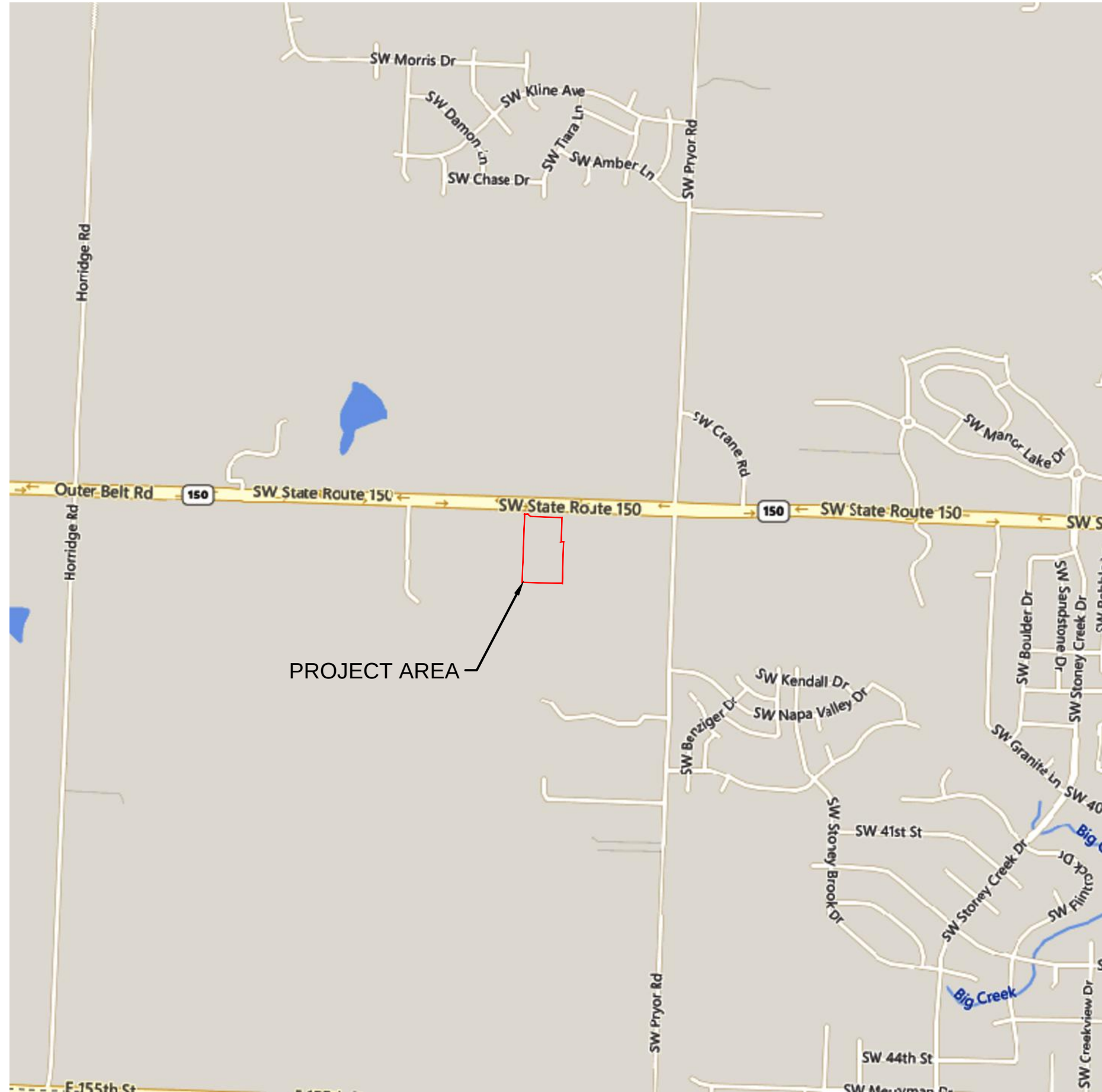


NE 1/4 SECTION 35, TOWNSHIP 47 N, RANGE 32 W.
IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



PROJECT TEAM & UTILITY CONTACT LIST	
<u>OWNER / DEVELOPER</u> CLAYTON PROPERTIES GROUP, INC. D.B.A. SUMMIT HOMES 120 SE 30TH STREET CONTACT: VINCENT WALKER LEE'S SUMMIT, MO 64082 PHONE: 816-246-6700 EMAIL: VINCENT@SUMMITTHOMESKC.COM	<u>UTILITY SERVICE NUMBERS</u> NAME: LEE'S SUMMIT PUBLIC WORKS PHONE: 816-969-1800 NAME: LEE'S SUMMIT WATER & SERVICES DEPARTMENT PHONE: 816-969-1940 NAME: SPIRE (MGE) PHONE: 314-342-0500 NAME: AT&T PHONE: 800-286-8313 NAME: EVERGY PHONE: 816-471-5275 NAME: SPECTRUM (TWC) PHONE: 877-772-2253 NAME: GOOGLE FIBER PHONE: 877-454-6959
<u>ENGINEER</u> OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JULIE E. SELLERS, P.E. PHONE: 816.361.1177 EMAIL: JSSELLERS@OLSSON.COM	
<u>SURVEYOR</u> OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH PHONE: 816.361.1177 EMAIL: JROUDEBUSH@OLSSON.COM	



ALL OF THE WEST HALF OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 35, TOWNSHIP 47 NORTH, RANGE 32 WEST OF THE FIFTH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY MISSOURI EXCEPT THAT PART IN MISSOURI STATE HIGHWAY NO. 150 RIGHT-OF-WAY

ALSO

A TRACT OF LAND IN THE WEST HALF OF THE SOUTHWEST QUARTER AND EAST HALF OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 35, TOWNSHIP 47 NORTH, RANGE 32 WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI BEING BOUNDED AND DESCRIBED BY OR UNDER THE DIRECT SUPERVISION OF JASON S. ROUDEBUCH, P.L.S., 2002014092, AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER; THENCE NORTH 88°07'14" WEST, ON THE NORTH LINE OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER, 1,319.40 FEET TO THE NORTHWEST CORNER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER; THENCE SOUTH 88°07'22" WEST, ON THE WEST LINE OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER, 1,319.40 FEET TO THE WESTLY LINE OF PROPOSED OSAGE 2ND PLAT; THENCE SOUTH 88°08'29" EAST ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER, AND ALONG SAID WESTERLY LINE, 326.96 FEET TO THE NORTHEAST CORNER OF SAID WEST HALF OF SAID SOUTHWEST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER, ALSO BEING THE SOUTHWEST CORNER OF SAID EAST HALF OF SAID NORTHWEST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER; THENCE NORTH 89°01'53" EAST, ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER, AND ALONG SAID WESTERLY LINE, 346.14 FEET; THENCE LEAVING SAID EAST LINE AND SAID WESTERLY LINE, SOUTH 88°10'07" EAST, ALONG THE NORTH LINE OF PROPOSED TRACT I OF SAID PROPOSED OSAGE 2ND PLAT, 21.17 FEET; THENCE SOUTH 01°48'53" WEST ALONG THE EASTERLY LINE OF SAID PROPOSED TRACT I, A DISTANCE OF 366.13 FEET; THENCE NORTH 88°17'07" WEST, ALONG SAID EASTERLY LINE AND ITS WESTERLY EXTENSION 353.36 FEET TO A POINT ON SAID WEST LINE OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER OF SAID NORTHEAST QUARTER OF SAID WEST LINE, 20.25 FEET TO THE POINT OF BEGINNING. CONTAINING 14,798 SQUARE FEET OR 0.34 ACRES, MORE OR LESS.

BENCHMARK NO. 1
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.
ELEVATION = 1014.830

BENCHMARK NO. 2
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.
ELEVATION = 1031.313

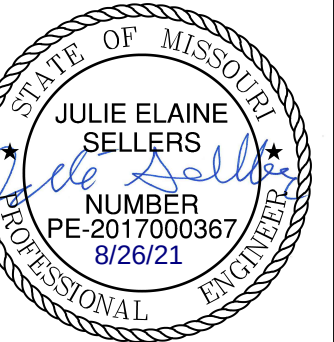
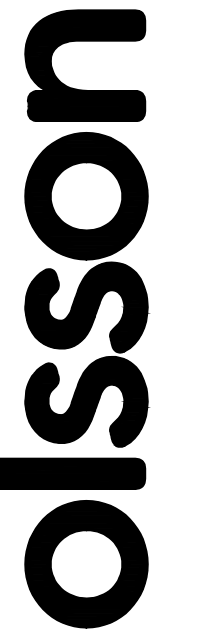
Sheet List Table	
Sheet Number	Sheet Title
C101	TITLE SHEET
C102	GENERAL NOTES
C103	GENERAL LAYOUT
C104	TYPICAL SECTIONS
C105	GRADING PLAN (FOR REFERENCE ONLY)
C106	RETAINING WALL PLAN & PROFILE
C107	SWALE 1 PLAN & PROFILE
C108	SWALE 2 PLAN & PROFILE
C109	ROADWAY PLAN & PROFILE (SW HOLDBROOKS DRIVE)
C110	ROADWAY PLAN & PROFILE (SW KNOXVILLE COURT)
C111	TRAFFIC CONTROL PLAN
C112	SW HOLDBROOKS DRIVE & SW KNOXVILLE COURT INTERSECTION
C113	DETENTION BASIN PLAN
C114	STORM SEWER PLAN & PROFILE (LINE 2)
C115	STORM SEWER PLAN & PROFILE (LINE 2 CONT.)
C116	STORM SEWER PLAN & PROFILE (LINE 4 & 5)
C117	MASTER DRAINAGE PLAN
C118	DRAINAGE PLAN
C119	DRAINAGE TABLES
C120	DETAIL SHEET
C121	DETAIL SHEET
C122	DETAIL SHEET

OLSSON HAS BEEN RETAINED TO PROVIDE AS-BUILT DRAWINGS FOR THIS PROJECT.

JULIE E. SELLERS, P.E.
CIVIL ENGINEER
MO# PE-2019000237

8/26/21

DATE



	NO.	DATE	REVISED PER CITY COMMENTS	REVISIONS DESCRIPTION	DIST
	1	08/11/2021			
REVISIONS					

TITLE SHEET
STREET & STORM SEWER PLANS

OSAGE 3RD PLAI

LEE'S SUMMIT, MO

Drawn by: MJD
 Checked by: JES
 Designed by: MJD
 VQC by: JES
 Project no.: D19-2339
 Drawing no.: C TTL01 D192339
 Date: 6/24/2021

SHEET
C101

GENERAL NOTES

1.

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.
2.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS WRITTEN APPROVAL FROM ENGINEER, OWNER, AND DEVELOPER.
3.

ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
4.

ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND ITEMS OF WORK.
5.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHOWN IN THE PLANS.
6.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES, AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
7.

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.
8.

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.
9.

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.
10.

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.
11.

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.
12.

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

1.

UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY:

A.

ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.

B.

ALL CONSTRUCTION IN MODOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MODOT.

C.

ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

D.

ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES..

E.

ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI AND THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
4.

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

1.

THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS OF THE PROJECT AREA.
2.

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.
3.

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

1.

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.
2.

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.
3.

THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.
4.

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.
5.

THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

SHOP DRAWINGS

1.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS A MINIMUM OF 7 DAYS PRIOR TO THE REQUESTED DATE OF APPROVAL. ENGINEER SHALL REVIEW SHOP DRAWINGS OR SAMPLES IN 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:

A.

ALL FIELD MEASUREMENTS, QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR INFORMATION WITH RESPECT THERETO;

B.

ALL MATERIALS WITH RESPECT TO INTENDED USE, FABRICATION, SHIPPING, HANDLING, STORAGE, ASSEMBLY AND INSTALLATION PERTAINING TO THE PERFORMANCE OF THE WORK;

C.

ALL INFORMATION RELATIVE TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO;

D.

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.

E.

ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY COMPLETED THE ABOVE TASKS.
2.

SHOP DRAWINGS AS DESCRIBED ABOVE ARE REQUIRED FOR, BUT NOT LIMITED TO, THE FOLLOWING:

A.

ALL STORM SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.

B.

ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN "APPROVED EQUAL" ALTERNATIVE.

STORM SEWER GENERAL NOTES:

1.

STORM STRUCTURES SHALL BE PER CURRENT CITY DETAILS. IF CITY DOES NOT HAVE PUBLISHED DETAILS STRUCTURES SHALL BE PER CURRENT APWA SPECIFICATIONS.
2.

PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH CITY OF LEE'S SUMMIT, MISSOURI.
3.

ALL PIPE LENGTHS AND ELEVATIONS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4.

ALL STRUCTURE DIMENSIONS ARE TO INSIDE FACE OF STRUCTURE.
5.

COORDINATES ARE PROVIDED AT THE CENTER OF STRUCTURE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING THE BOX DURING INSTALLATION.
6.

THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF STORM SEWER.
7.

STORM 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.
8.

STRUCTURE 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 STRUCTURE.
9.

PIPE PENETRATIONS SHALL BE GROUTED TO ENSURE WATERTIGHT SEALS.
10.

MAINTAIN MINIMUM DEPTH OF COVER PER APWA 5606.06

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
STREET				
	EXCAVATION	C.Y.	1901	
	EMBANKMENT	C.Y.	147	
	SUBGRADE STABILIZATION (6" FLYASH TREATMENT)	S.Y.	2571	
	6" ASPHALT PAVEMENT	S.Y.	2122	
	CONCRETE CURB & GUTTER (CG-2)	L.F.	1347.64	
	5' CONCRETE SIDEWALK	L.F.	181.6	
	MILL & OVERLAY	S.Y.	13.4	
	ADA RAMP	EA.	3	
	STOP SIGNS	EA.	1	
	STREET NAME SIGNS	EA.	2	
	END OF ROAD TREATMENT	EA.	1	
STORM				
	STD. CURB INLET (5'x3' INSIDE)	EA.	7	
	STD. CURB INLET (6'x3' INSIDE)	EA.	1	
	STD. STORM MANHOLE (4' DIA. INSIDE)	EA.	1	
	STD. FIELD INLET (4'x4' INSIDE)	EA.	2	
	BASIN OUTLET STRUCTURE	EA.	1	
	WATER QUALITY OUTLET STRUCTURE	EA.	1	
	15" HDPE	L.F.	476.95	
	18" HDPE	L.F.	272.06	
	24" HDPE	L.F.	186.06	
	6" PVC	L.F.	8	
	24" HDPE END SECTION	EA.	1	
	CONNECTION TO EXISTING STRUCTURE	EA.	1	
	RIPRAP	S.Y.	10.4	
	TURF REINFORCEMENT MATTING	S.Y.	880.1	

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.

olsson

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

JULIE ELAINE SELLERS

8/26/21

Professional Engineer
PE-2017000367

BY

REV. NO.

DATE

REVISIONS DESCRIPTION

REVISED PER CITY COMMENTS

GENERAL NOTES
STREET & STORM SEWER PLANS

OSAGE 3RD PLAT

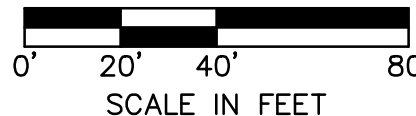
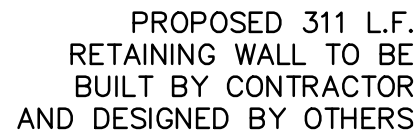
LEE'S SUMMIT, MO

2021

drawn by: _____ MJD
checked by: _____ JES
designed by: _____ MJD
QA/QC by: _____ JES
project no.: D19-2339
drawing no.: C_TTL01_D192339
date: 8/24/2021

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GENERAL LAYOUT STREET & STORM SEWER PLANS

OSAGE 3RD PLAT

LEE'S SUMMIT: MO

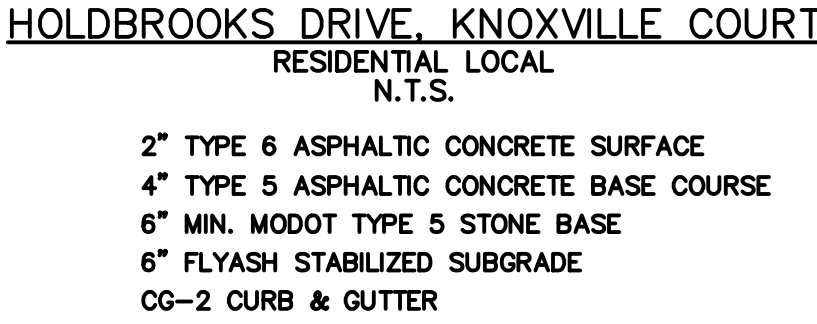
2021

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olson

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1301 Burlington Street
North Kansas City, MO 64116

