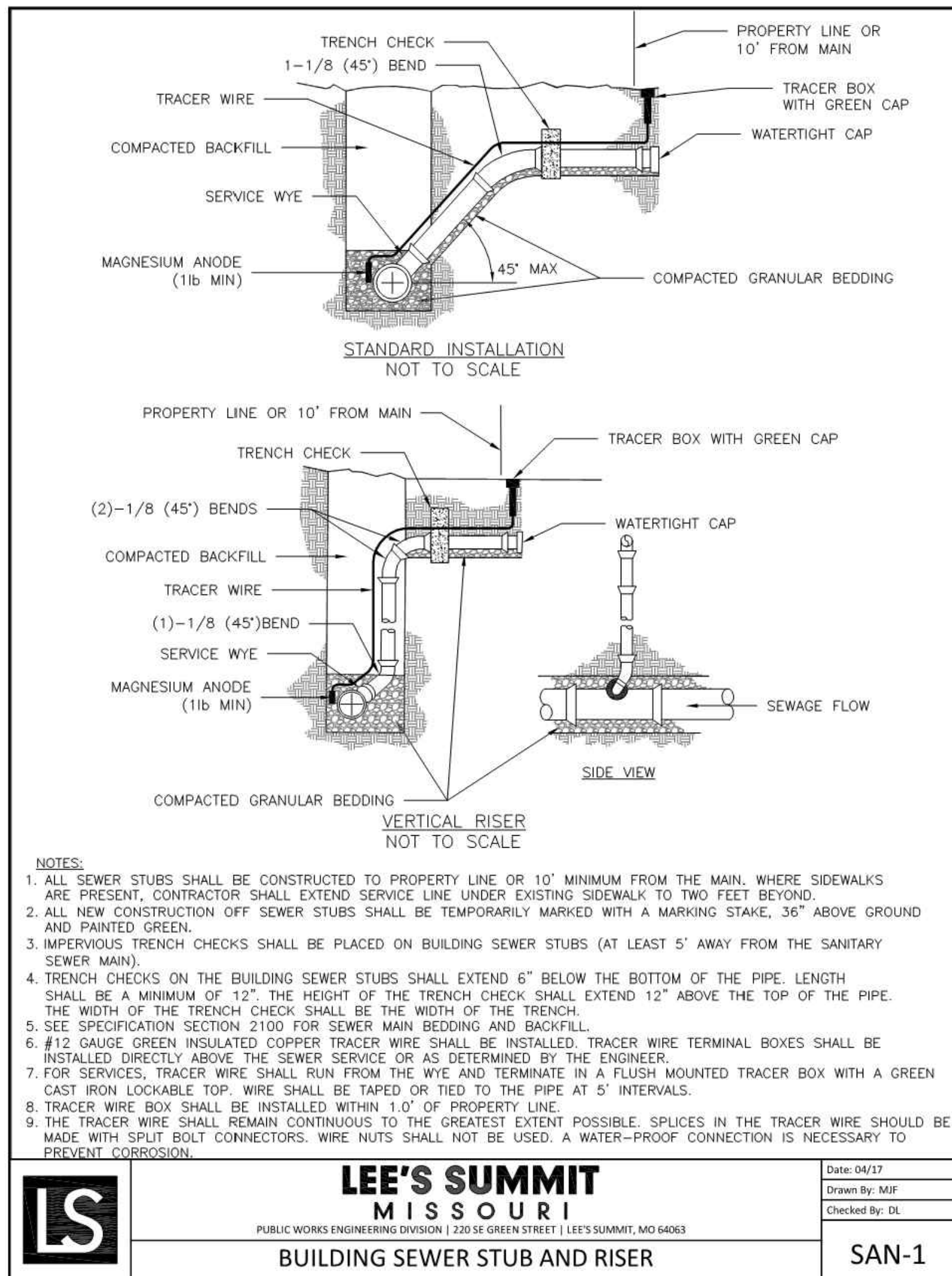
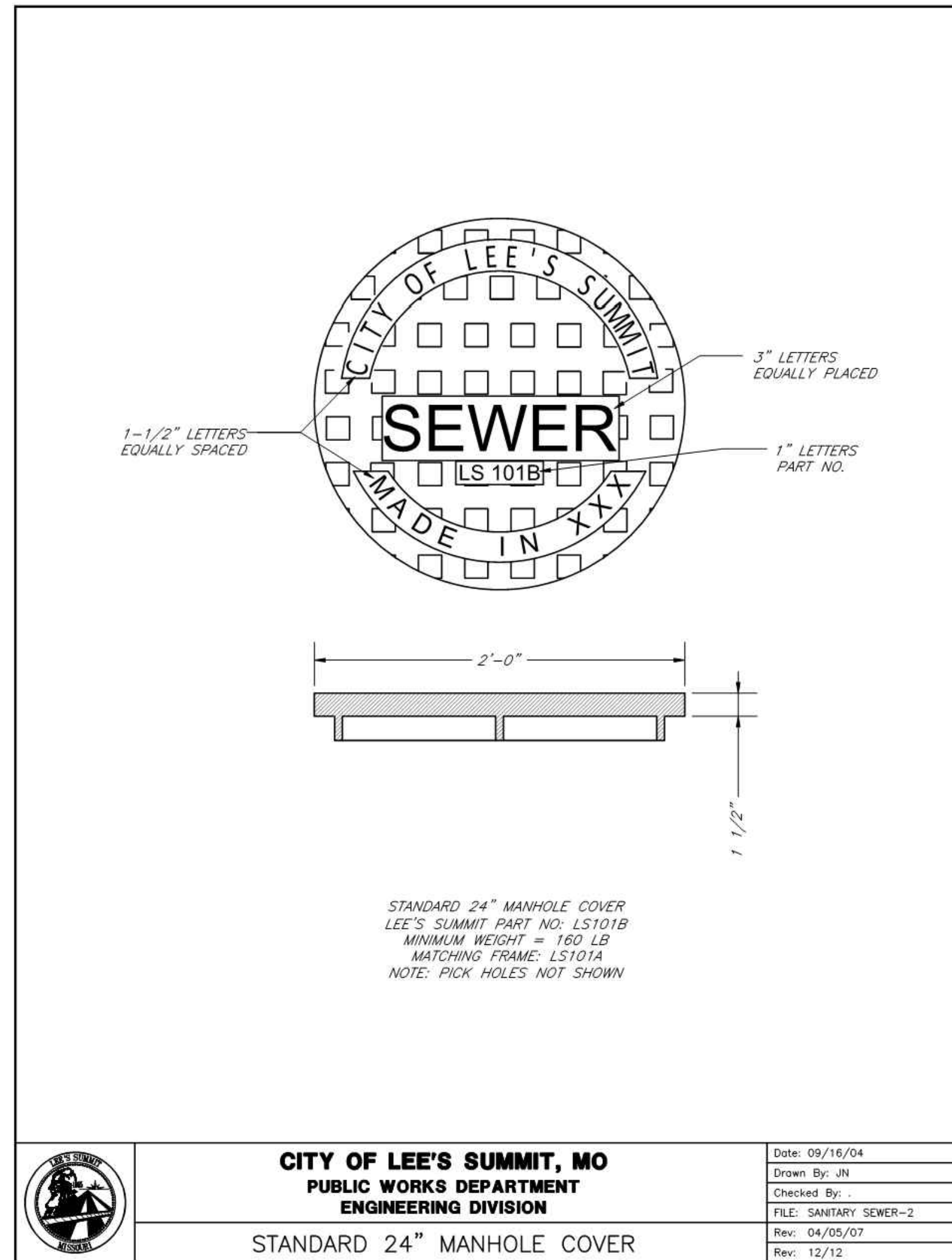
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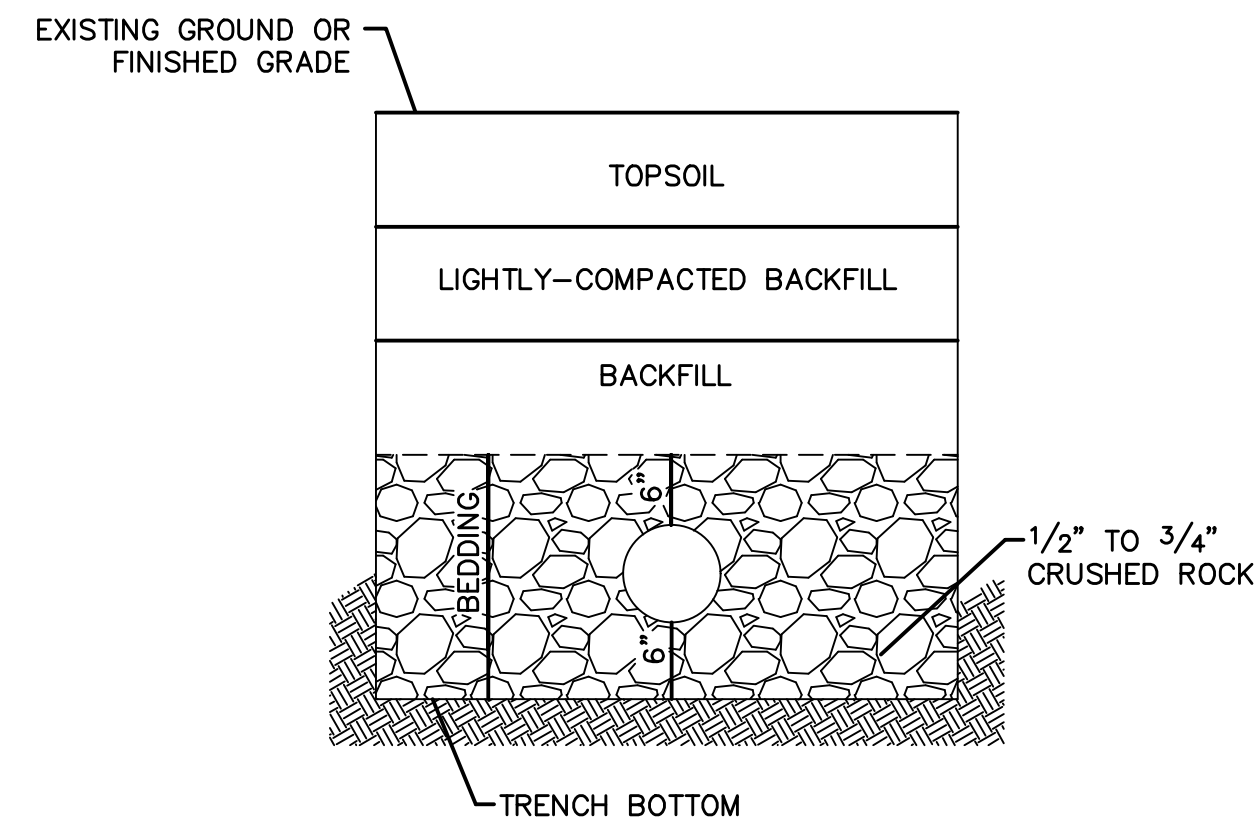
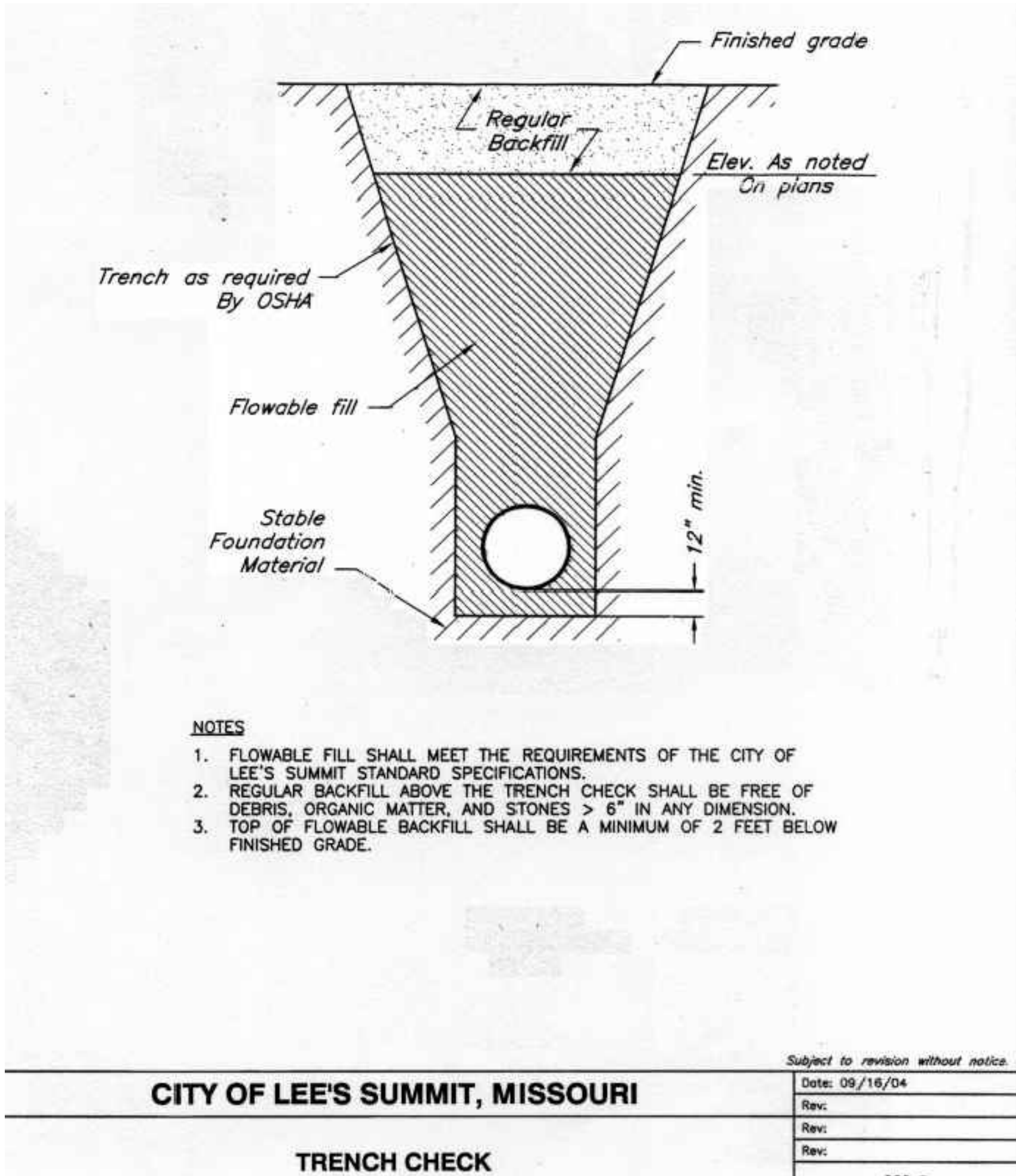
drawing no.: _____ C_TAB01_A192339

date: _____ 3/17/2020

SHEET

C215





UNDERGROUND PIPE INSTALLATION FOR SANITARY SEWER

NOTES:

1. A MINIMUM OF 36 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.
2. BEDDING AGGREGATE SHALL BE PLACED 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 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.

[illegible]

DETAIL SHEET SANITARY SEWER PLANS	OSAGE FIRST PLAT
	LEE'S SUMMIT, MISSOURI
2020	

drawn by: GS
checked by: SS
designed by: BMW
QA/QC by: JES
project no.: A19-2339
drawing no.: C DET01 A192339
date: 3/17/2020