TEL 816.361.1177 www.o/sson.com

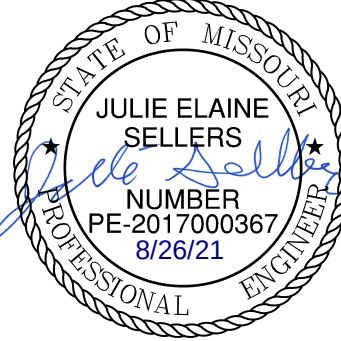


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LEE'S SUMMIT MO

2021

REVISIONS



USER: aabdigaliyev
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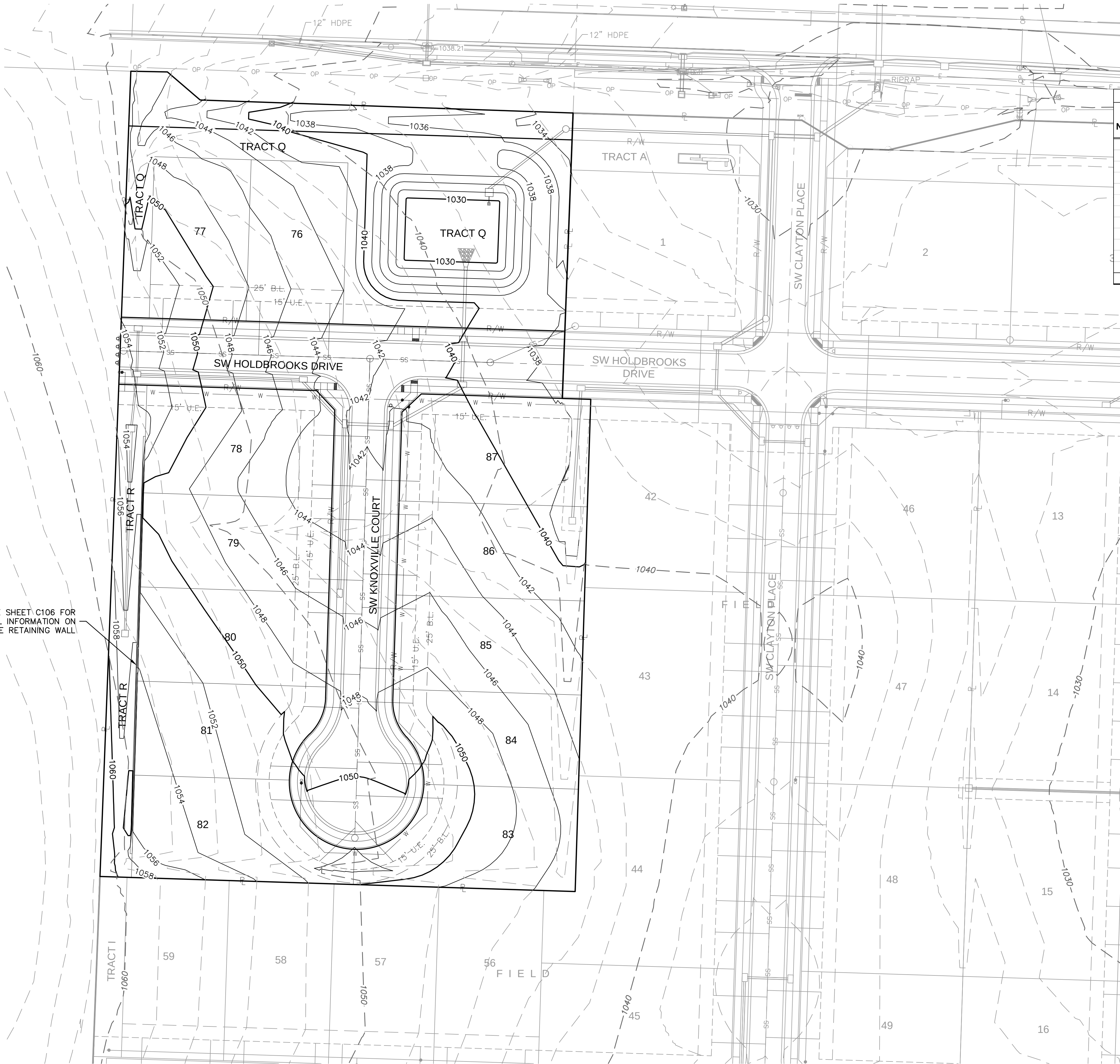
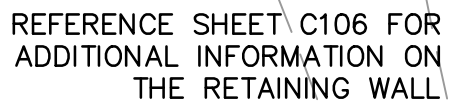
1. CONTRACTOR SHALL ADHERE TO THE "DESIGN AND CONSTRUCTION MANUAL" SECTION 2100 AS ADOPTED BY THE CITY OF LEE'S SUMMIT (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT-OF-WAY.

3. ALL EMBANKMENT OUTSIDE OF RIGHT-OF-WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 8". EMBANKMENT SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION). MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF -0 TO +4 PERCENT OF OPTIMUM MOISTURE CONTENT.

EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	1901	147
SITE	9104	3610
TOTAL	11005	3757

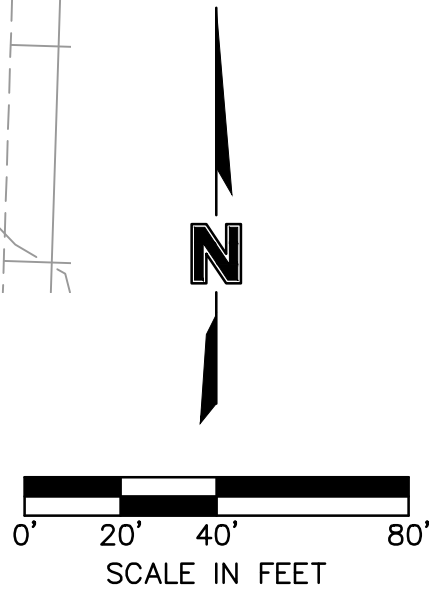
1. EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.

2. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND FOR REPLACING IT WITH SUITABLE MATERIAL.



LOT FILL INFORMATION			
LOT NUMBER	MAX DEPTH OF FILL (OVER 2' PLACED)	FILL PLACED ON EXISTING SLOPES > 5:1	PROPOSED SLOPES > 3:1
76			
77			
78			
79			
80			
81			
82			
83	3.4	X	
84	3.4	X	
85		X	
86	3.4	X	
87			
X Indicates condition applies to lot			

LEGEND	
	EXISTING INDEX CONTOURS
	EXISTING INTERMEDIATE CONTOURS
	PROPOSED INDEX CONTOURS
	PROPOSED INTERMEDIATE CONTOURS



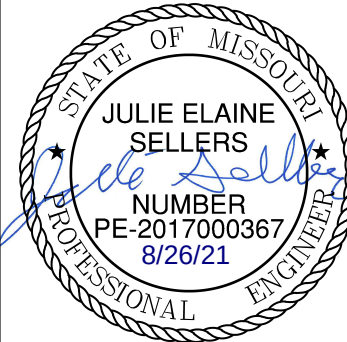
GRADING PLAN (FOR REFERENCE ONLY)
STREET & STORM SEWER PLANS

OSAGE 3RD PLAT

LEE'S SUMMIT, MO

2021

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	08/11/2021	REVISED PER CITY COMMENTS	



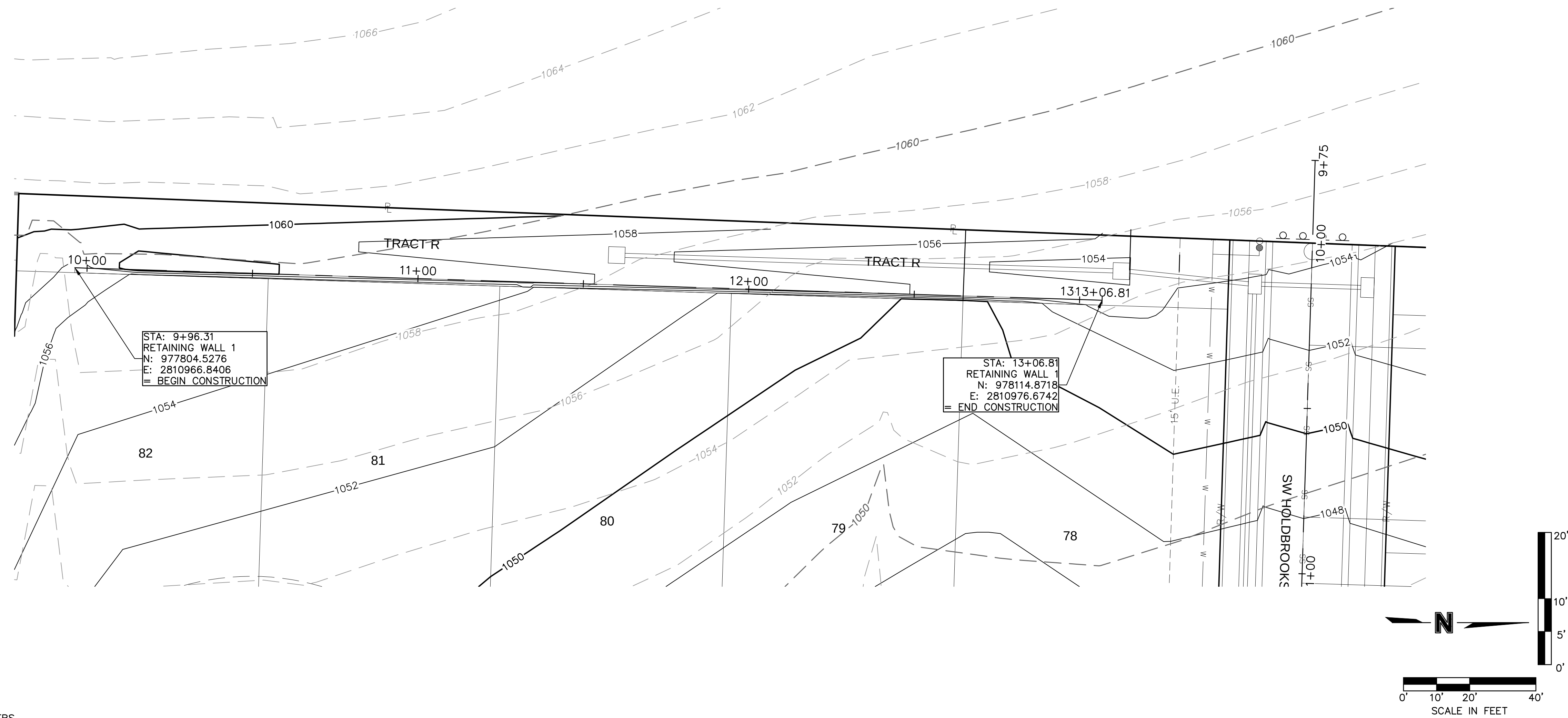
Olsson - Civil Engineering
Missouri Certificate of Authority #001592
1301 Burlington Street
North Kansas City, MO 64116

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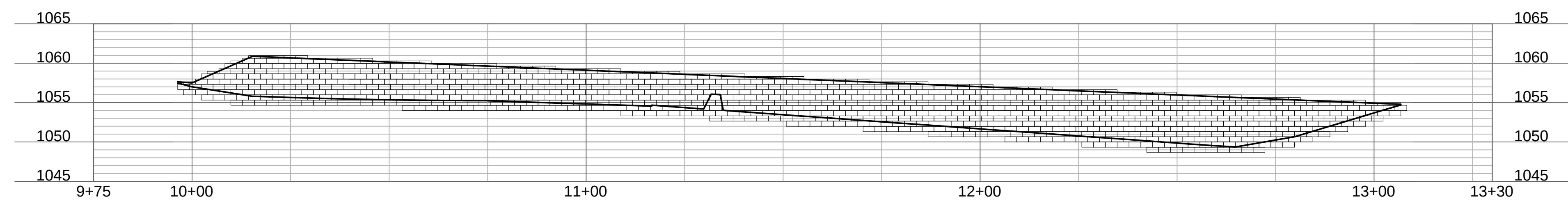
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DWG: F:\2019\2001-2500\019-2339-d\40-design\AutoCAD\final plans\Sheets\GNCV\Street & Storm Plans\C_RWL01_D192339.dwg
DATE: Aug 17, 2021 1:50pm XREFS: C:\PTBLK\D192339 C:\XBASE\D192339 C:\PBASE\D192339 C:\PBNDY\D192339
USER: aabdigaliyev C:\PUTIL\D192339 C:\PSURF\D192339

NOTE:
RETAINING WALL TO BE STRUCTURALLY DESIGNED BY OTHERS.
PLAN AND PROFILE VIEW ARE SHOWN FOR REFERENCE ONLY.
REFER TO RETAINING WALL PLANS FOR MORE DETAILS.



RETAINING WALL 1 (9+75 - 13+30)



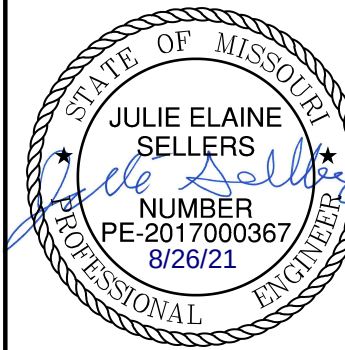
RETAINING WALL PLAN & PROFILE STREET & STORM SEWER PLANS

OSAGE 3RD PLAT

LEE'S SUMMIT, MO

2021

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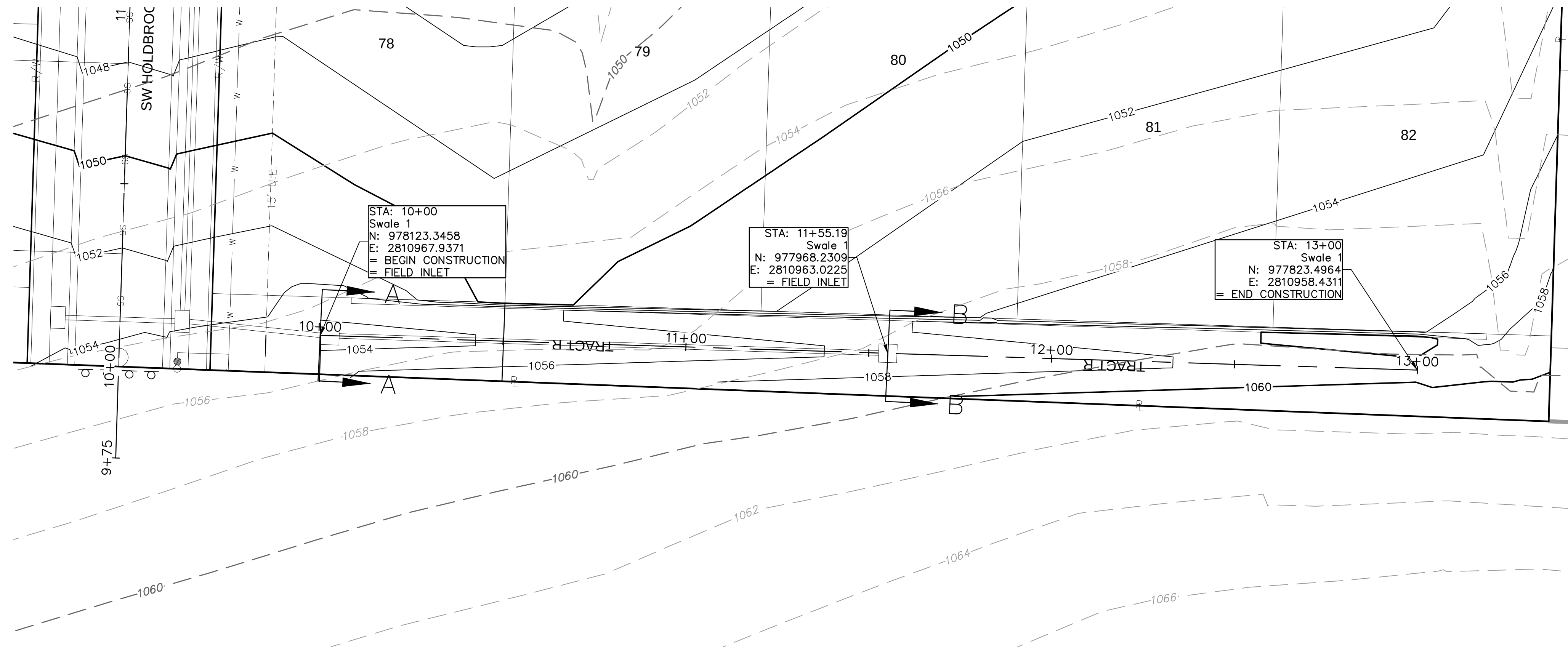
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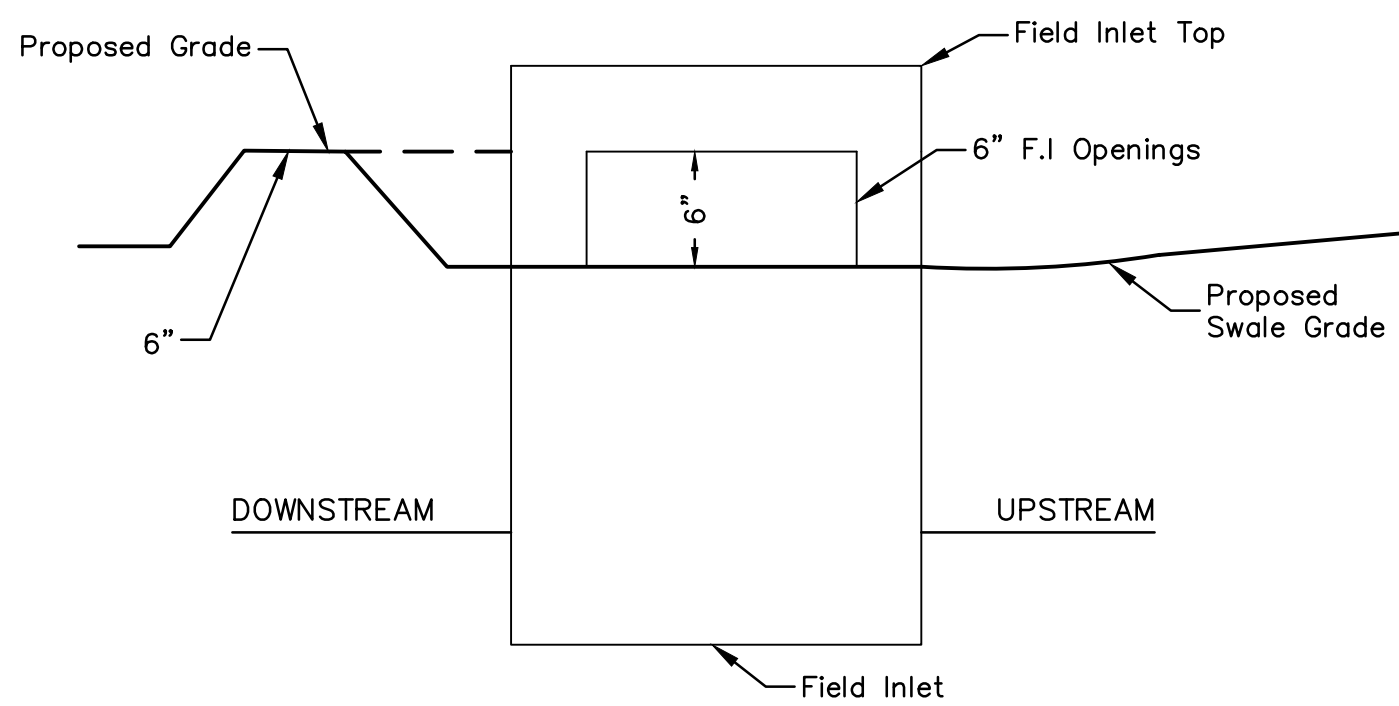
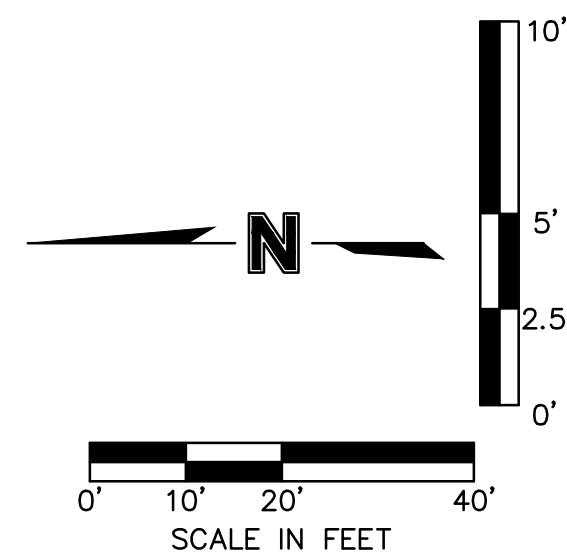
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checked by: _____ JES
designed by: _____ MJD
QA/QC by: _____ JES
project no.: _____ D19-2339
drawing no.: C RWL01 D192339
date: _____ 6/24/2021

SHEET
C106

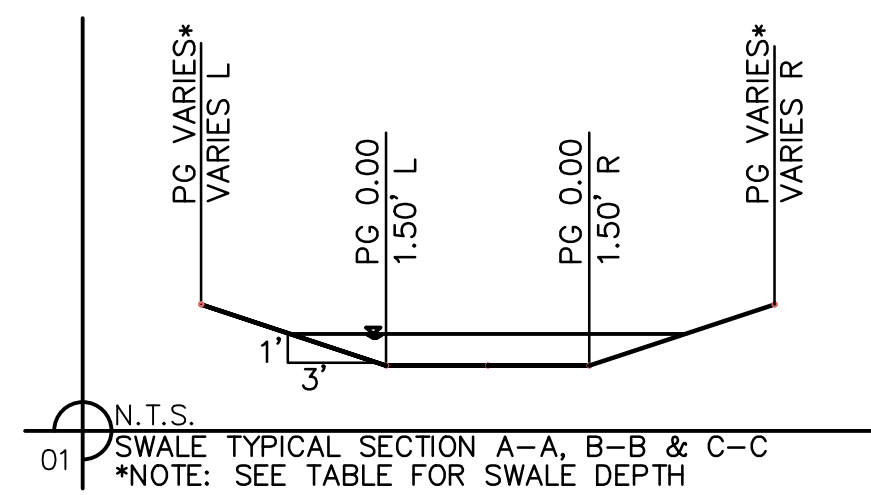


Swale Design Table (100 Year Return Frequency)														
Section Data							Flow Data							
SECTION	Mannings Coefficient	Channel Slope (%)	Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft ²)	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft ²)
A-A	0.03	2.10%	1.39	3:1	3:1	3.00	5.03	0.39	1.63	3.09	5.47	5.34	0.54	0.39
B-B	0.03	2.10%	1.39	3:1	3:1	3.00	5.03	0.39	1.63	3.09	5.47	5.34	0.54	0.39

Swale Drainage Area Table (100 year Return Frequency)						
Section	Drainage Area	C	Tc	i	K	Peak Flow
	(ac.)		(min)	(in/hr)		(cfs)
A-A	1.3	0.3	5	10.32	1.25	5.03
B-B	1.3	0.3	5	10.32	1.25	5.03

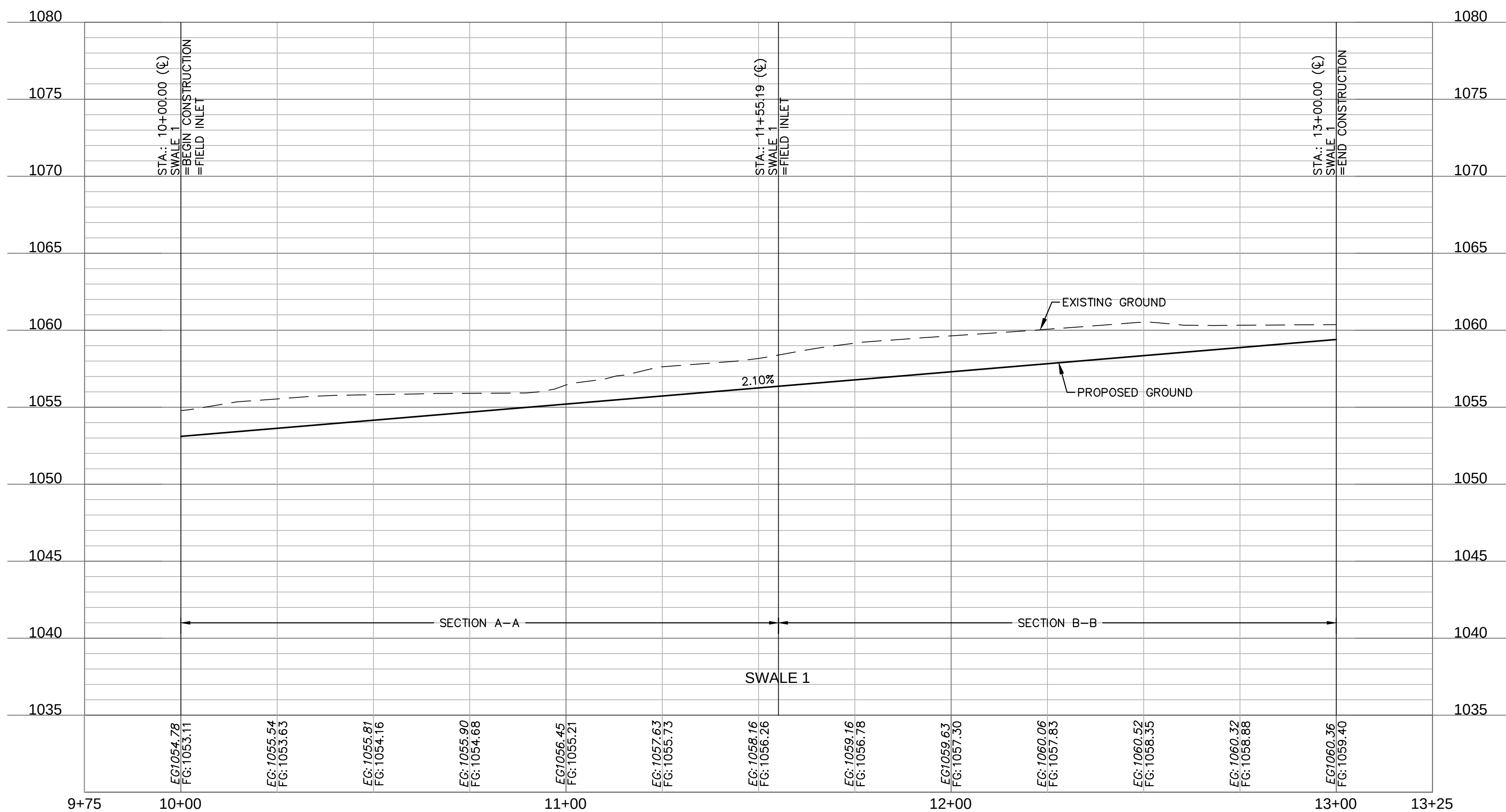


NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE
FIELD INLETS ARE LOCATED WITHIN SWALES.



SWALE GRADING NOTES:

1. CONTRACTOR SHALL CONSTRUCT SWALES WITH MINIMUM SLOPE, WIDTH AND DEPTH AS SHOWN IN THE SWALE DESIGN TABLES.
2. AS-BUILT SURVEY IS REQUIRED/APPROVED BY CITY FOR ALL SWALES AND PRIOR TO APPROVAL FOR ANY BUILDING FOUNDATION PERMIT. CONTRACTOR SHALL BE REQUIRED TO REGRADE SWALES AT CONTRACTOR'S EXPENSE IF ABOVE REQUIREMENTS ARE NOT MET.

[illegible]

REVISIONS

SWALE 1 PLAN & PROFILE
STREET & STORM SEWER PLANS
OSAGE 3RD PLAT

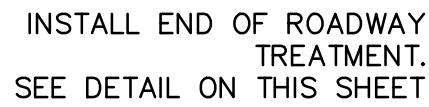
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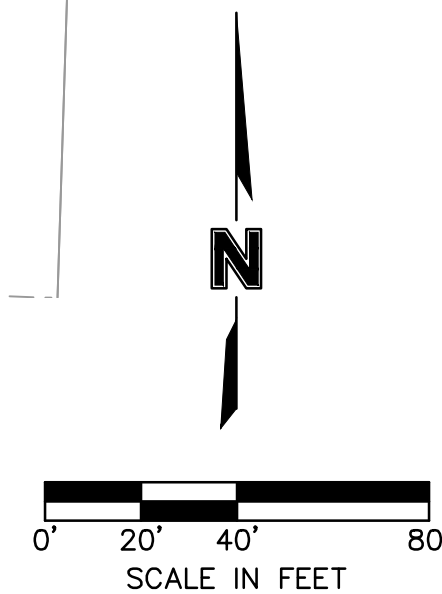
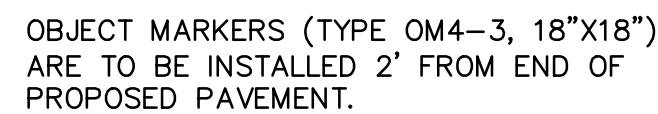
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C_PUTIL_D192339

C_PSTRM_D192339



87
INSTALL SW HOLDBROOKS
DRIVE AND SW KNOXVILLE
COURT STREET NAME
SIGNS WITH STOP SIGN

— REMOVE EXISTING
END OF ROADWAY
TREATMENT MARKERS



OSAGE 3RD PLAT

LEE'S SUMMIT: MO

SHEET
C111

BY

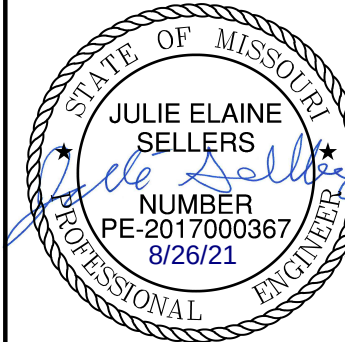
DATE	REVISIONS DESCRIPTION
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DATE _____

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NO.	

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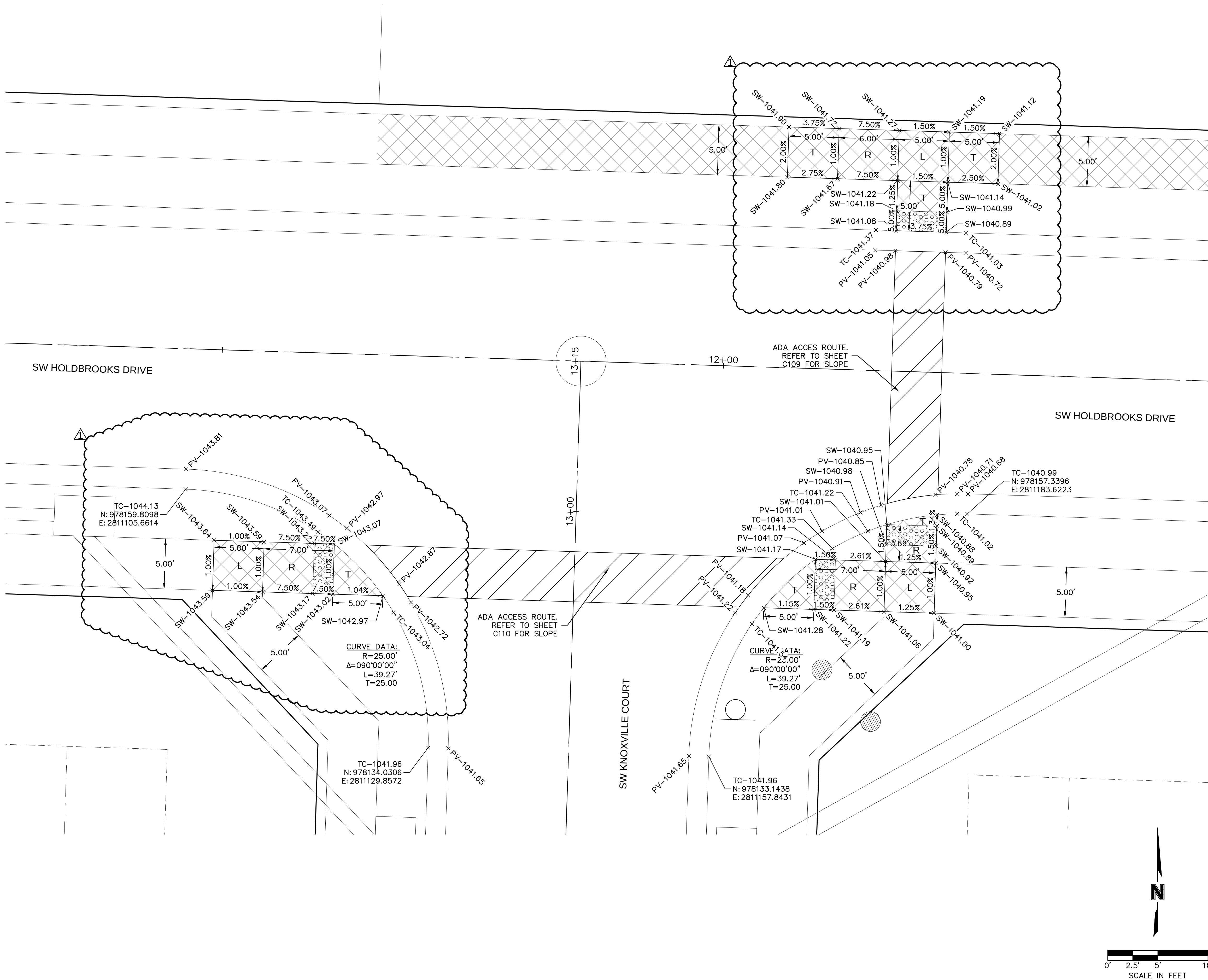
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1. ALL ADA CURB RAMPS SHALL BE BUILT PER CURRENT MUNICIPALITY ADOPTED ADA STANDARDS.
2. CURB RAMP FLARES SHALL NOT BE STEEPER THAN 1:10 MAX SLOPE.
3. LANDING SHALL BE PROVIDED WHERE INDICATED ON PLAN SHEET OR BY PROWAG STANDARDS. LANDING SHALL BE 4'x4' MINIMUM.
4. RAMP RUNS SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1:12 UNLESS THE RAMP LENGTH IS OVER 15 FEET, THEN THE SLOPE CAN BE GREATER AS INDICATED IN DETAILS TO REACH STREET GRADE.
5. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
6. CROSS SLOPE FOR RAMPS AND SIDEWALK SHALL NOT EXCEED 2% AFTER CURBS HAVE BEEN CONSTRUCTED, AND BEFORE ASPHALT OR CONCRETE PAVEMENT IS POURED. CURBS SHOULD BE MEASURED WITH A LEVEL TO ENSURE CURB ALONG ADA RAMPS AND LANDINGS WILL MEET ADA REQUIREMENTS.
7. ADA RAMP CONSTRUCTION WILL BE INSPECTED THOROUGHLY BY THE CITY INSPECTOR. CONTRACTOR SHALL BE REQUIRED TO RECONSTRUCT RAMPS, CURBS AND/OR PAVEMENT AT CONTRACTOR'S EXPENSE IF ADA RAMPS AND LANDINGS CANNOT MEET ADA REQUIREMENTS, PER APPROVED PLAN OR APPROVED ALTERNATIVE.
8. CURVE DATA IS FOR BACK OF CURB.

LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA
	ADA ACCESS ROUTE
	CG-2 CURB & GUTTER
	CONCRETE SIDEWALK (CONSTRUCTED BY CONTRACTOR)



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USER: aadbigiliev

SW HOLDBROOKS DRIVE & SW KNOXVILLE COURT INTERSECTION
STREET & STORM SEWER PLANS

OSAGE 3RD PLAT

LEE'S SUMMIT, MO

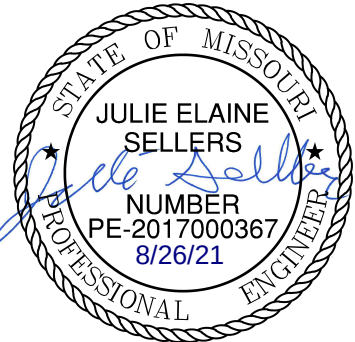
by:	MJD
by:	JES
by:	MJD
by:	JES
o.:	D19-2339
no.:	C INT01 D192339
	6/24/2021

SHEET
C112

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
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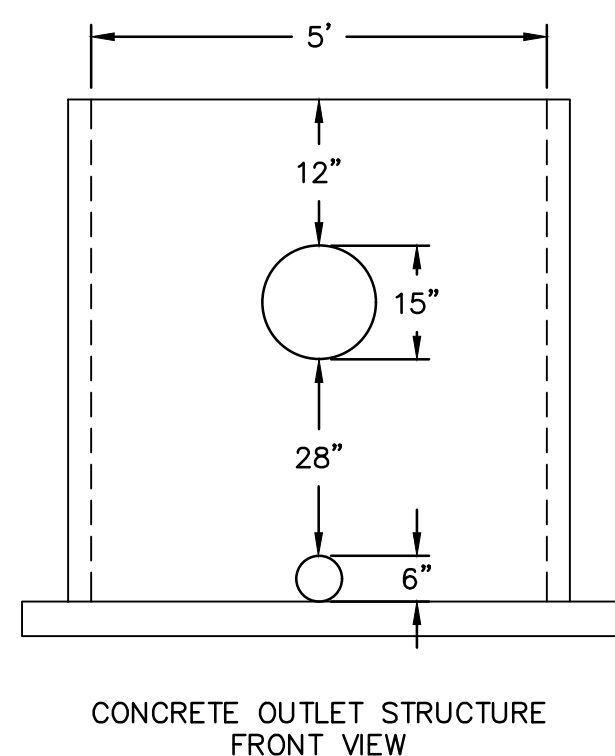
DEVISIONS

2021

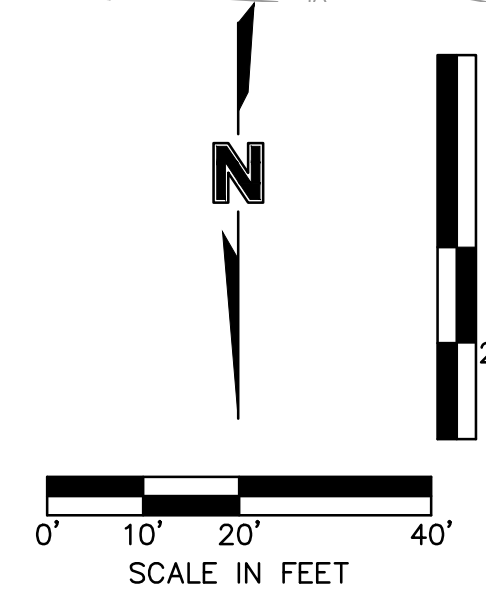


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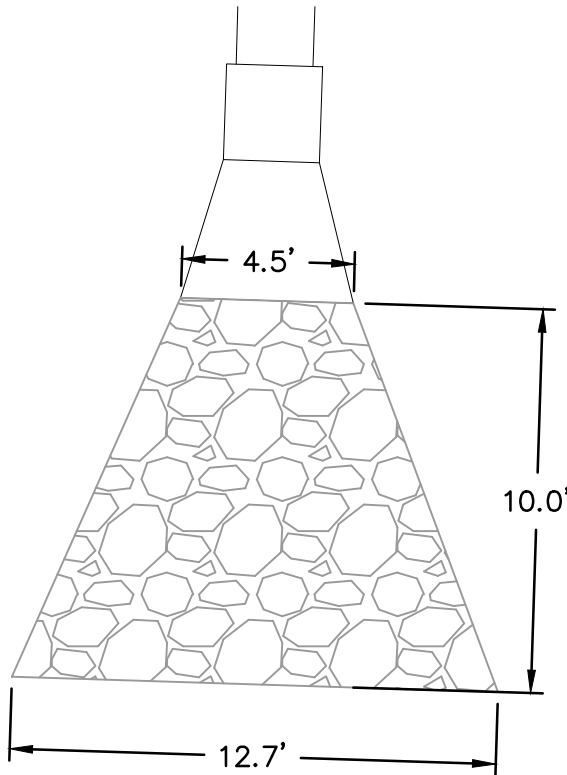
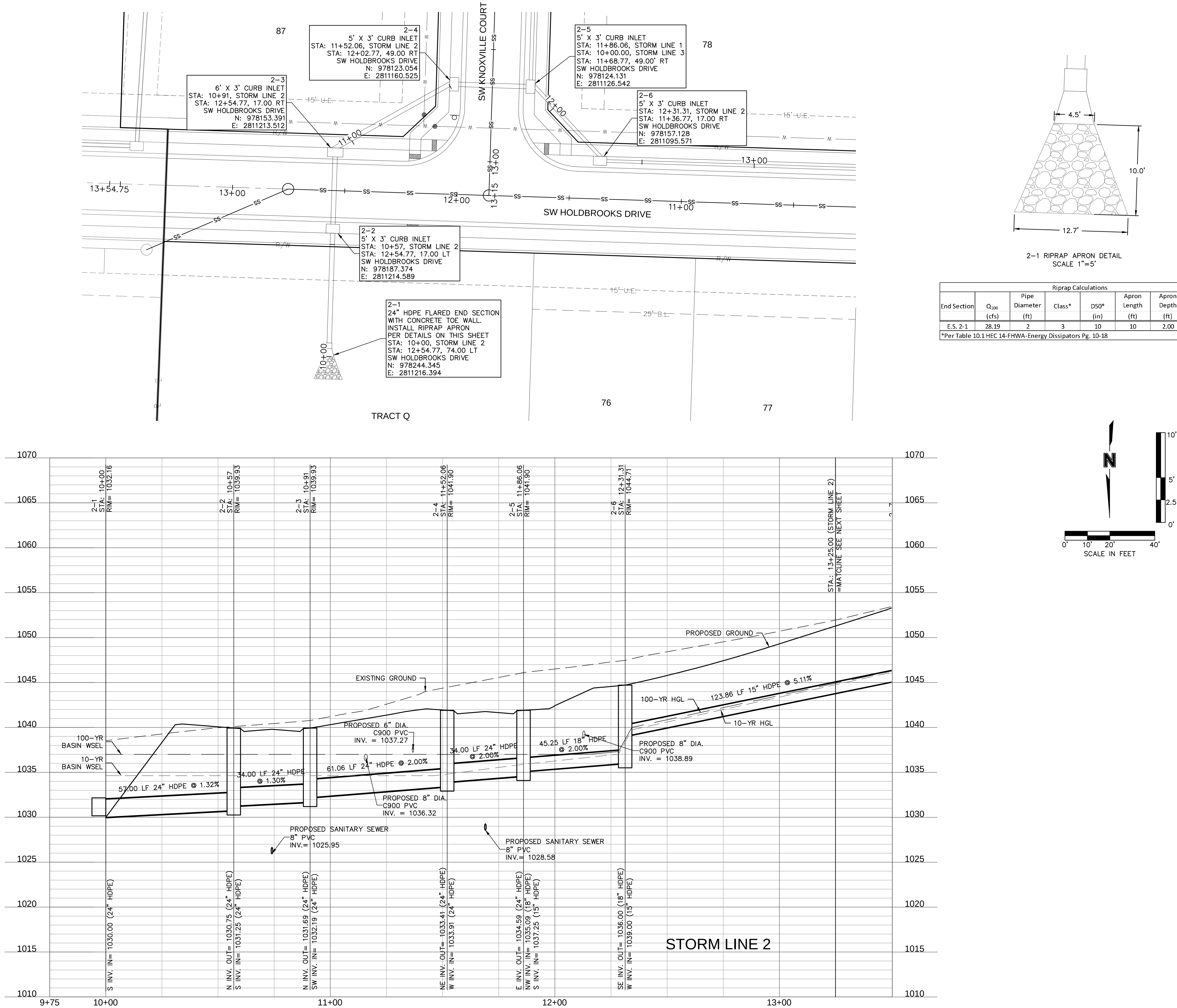
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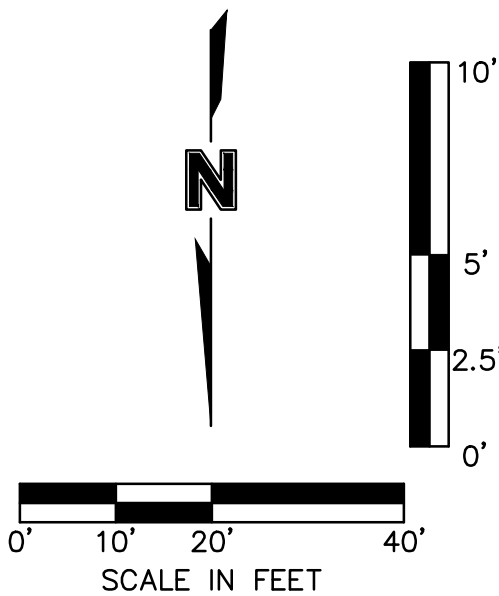


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USER: oebdi@jehv



Riprap Calculations						
End Section	Q ₁₀₀ (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)
E.S. 2-1	28.19	2	3	10	10	2.00
Area (SY)						
10.4						

*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18



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1	08/17/2021	REVISED PER CITY COMMENTS

STORM SEWER PLAN & PROFILE (LINE 2)
STREET & STORM SEWER PLANS

OSAGE 3RD PLAT

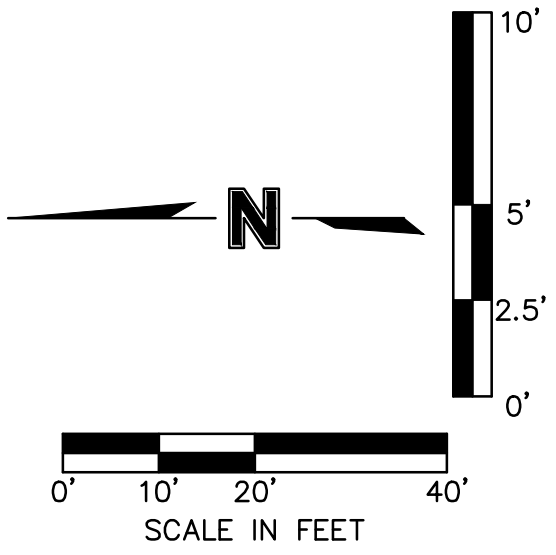
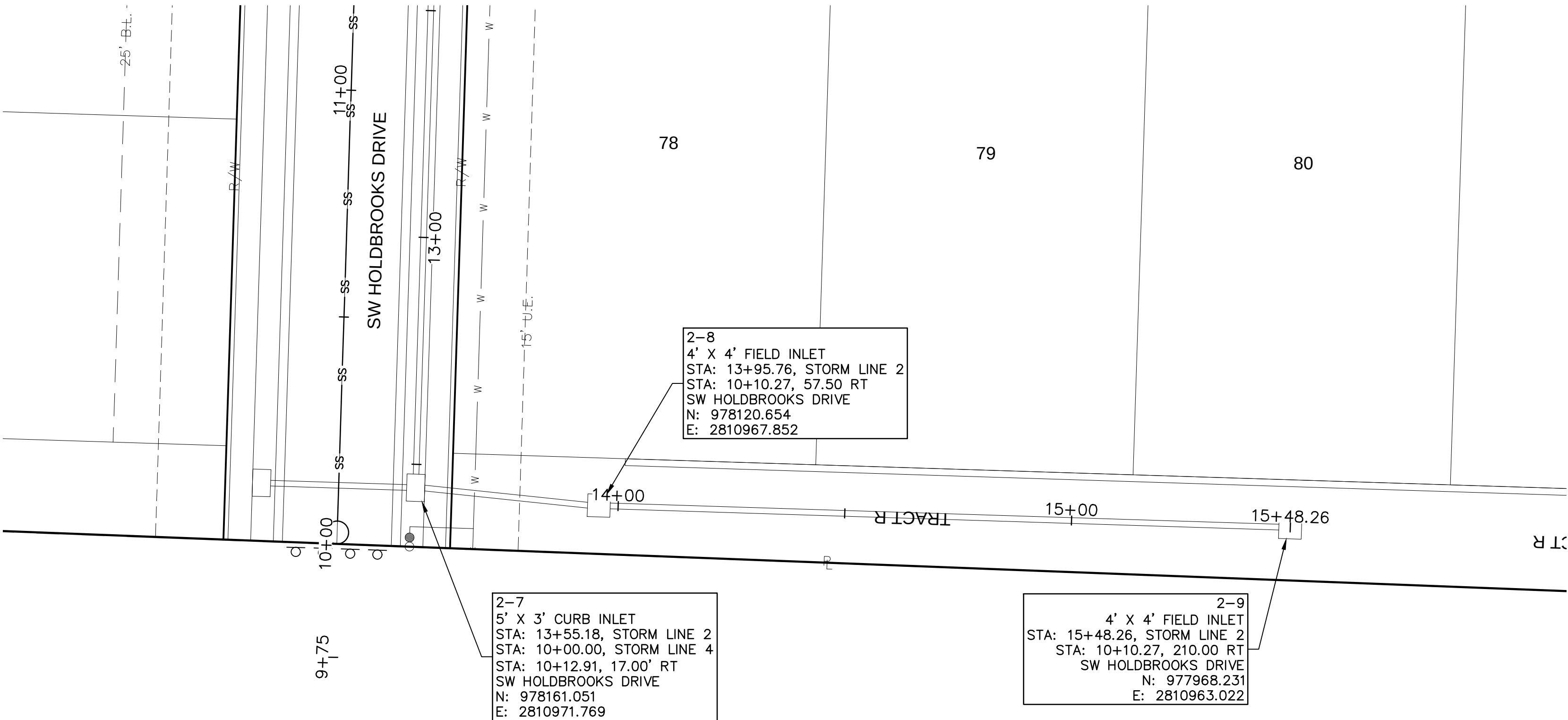
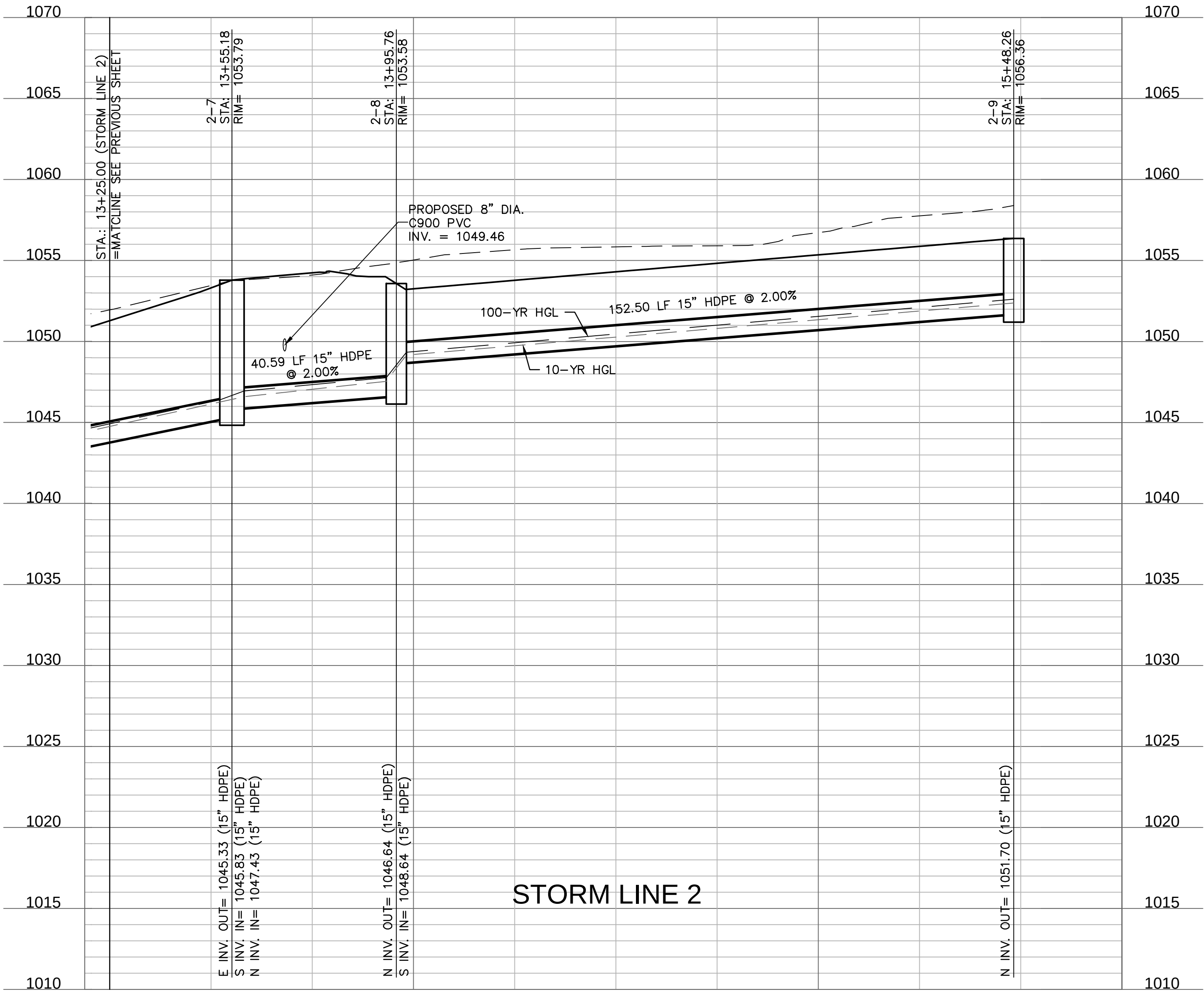
LEE'S SUMMIT, MO

2021

drawn by: MJD
checked by: JES
designed by: MJD
QA/QC by: JES
project no.: D19-2339
drawing no.: C_STM01_D192339
date: 8/24/2021

SHEET
C114

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drawn by: MJD
checked by: JES
designed by: MJD
QA/QC by: JES
project no.: D19-2339
drawing no.: C_STM01_D192339
date: 8/24/2021

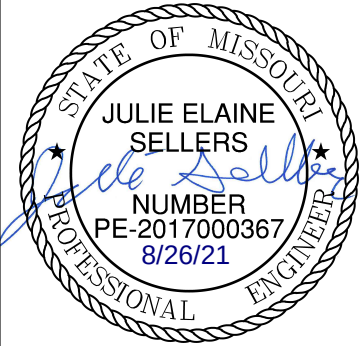
SHEET
C115

STORM SEWER PLAN & PROFILE (LINE 2 CONT.)
STREET & STORM SEWER PLANS
OSAGE 3RD PLAT
LEE'S SUMMIT, MO

2021

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REV. NO.	DATE	REVISIONS DESCRIPTION	BY
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NOTES:

MBOE - MINIMUM BUILDING OPENING ELEVATION
FG - FINISHED GRADE

LEGEND	
	FINISHED INDEX CONTOURS
	FINISHED INTERMEDIATE CONTOURS

BASEMENT TYPES

- (S) STANDARD
(D) DAYLIGHT

NOTES:

1. INDIVIDUAL LOT OWNERS SHALL NOT CHANGE OR OBSTRUCT THE DRAINAGE FLOW LINES OR PATHS ON THE LOTS, AS SHOWN ON THE MATER DRAINAGE PLAN, UNLESS SPECIFIC APPLICATION IS MADE AND APPROVED BY THE CITY ENGINEER.

2. PLAT IS LOCATION IN ZONE X, "AREAS OUTSIDE THE 1-PERCENT ANNUAL CHANCE FLOODPLAINS, AREAS OF 1-PERCENT ANNUAL CHANCE SHEET FLOW FLOODING WHERE THE AVERAGE DEPTHS ARE LESS THAN 1 FOOT, AREAS OF 1-PERCENT ANNUAL CHANCE STREAM FLOODING WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1 SQUARE MILE, OR AREAS PROTECTED FROM THE 1-PERCENT ANNUAL CHANCE FLOOD BY LEVEES. NO BASE FLOOD ELEVATIONS OR DEPTHS ARE SHOWN WITHIN THIS ZONE"

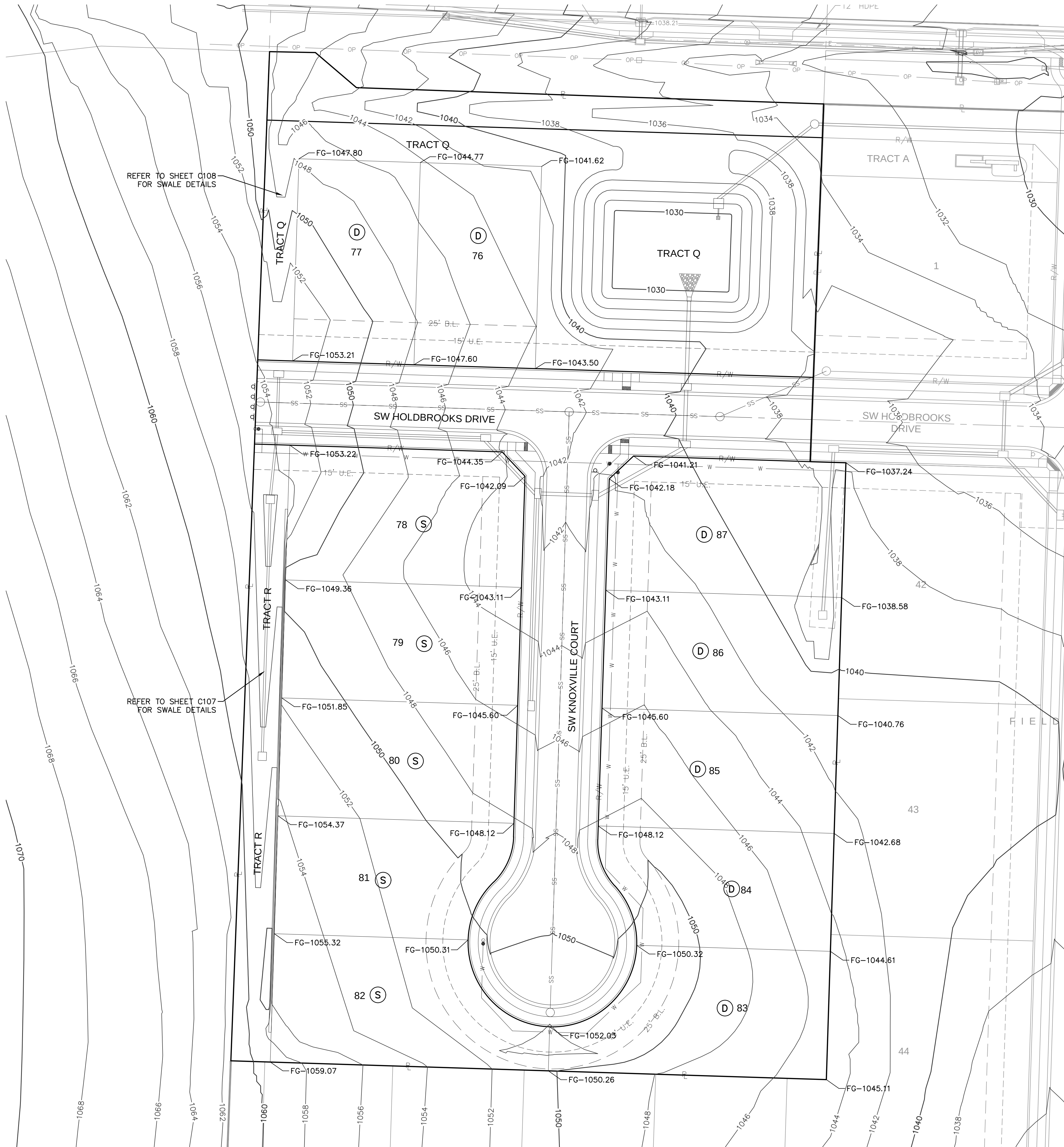
3. PLAT IS LOCATED OUTSIDE OF ANY REQUIRED BUFFER ZONES FOR NATURAL STREAMS.

4. MBOE ELEVATIONS HAVE BEEN PROVIDED AT EACH LOT CORNER. INTERPOLATION WILL BE ALLOWED BETWEEN THE RIGHT AND LEFT SIDE MBOE'S SHOWN ON THE MASTER DRAINAGE PLAN, DEPENDING ON THE LOCATION OF THE LOWEST OPENING ON THE PROPOSED STRUCTURE.

5. REFER TO SHEET C107-C108 FOR SWALE GRADING DETAILS.

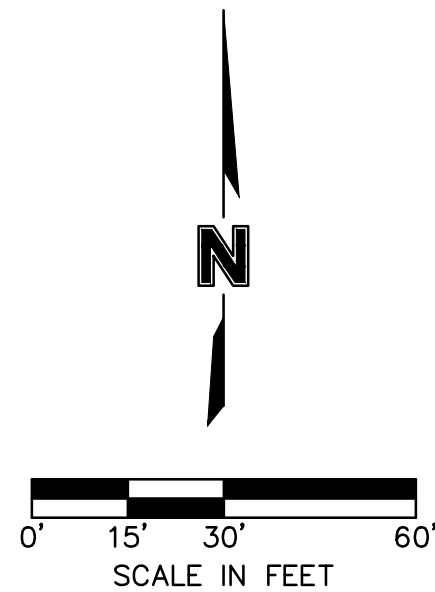
6. DRAINAGE PATHS TO BE CONSTRUCTED BETWEEN LOTS LABELED AS STANDARD AND/OR UPHILL LOTS.

7. NO BUILDING PERMITS WILL BE ISSUED UNTIL AN AS-GRADED MASTER DRAINAGE PLAN HAS BEEN SUBMITTED TO THE CITY AND APPROVED BY THE CITY.



Hook Farms Second Plat Minimum Building Opening Elevations		
Lot	MBOE Required*	As-Built Grading Plan Required
76	X	X
77	X	X
78		
79		
80		
81		
82		
83		
84		
85		
86	X	X
87	X	X

Notes:
X - Indicates the condition applies to the lot.
* - MBOE's will be determined once the as-built survey has been completed. This table will be replaced with a new table showing the determined MBOE for these lots.



MASTER DRAINAGE PLAN
STREET & STORM SEWER PLANS

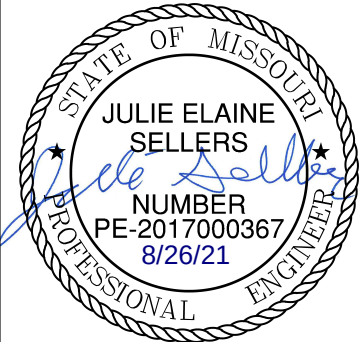
OSAGE 3RD PLAT

LEE'S SUMMIT, MO

2021

REVISIONS

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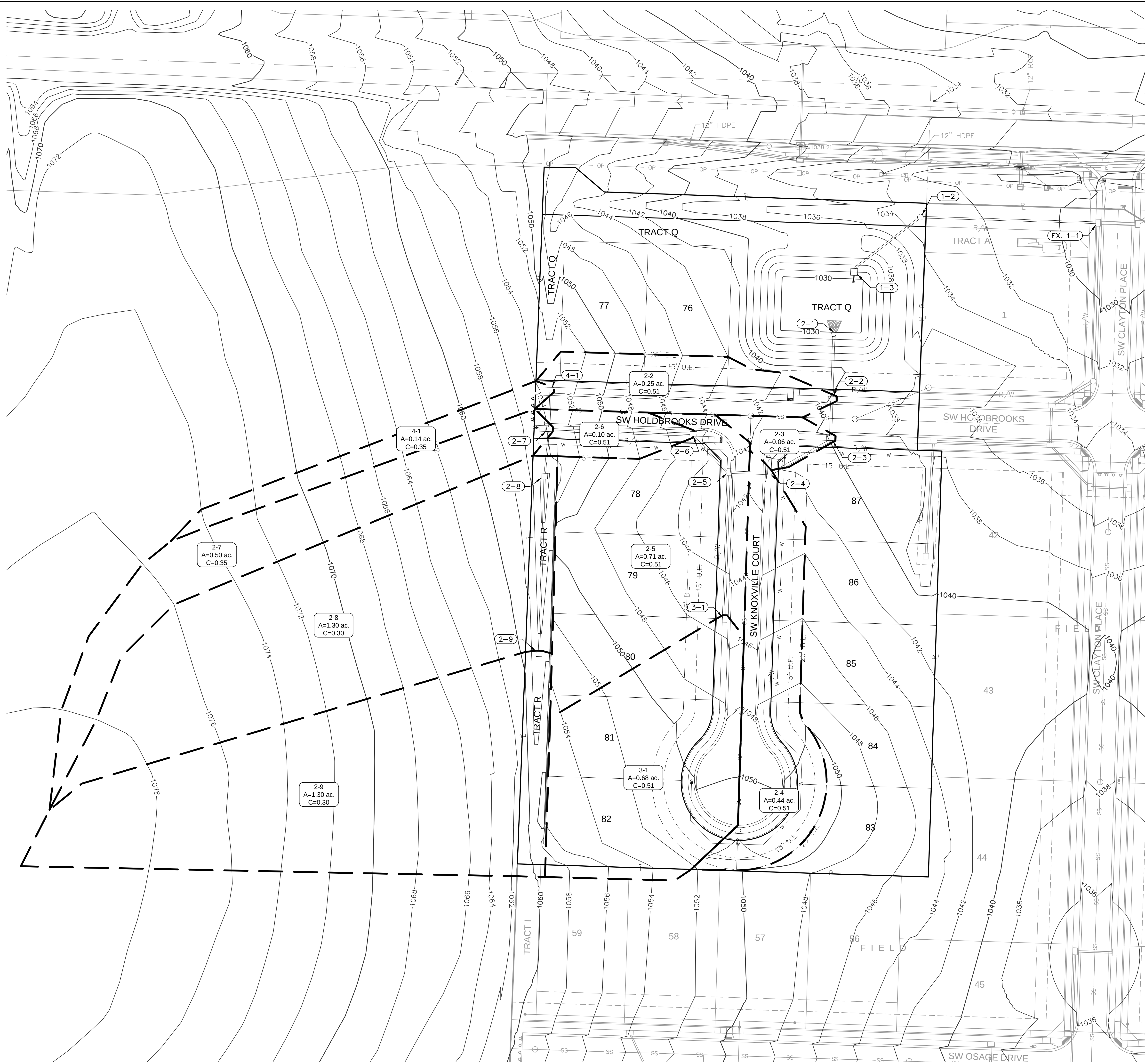
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checked by: JES
designed by: MJD
QA/QC by: JES
project no.: D19-2339
drawing no.: C_DRN01_D192339
date: 8/24/2021

SHEET
C117

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LEGEND	
	FINISHED INDEX CONTOURS
	FINISHED INTERMEDIATE CONTOURS
	RIDGE LINE
A	DRAINAGE AREA
C	RUNOFF COEFFICIENT
C.I. 0-0	STORM STRUCTURE NUMBER

DRAINAGE PLAN
STREET & STORM SEWER PLANS
OSAGE 3RD PLAT

LEE'S SUMMIT, MO

2021

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designed by: MJD
QA/QC by: JES
project no.: C_DRN02_D192339
drawing no.: 6/24/2021
date:

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C118

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STATE OF MISSOURI
JULIE ELAINE
SELLERS
NUMBER
PE-2017000367
8/26/21
PROFESSIONAL ENGINEER

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Drainage Area Design Table						
10 Year Return Frequency						
Inlet ID	Drainage Area	C	Tc	i	K	Peak Flow
	(ac)		(min)	(in/hr)		(cfs)
C.I. 2-2	0.25	0.51	5.00	7.35	1.00	0.94
C.I. 2-3	0.06	0.51	5.00	7.35	1.00	0.23
C.I. 2-4	0.44	0.51	5.00	7.35	1.00	1.65
C.I. 2-5	0.71	0.51	5.00	7.35	1.00	2.66
C.I. 2-6	0.10	0.51	5.00	7.35	1.00	0.38
C.I. 2-7	0.50	0.35	5.00	7.35	1.00	1.29
F.I. 2-8	1.30	0.30	5.00	7.35	1.00	2.87
F.I. 2-9	1.30	0.30	5.00	7.35	1.00	2.87
C.I. 3-1	0.68	0.51	5.00	7.35	1.00	2.55
C.I. 4-1	0.25	0.35	5.00	7.35	1.00	0.64

Drainage Area Design Table						
100 Year Return Frequency						
Inlet ID	Drainage Area	C	Tc	i	K	Peak Flow
	(ac)		(min)	(in/hr)		(cfs)
C.I. 2-2	0.25	0.51	5.00	10.32	1.25	1.65
C.I. 2-3	0.06	0.51	5.00	10.32	1.25	0.39
C.I. 2-4	0.44	0.51	5.00	10.32	1.25	2.90
C.I. 2-5	0.71	0.51	5.00	10.32	1.25	4.67
C.I. 2-6	0.10	0.51	5.00	10.32	1.25	0.66
C.I. 2-7	0.50	0.35	5.00	10.32	1.25	2.26
F.I. 2-8	1.30	0.30	5.00	10.32	1.25	5.03
F.I. 2-9	1.30	0.30	5.00	10.32	1.25	5.03
C.I. 3-1	0.68	0.51	5.00	10.32	1.25	4.47
C.I. 4-1	0.25	0.35	5.00	10.32	1.25	1.13

Inlet Design Table													
10 Year Return Frequency													
Inlet ID	Inlet Location	Peak Flow	Upstream Bypass	Total Flow	Clogging Factor	Inlet Capacity	Sag Inlet Capacity (Note 1)	Captured Flow	Bypass Flow	Inlet Efficiency (Note 2)	Gutter Depth	Gutter Spread	Ponding Depth
		(cfs)	(cfs)	(cfs)		(cfs)	(cfs)	(cfs)	(cfs)	(%)	(ft)	(ft)	(ft)
C.I. 2-2	GRADE	0.94	0.10	1.04	1.00	0.89	0.89	0.89	0.15	85.63%	0.11	5.30	...
C.I. 2-3	GRADE	0.23	0.10	0.33	1.00	0.31	0.31	0.31	0.01	95.94%	0.07	3.44	...
C.I. 2-4(L)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 2-4(R)	SAG	1.28	...	...	...	...	...	...	...	...	0.11	5.74	...
C.I. 2-4(B)	SAG	0.38	...	...	...	...	...	...	...	...	...	...	...
C.I. 2-4	SAG	1.65	0.00	1.65	0.80	19.40	15.52	1.65	0.00	100.00%	...	...	...
C.I. 2-5(L)	SAG	0.94	...	...	...	...	...	...	...	...	0.14	7.03	...
C.I. 2-5(R)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 2-5(B)	SAG	1.73	...	...	...	...	...	...	...	...	...	...	...
C.I. 2-5	SAG	2.66	0.00	2.66	0.80	19.40	15.52	2.66	0.00	100.00%	...	...	...
C.I. 2-6	GRADE	0.38	0.37	0.74	1.00	0.64	0.64	0.64	0.10	86.35%	0.09	4.34	...
C.I. 2-7	GRADE	1.29	0.00	1.29	1.00	0.92	0.92	0.92	0.37	71.44%	0.10	4.96	...
F.I. 2-8	SAG	2.87	0.00	2.87	0.80	14.00	11.20	2.87	0.00	100.00%	...	...	0.17
F.I. 2-9	SAG	2.87	0.00	2.87	0.80	14.00	11.20	2.87	0.00	100.00%	...	...	0.17
C.I. 3-1	GRADE	2.55	0.00	2.55	1.00	1.86	1.86	1.86	0.69	72.90%	0.16	7.83	...
C.I. 4-1	GRADE	0.64	0.00	0.64	1.00	0.54	0.54	0.54	0.10	84.59%	0.08	3.83	...
Notes:													
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.													
Both theoretical capacity and reduced capacity are shown.													
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.													

Inlet Design Table													
100 Year Return Frequency													
Inlet ID	Inlet Location	Peak Flow	Upstream Bypass	Total Flow	Clogging Factor	Inlet Capacity	Sag Inlet Capacity (Note 1)	Captured Flow	Bypass Flow	Inlet Efficiency (Note 2)	Gutter Depth	Gutter Spread	Ponding Depth
		(cfs)	(cfs)	(cfs)		(cfs)	(cfs)	(cfs)	(cfs)	(%)	(ft)	(ft)	(ft)
C.I. 2-2	GRADE	1.65	0.29	1.93	1.00	1.44	1.44	1.44	0.49	74.62%	0.13	6.70	...
C.I. 2-3	GRADE	0.39	0.46	0.85	1.00	0.75	0.75	0.75	0.10	88.15%	0.10	4.93	...
C.I. 2-4(L)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 2-4(R)	SAG	2.24	...	...	...	...	...	...	...	...	0.14	7.09	...
C.I. 2-4(B)	SAG	0.66	...	...	...	...	...	...	...	...	...	...	...
C.I. 2-4	SAG	2.90	0.00	2.90	0.80	19.40	15.52	2.90	0.00	100.00%	...	...	...
C.I. 2-5(L)	SAG	1.65	...	...	...	...	...	...	...	...	0.19	9.37	...
C.I. 2-5(R)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 2-5(B)	SAG	3.03	...	...	...	...	...	...	...	...	...	...	...
C.I. 2-5	SAG	4.67	0.00	4.67	0.80	19.40	15.52	4.67	0.00	100.00%	...	...	...
C.I. 2-6	GRADE	0.66	0.98	1.64	1.00	1.18	1.18	1.18	0.46	72.05%	0.12	5.84	...
C.I. 2-7	GRADE	2.26	0.00	2.26	1.00	1.28	1.28	1.28	0.98	56.53%	0.12	6.13	...
F.I. 2-8	SAG	5.03	0.00	5.03	0.80	14.00	11.20	5.03	0.00	100.00%	...	...	0.25
F.I. 2-9	SAG	5.03	0.00	5.03	0.80	14.00	11.20	5.03	0.00	100.00%	...	...	0.25
C.I. 3-1	GRADE	4.47	0.00	4.47	1.00	2.61	2.61	2.61	1.86	58.37%	0.19	9.67	...
C.I. 4-1	GRADE	1.13	0.00	1.13	1.00	0.84	0.84	0.84	0.29	74.38%	0.09	4.72	...
Notes:													
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.													
Both theoretical capacity and reduced capacity are shown.													
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.													

Storm Sewer Design Calculation Table													
10 Year Return Frequency													
Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
1-2	EX. 1-1	152.90	1026.89	1024.76	1.39	18	0.012	16.66	9.43	13.43	1.50	1030.34	1033.41
1-3	1-2	73.91	1028.42	1027.39	1.39	18	0.012	16.66	9.43	13.43	1.50	1032.48	1033.50
2-2	2-1	57.00	1030.75	1030.00	1.32	24	0.012	16.08	6.10	28.11	1.72	1032.20	1039.93
2-3	2-2	34.00	1031.69	1031.25	1.29	24	0.012	15.14	7.75	27.87	1.05	1033.09	1039.93
2-4	2-3	61.06	1033.41	1032.19	2.00	24	0.012	14.91	8.50	34.64	0.92	1034.80	1041.90
2-5	2-4	34.00	1034.59	1033.91	2.00	24	0.012	13.26	7.94	34.65	0.89	1035.90	1041.90
2-6	2-5	45.26	1036.00	1035.10	1.99	18	0.012	8.05	7.11	16.04	0.80	1037.10	1044.71
2-7	2-6	123.87	1045.33	1039.01	5.10	15	0.012	7.67	9.75	15.80	0.61	1046.43	1053.79
2-8	2-7	40.59	1046.64	1045.83	2.00	15	0.012	5.74	6.99	9.88	0.68	1047.61	1053.72
2-9	2-8	152.50	1051.70	1048.65	2.00	15	0.012	2.87	5.59	9.89	0.46	1052.38	1056.36
3-1	2-5	126.00	1040.40	1037.25	2.50	15	0.012	2.55	5.68	11.06	0.41	1041.04	1045.44
4-1	2-7	34.00	1048.50	1047.43	3.15	15	0.012	0.64	3.99	12.41	0.19	1048.81	1053.44

Storm Sewer Design Calculation Table													
100 Year Return Frequency													
Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
1-2	EX. 1-1	152.90	1026.89	1024.76	1.39	18	0.012	19.11	10.82	13.43	1.50	1032.44	1033.41
1-3	1-2	73.91	1028.42	1027.39	1.39	18	0.012	19.11	10.82	13.43	1.50	1035.26	1033.50
2-2	2-1	57.00	1030.75	1030.00	1.32	24	0.012	28.19	9.23	28.11	1.92	1032.58	1039.93
2-3	2-2	34.00	1031.69	1031.25	1.29	24	0.012	26.54	9.51	27.87	1.56	1033.49	1039.93
2-4	2-3	61.06	1033.41	1032.19	2.00	24	0.012	26.15	10.47	34.64	1.30	1035.20	1041.90
2-5	2-4	34.00	1034.59	1033.91	2.00	24	0.012	23.25	9.49	34.65	1.29	1036.30	1041.90
2-6	2-5	45.26	1036.00	1035.10	1.99	18	0.012	14.11	8.79	16.04	1.20	1037.38	1044.71
2-7	2-6	123.87	1045.33	1039.01	5.10	15	0.012	13.45	12.73	15.80	0.89	1046.56	1053.79
2-8	2-7	40.59	1046.64	1045.83	2.00	15	0.012	10.06	8.77	9.88	1.05	1047.83	1053.72
2-9	2-8	152.50	1051.70	1048.65	2.00	15	0.012	5.03	6.68	9.89	0.63	1052.61	1056.36
3-1	2-5	126.00	1040.40	1037.25	2.50	15	0.012	4.47	6.76	11.06	0.55	1041.26	1045.44
4-1	2-7	34.00	1048.50	1047.43	3.15	15	0.012	1.13	4.71	12.41	0.26	1048.92	1053.44

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER
PE-2017000367
8/26/21
PROFESSIONAL ENGINEER

BY

REV. NO.

DATE

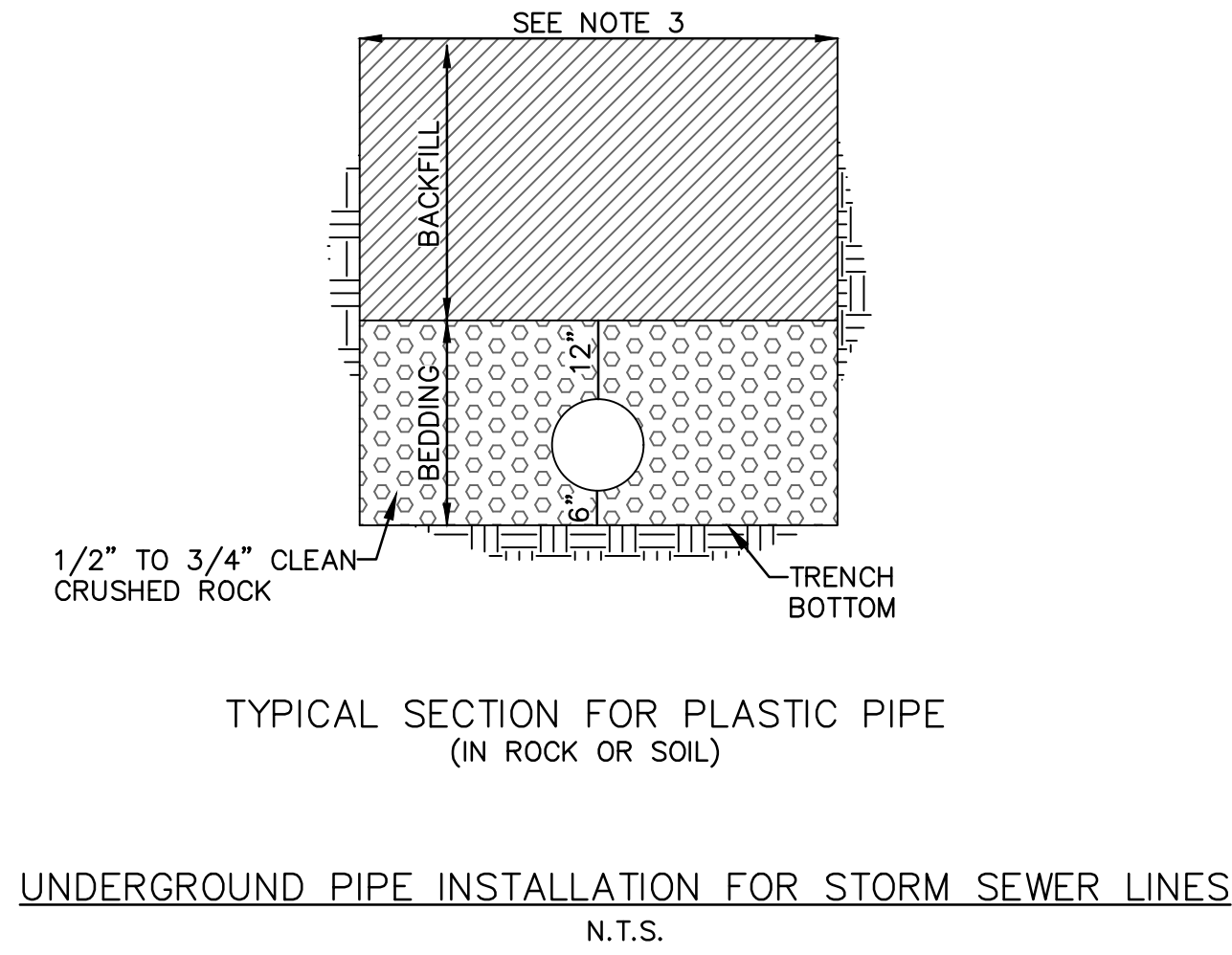
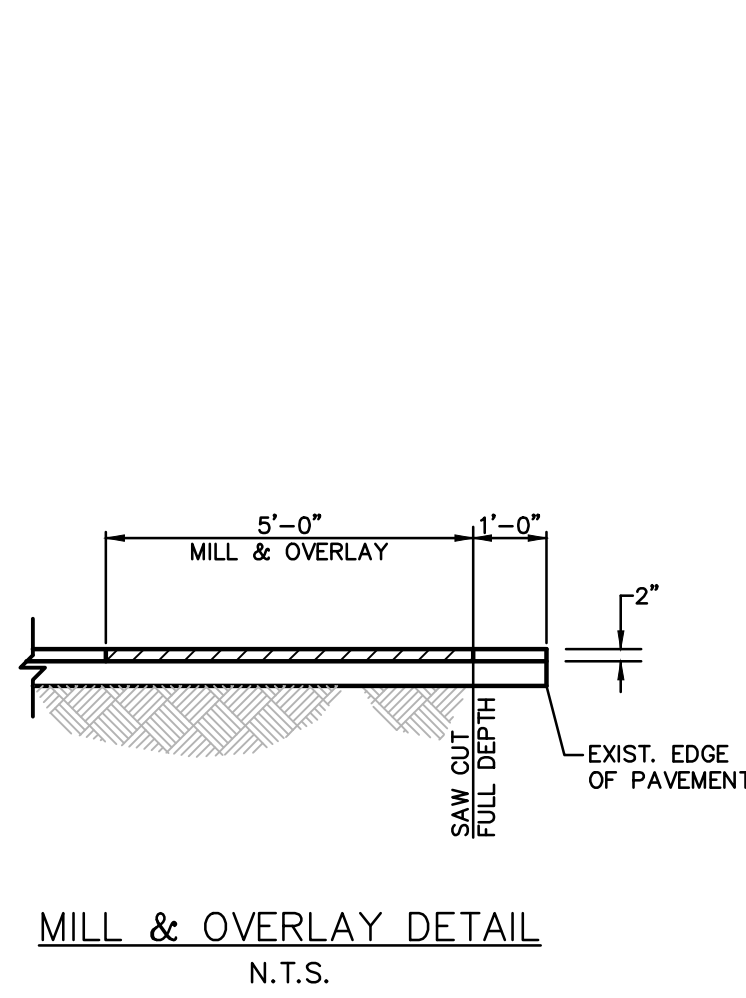
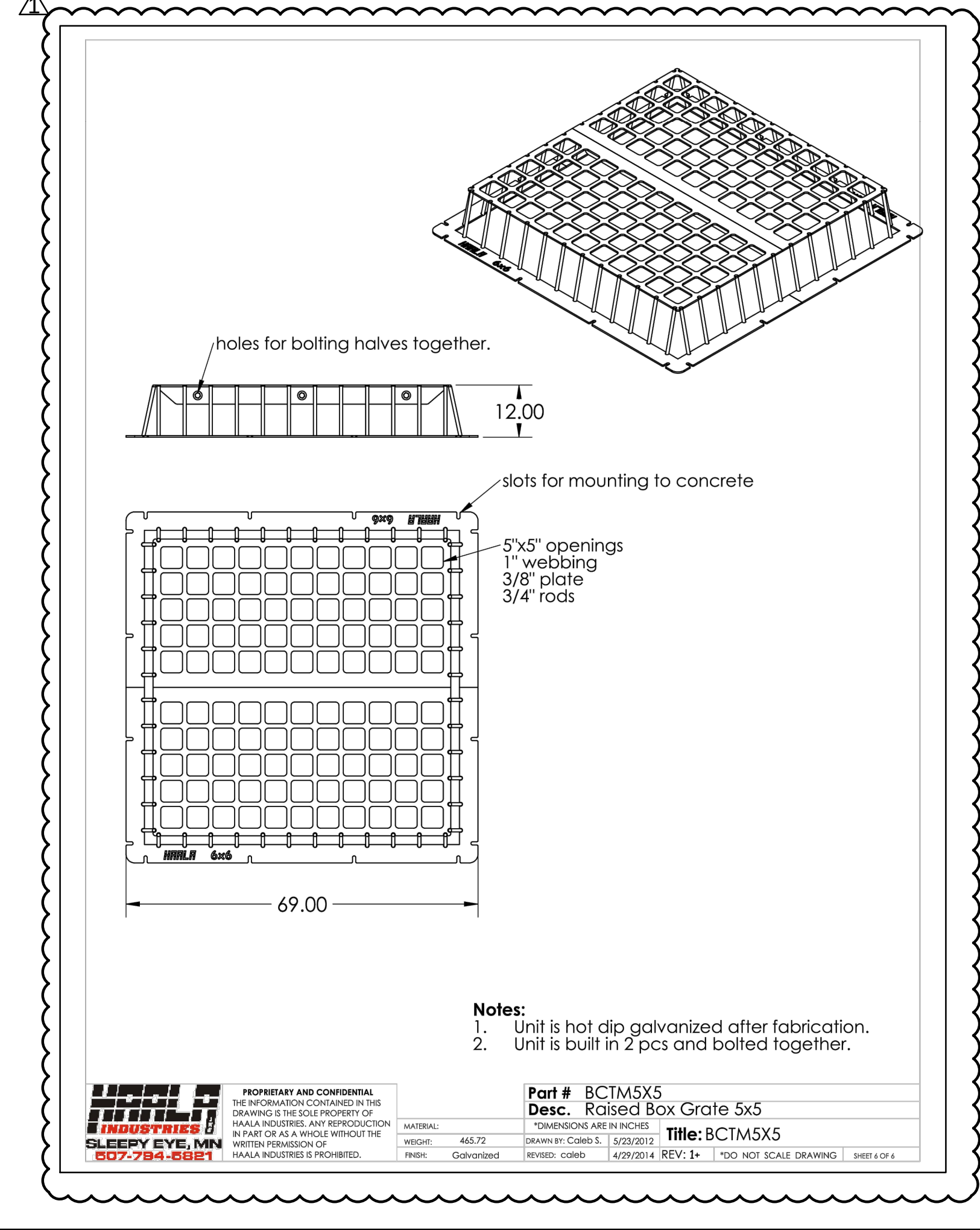
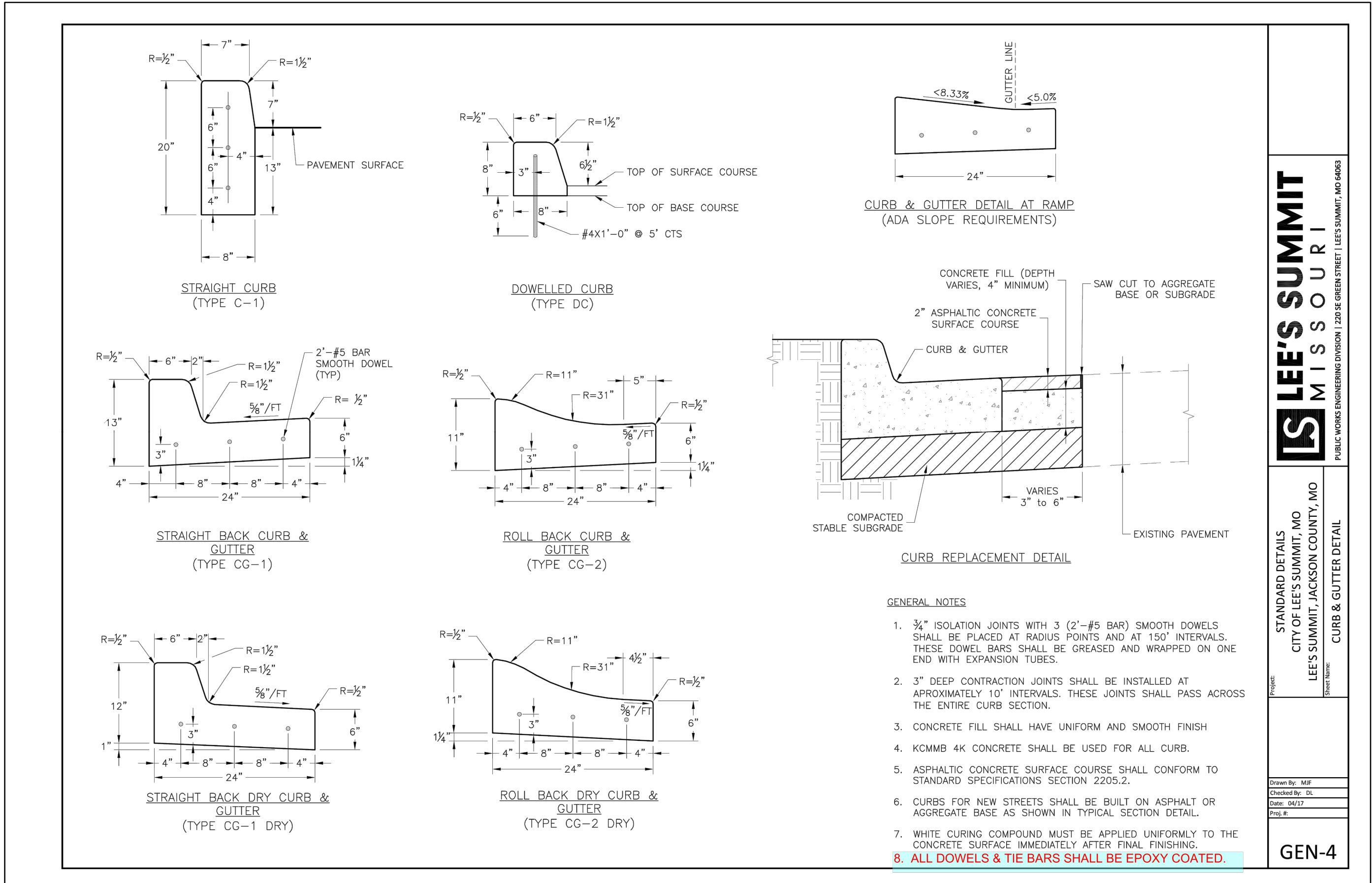
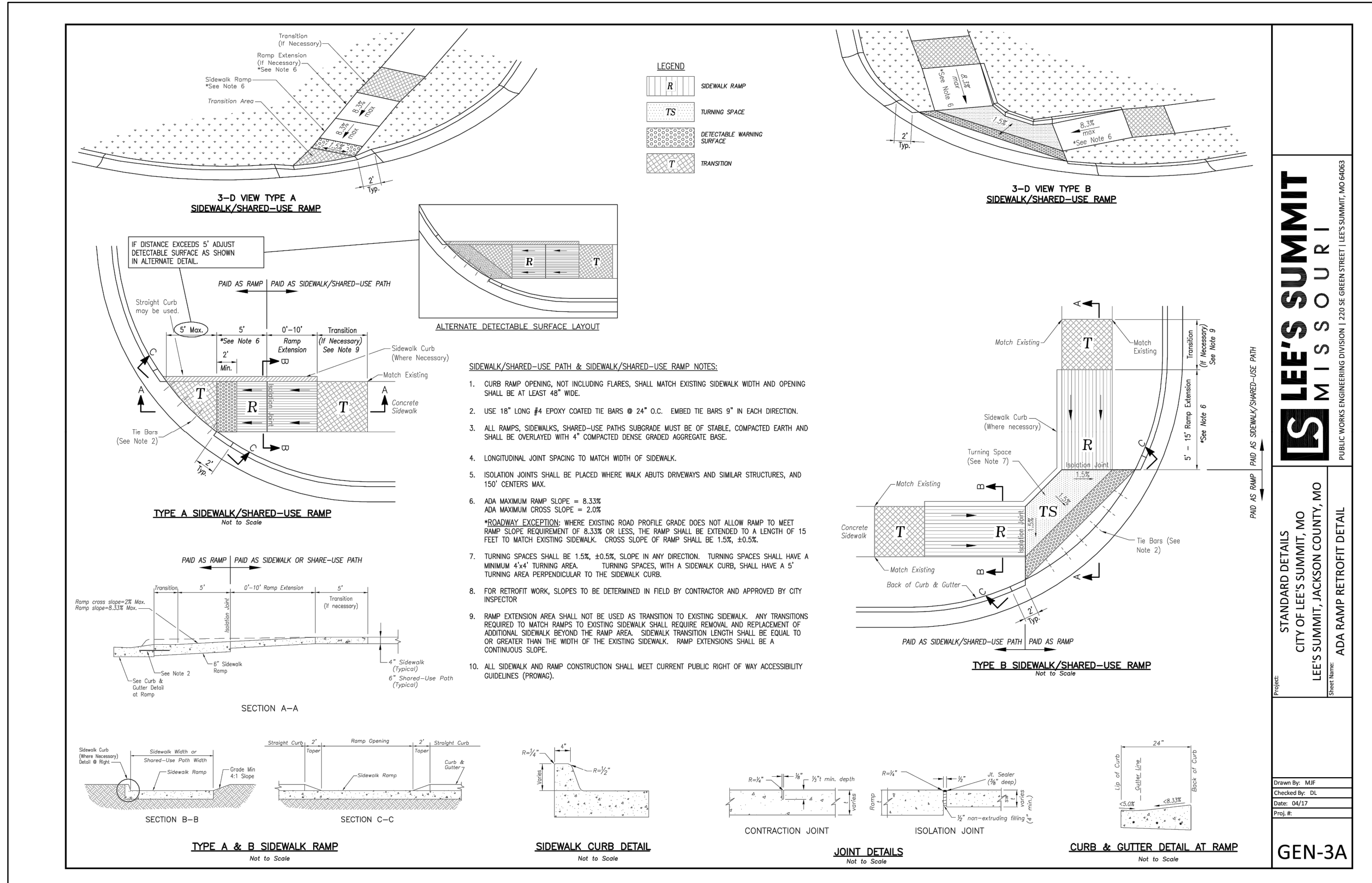
REVISIONS DESCRIPTION

REVISED PER CITY COMMENTS

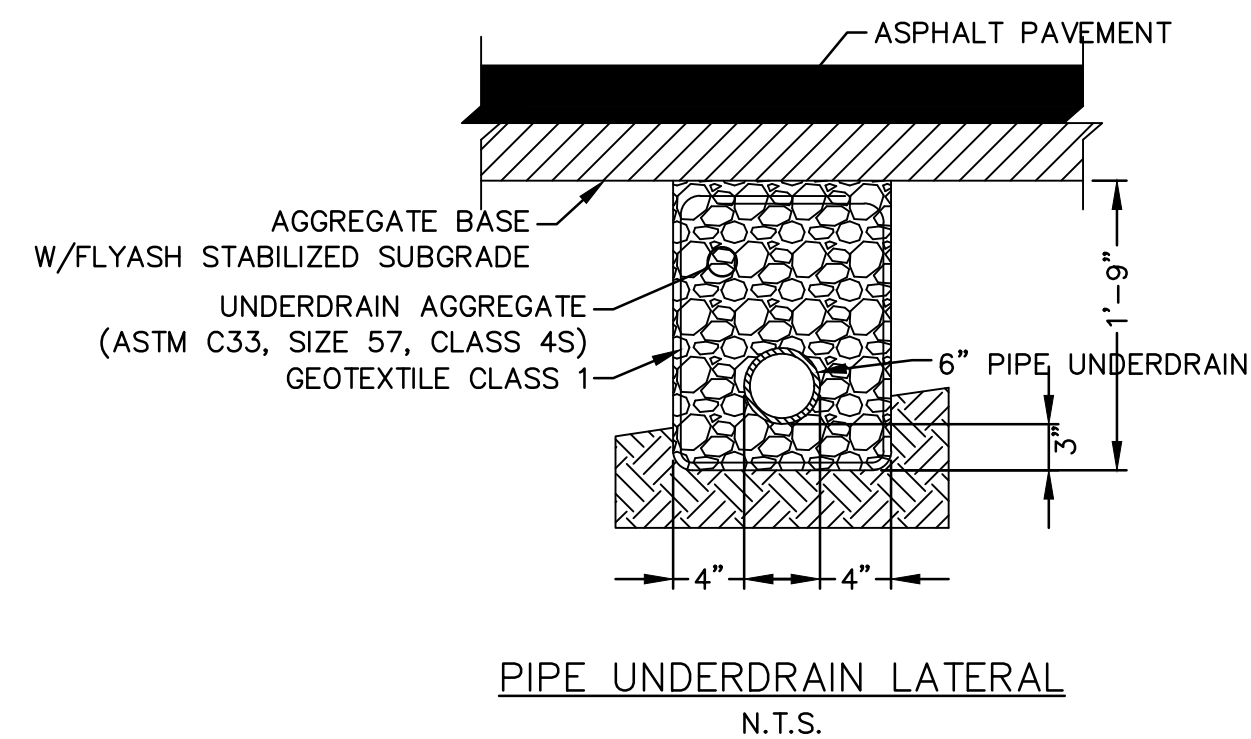
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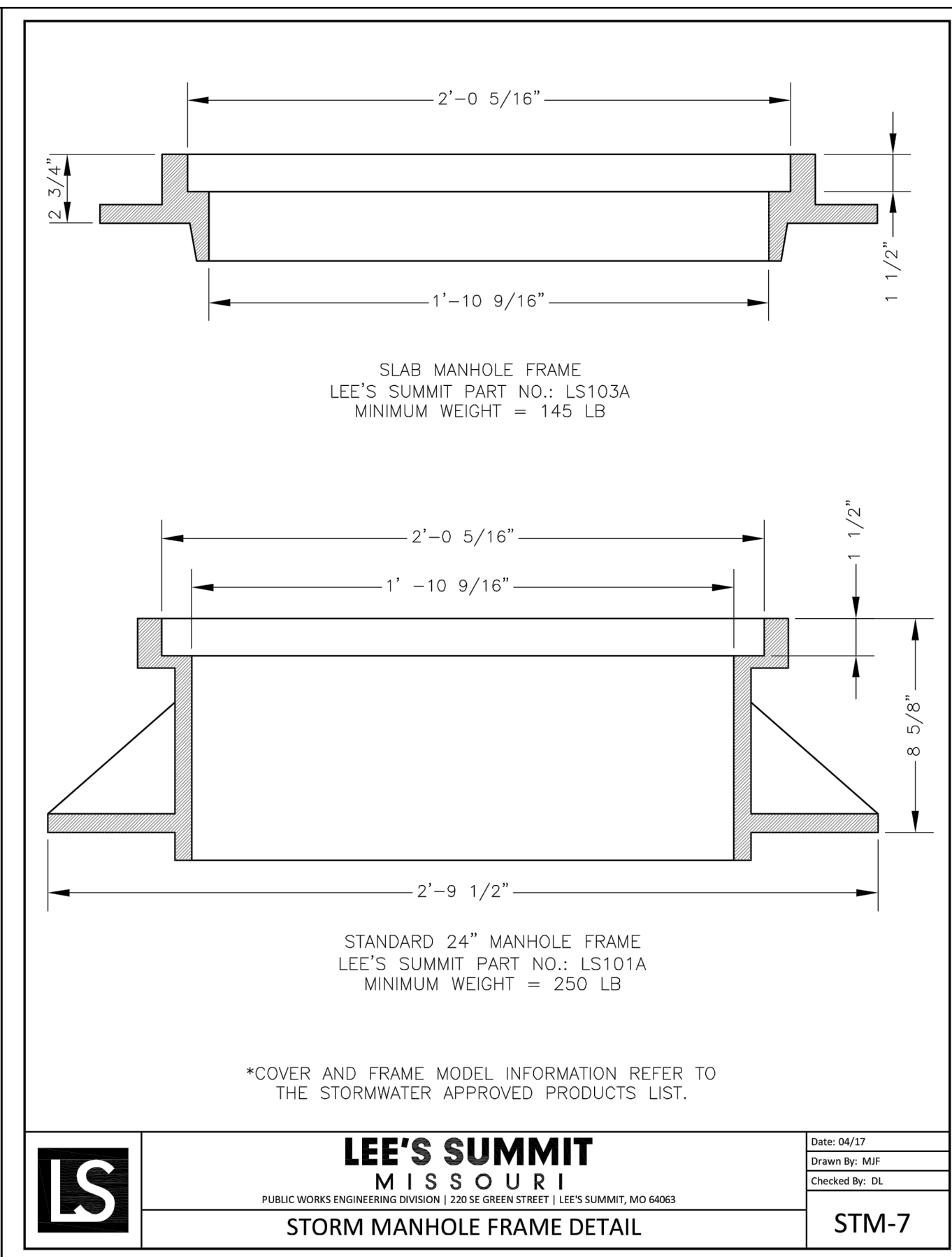
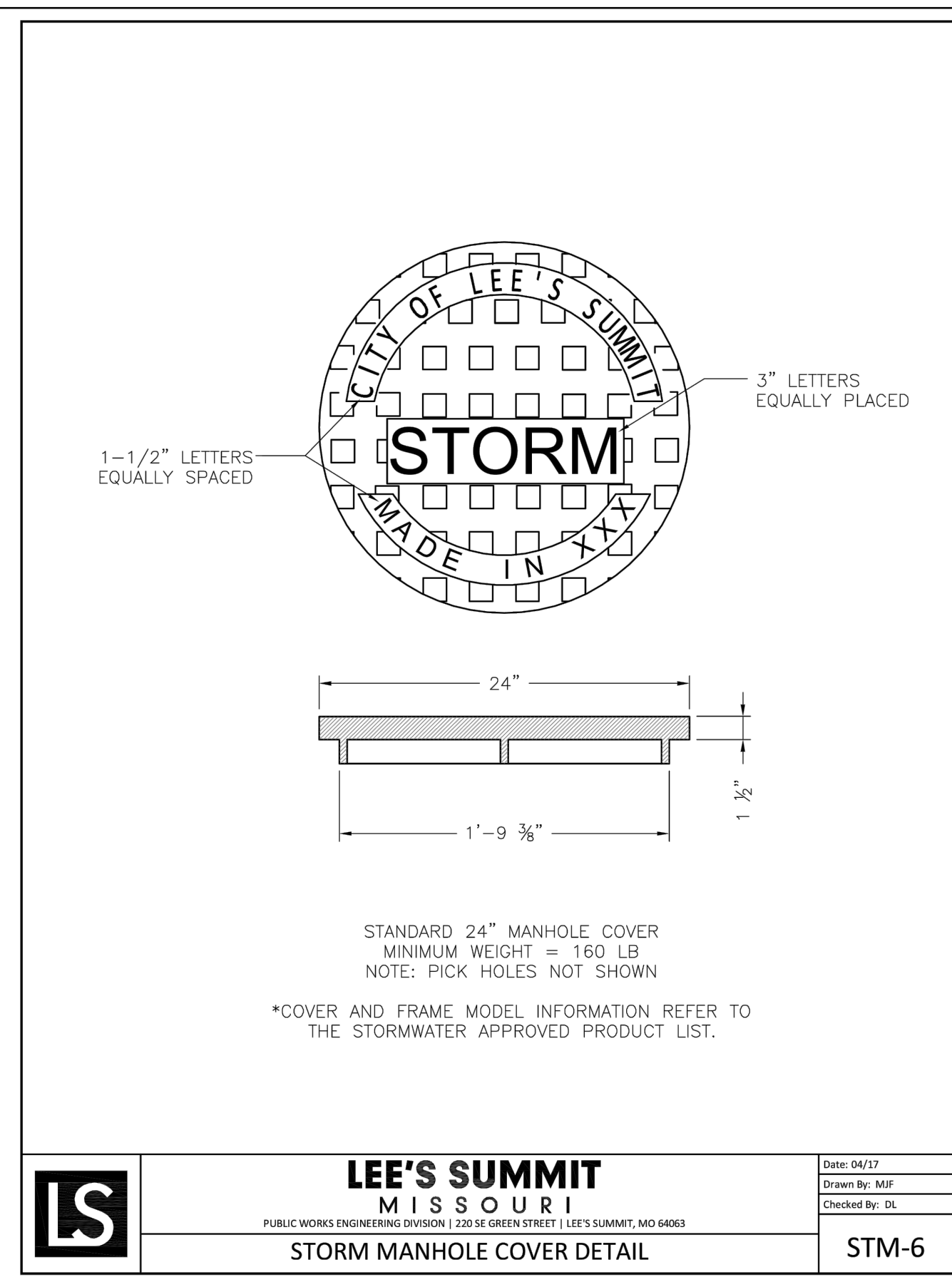
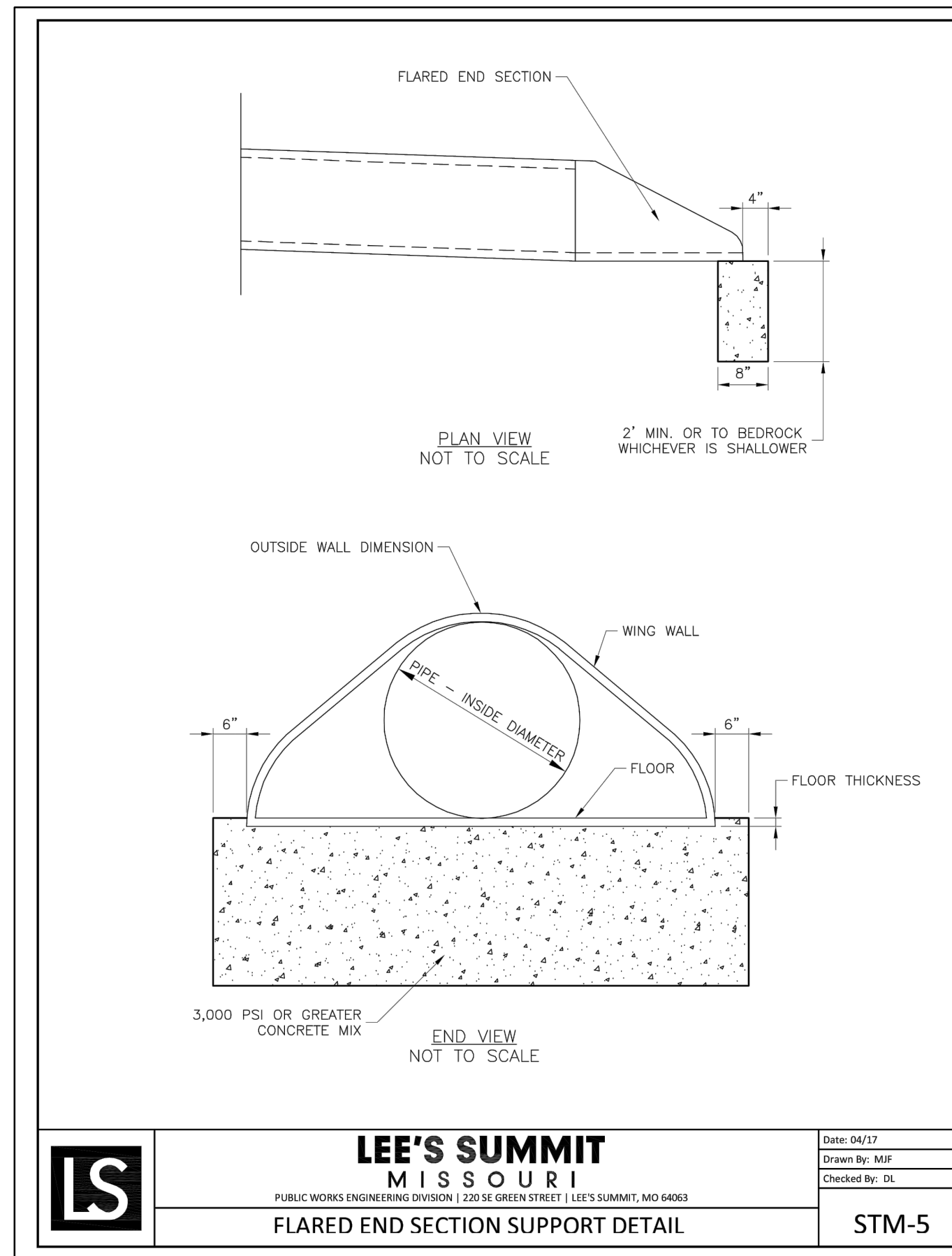
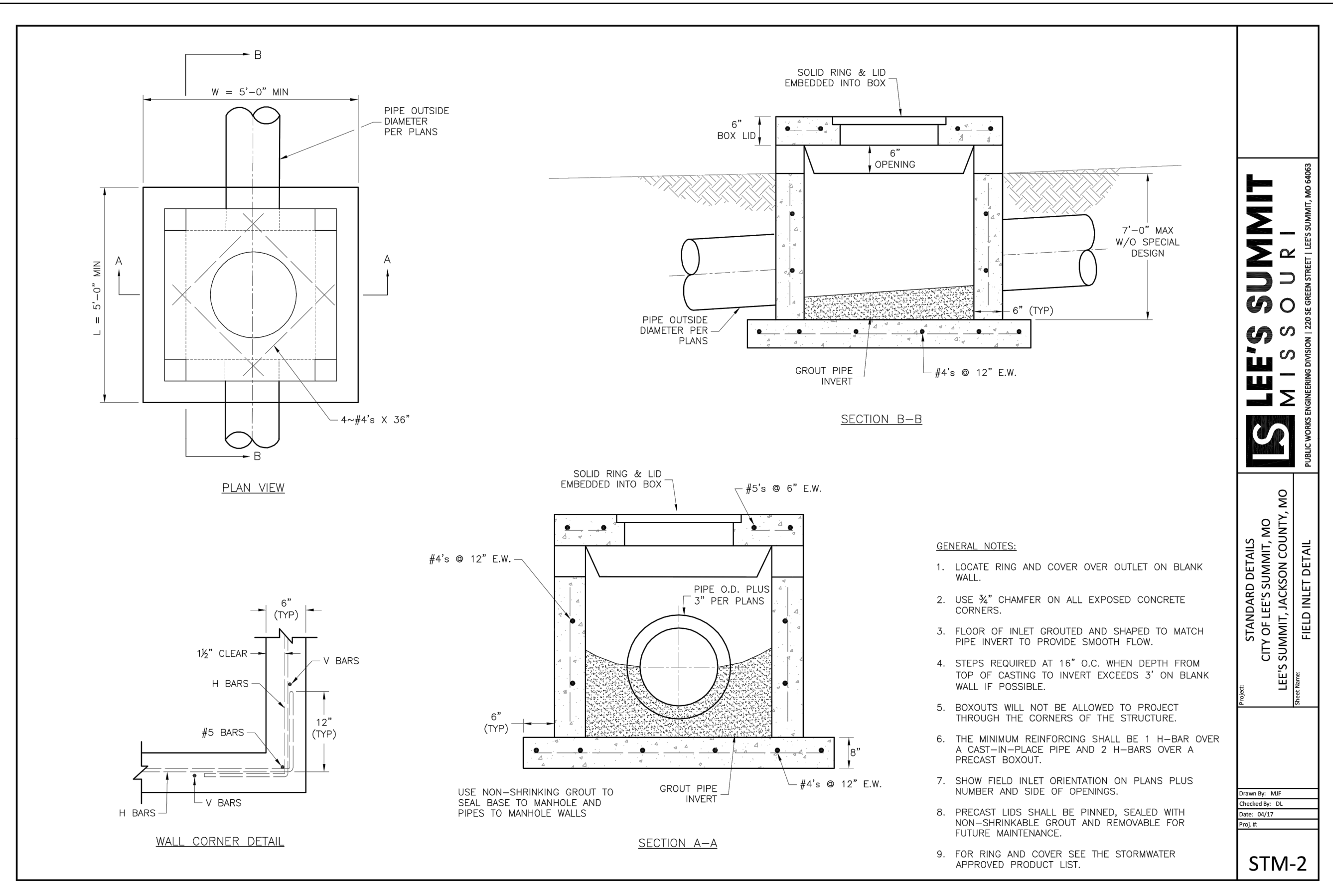
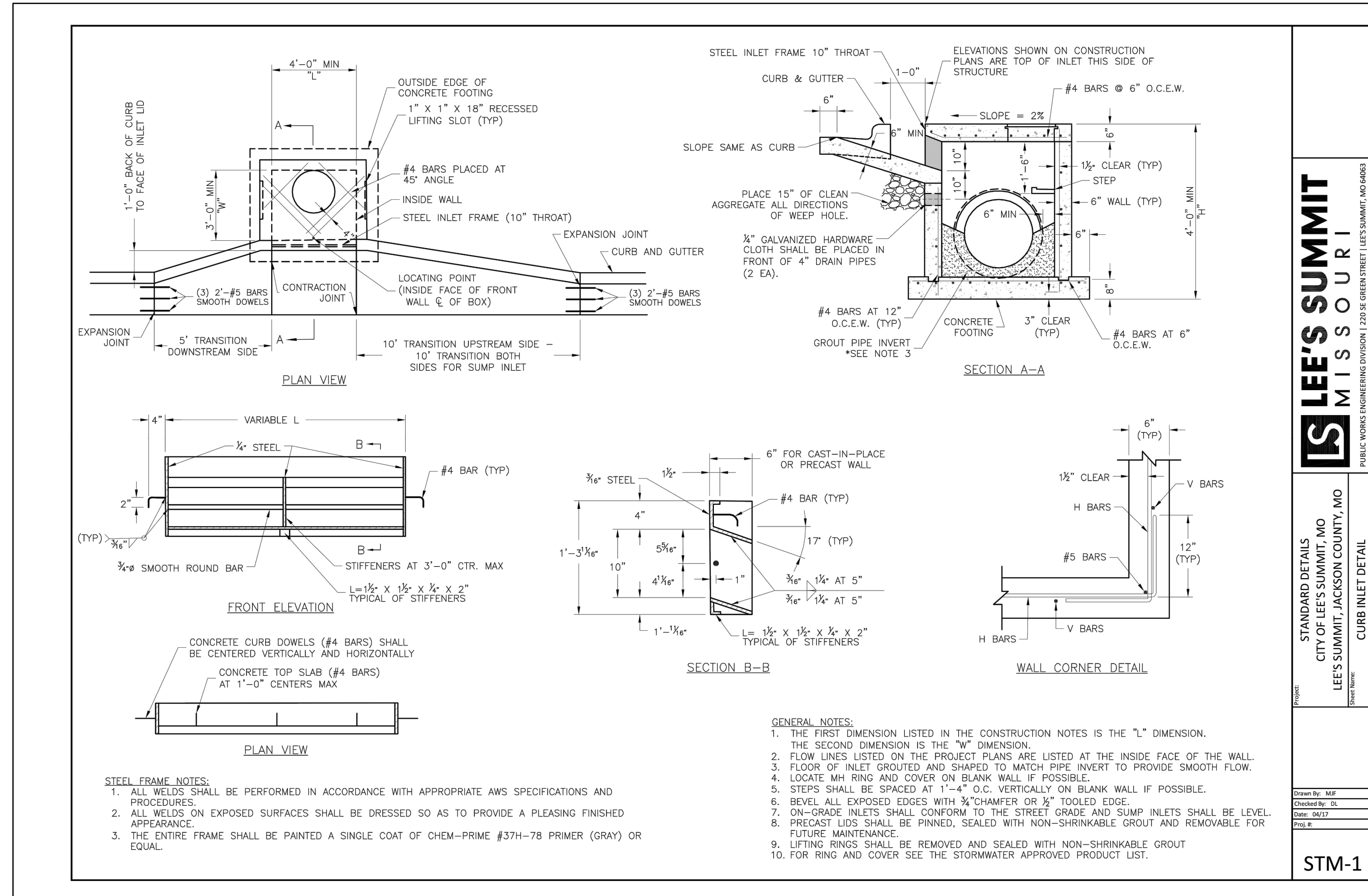
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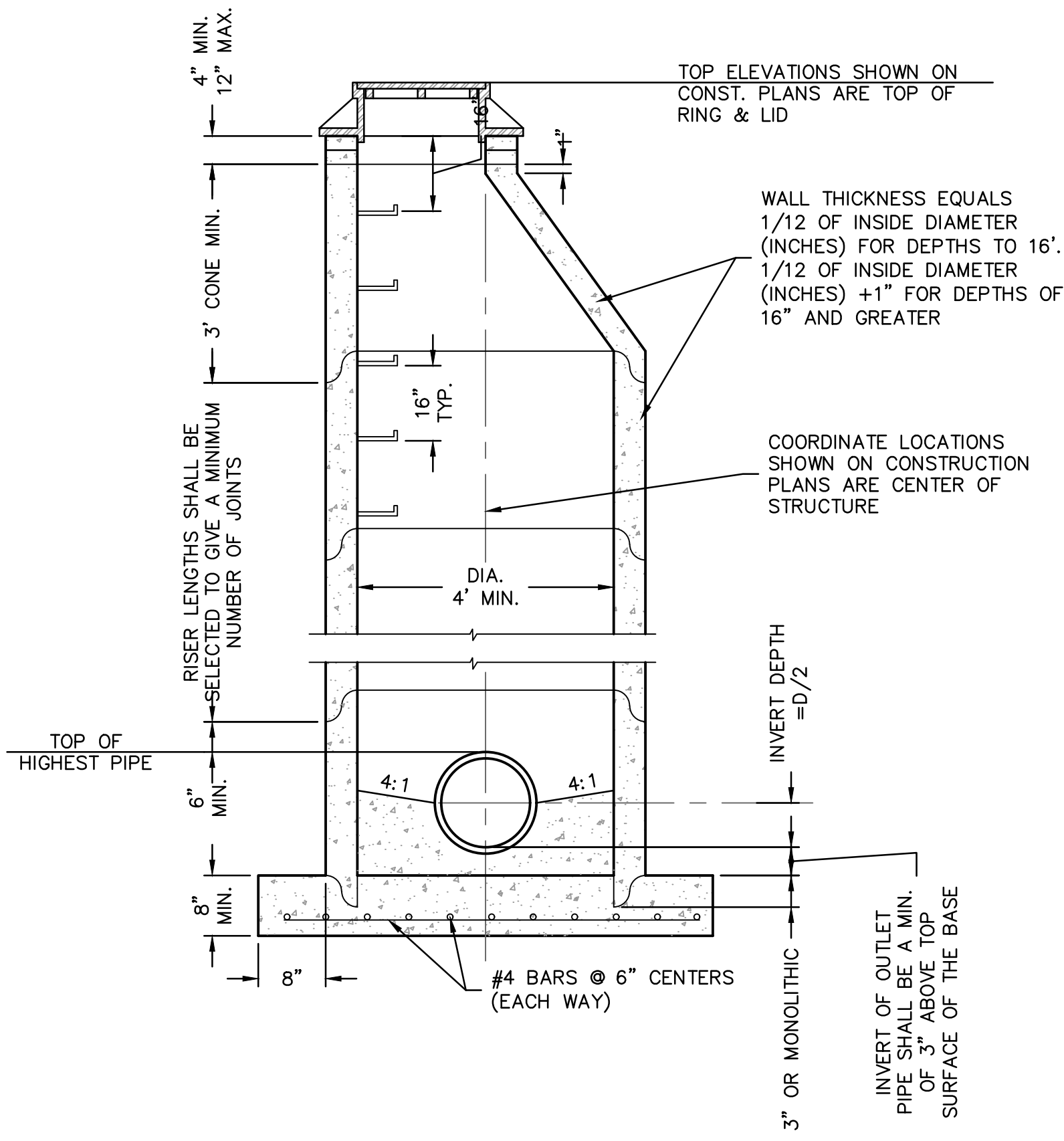
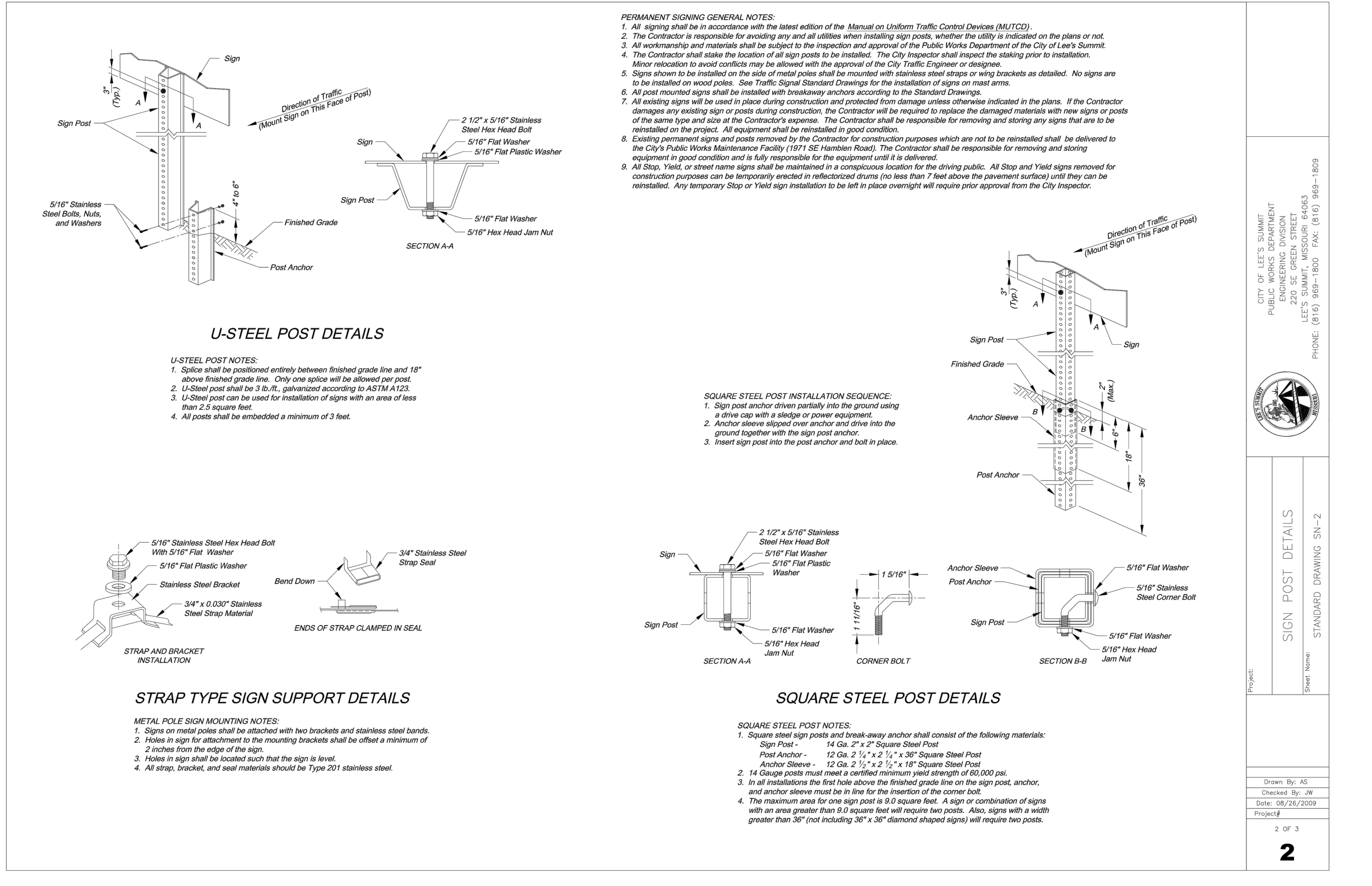
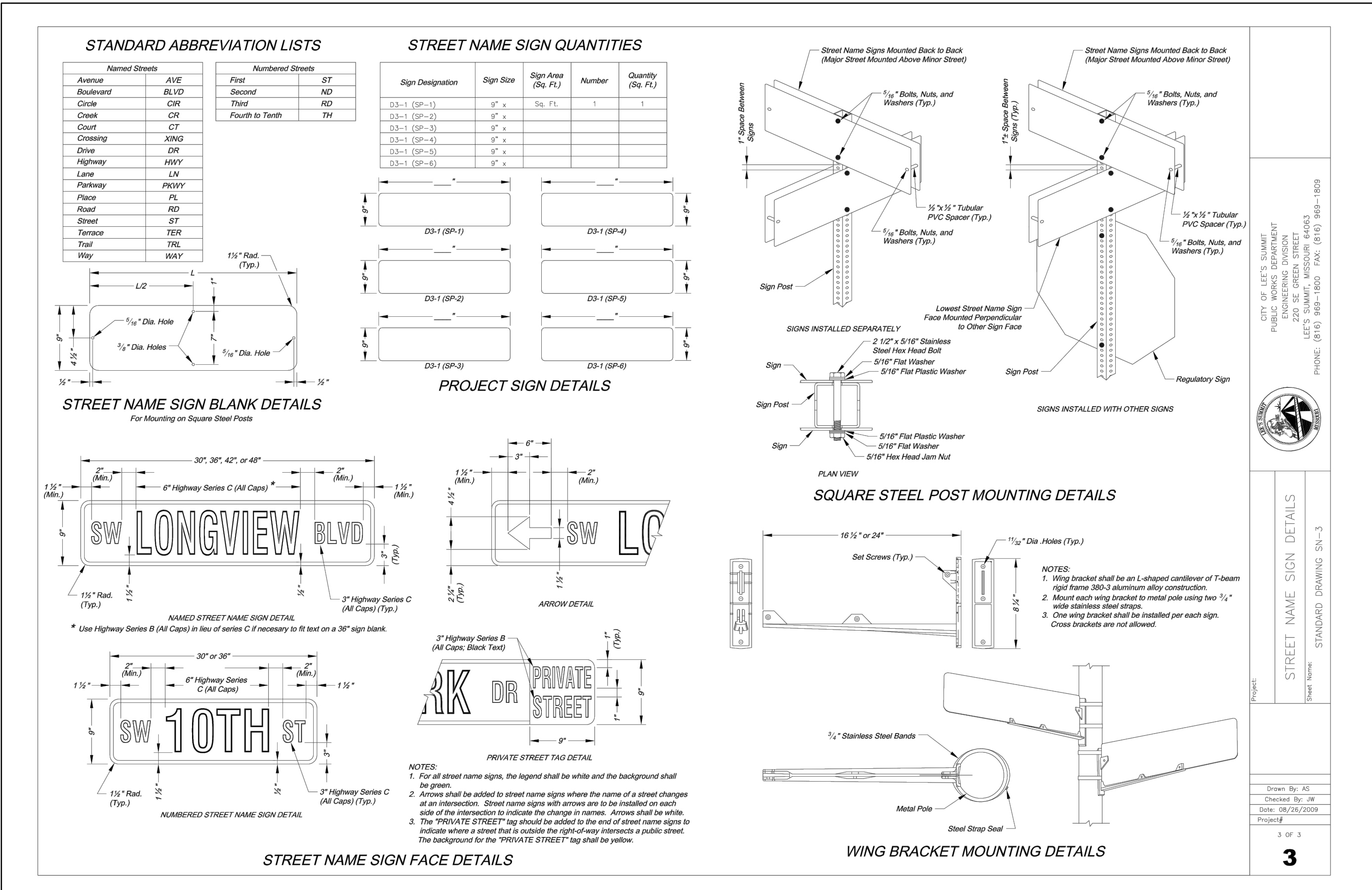


- BACKFILL SHALL BE JOB EXECUTED MATERIAL FREE FROM DEBRIS AND STONES COMPACTED TO 90% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698. BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED), SHALL BE FLOWABLE FILL.
- TRENCH BANKS MAY BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS, BUT ONLY IN AREAS WHERE THE INCREASED TRENCH WIDTH WILL NOT INTERFERE WITH SURFACE FEATURES. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.
- MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.



- NOTES:**
- Where Pipe Underdrains are used, all Underdrain Outlet Pipes shall be solid wall with watertight joints. All Outlets Pipes shall be tied into the nearest storm sewer inlets at roadway sag locations as indicated in the street profile.
 - All Underdrain Pipes shall be installed at a minimum slope of 1%.
 - Underdrain Pipe shall be installed with the perforations placed down.
 - Blanket Underdrain Aggregate, Pipe Underdrain Aggregate, Pipe Underdrain, Edge Underdrain and Outlet Pipe shall conform to City of Lee's Summit Specifications.
 - Overlap geotextile at top of trench a minimum of 12".





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CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64083
PHONE: (816) 869-1600 FAX: (816) 869-1601

STATE OF MISSOURI
JULIE ELAINE SELLERS
Missouri Certificate of Authority #001992
NUMBER PE-2017000367
8/26/21
PROFESSIONAL ENGINEER

BY
REVISIONS DESCRIPTION
REV. NO. DATE
1 08/11/2021
REVISED PER CITY COMMENTS

DETAIL SHEET
STREET & STORM SEWER PLANS
OSAGE 3RD PLAT
LEE'S SUMMIT, MO
2021

drawn by: MJD
checked by: JES
designed by: MJD
QA/QC by: JES
project no.: D19-2339
drawing no.: C-DTL01_D192339
date: 8/24/2021

REVISIONS

SHEET
C122