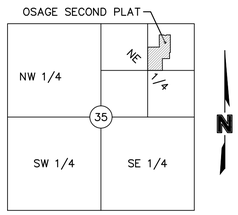
OSAGE
SECOND PLAT
STREET & STORM SEWER PLANS

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



LOCATION MAP
SEC. 35, TWP. 47N., RGE. 32W.
(N.T.S.)

PROJECT TEAM & UTILITY CONTACT LIST	
OWNER / DEVELOPER 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@SUMMITHOMESKC.COM	UTILITY SERVICE NUMBERS 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
ENGINEER OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JULIE SELLERS, PE PHONE: 816.361.1177 EMAIL: JSELLERS@OLSSON.COM	
SURVEYOR OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH PHONE: 816.361.1177 EMAIL: JROUDEBUSH@OLSSON.COM	

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☒ NOT FOR CONSTRUCTION

☐ REVIEWED FOR CONSTRUCTION

PROPERTY DESCRIPTION:

A tract of land in 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 Jeffrey P. Means P.L.S. 2000147866 as follows: Commencing at the Northeast corner of said Northeast Quarter; thence North 88°07'14" West, on the North line of said Northeast Quarter, 1,319.40 feet to the Northwest corner of the Northeast Quarter of said Northeast Quarter; thence leaving said North line, South 02°10'22" West, on the West line of said Northeast Quarter of said Northeast Quarter, 659.27 feet to the Southwest corner of the North Half of said Northeast Quarter of said Northeast Quarter, also being the Point of Beginning of the tract of land to be herein described; thence South 88°08'29" East, on South line of said North Half of said Northeast Quarter of said Northeast Quarter, 329.96 feet to the Southwest corner of the East Half of the Northwest Quarter of said Northeast Quarter of said Northeast Quarter; thence North 02°09'46" East, on the West line of said East Half of said Northwest Quarter of said Northeast Quarter of said Northeast Quarter, 346.14 feet to a point on the proposed Westerly line of OSAGE FIRST PLAT (LOTS 1 THRU 41, INCLUSIVE AND TRACTS A, B, C, D, E, F, G AND H; thence South 88°11'07" East, on said Westerly line, 127.17 feet; thence South 43°11'07" East, on said Westerly line, 19.80 feet; thence South 88°11'07" East, on said Westerly line, 50.00 feet; thence North 46°48'53" East, on said Westerly line, 19.80 feet; thence South 88°11'07" East, on said Westerly line, 106.00 feet; thence South 01°48'53" West, on said Westerly line, 500.00 feet; thence North 88°11'07" West, on said Westerly line, 21.62 feet; thence South 01°48'53" West, on said Westerly line, 170.00 feet; thence North 88°11'07" West, on said Westerly line, 202.50 feet; thence South 01°48'53" West, on said Westerly line, 335.30 feet to a point on the South line of said Northeast Quarter of said Northeast Quarter; thence North 88°09'45" West, on said South line, 423.24 feet to the Southwest corner of said Northeast Quarter of said Northeast Quarter; thence North 02°10'22" East, on the West line of said Northeast Quarter of said Northeast Quarter, 659.27 feet to the Point of Beginning. Containing 453,717 square feet or 10.42 acres, more or less.

BENCHMARK

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

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

JULIE SELLERS, P.E.
CIVIL ENGINEER
MO#2017000367

10/1/2020
DATE

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/2020
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

TITLE SHEET
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C101

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_TTL01_C192339.dwg USER: aabdigaliyev
DATE: Oct 01, 2020 8:39pm XREFS: C_PBNDY_C192339 C_PTBLK_A192339 C_PTBLK_C192339

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

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 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:
   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 SANITARY 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			
1	6" ASPHALT PAVEMENT	S.Y.	4764	
2	6" MODOT TYPE 5 ROCK SUBGRADE	S.Y.	5877	
3	SUBGRADE STABILIZATION (6" FLYASH TREATMENT)	S.Y.	5877	
4	CONCRETE CURB & GUTTER (CG-2)	L.F.	3334	
5	5' CONCRETE SIDEWALK	L.F.	58	
6	ADA RAMP	EA.	9	
7	STOP SIGNS	EA.	4	
8	STREET NAME SIGNS	EA.	4	
	STORM			
9	STD. CURB INLET (5'x3' INSIDE)	EA.	14	
10	STD. FIELD INLET (4'x4' INSIDE)	EA.	6	
11	STD. MANHOLE (4' DIA. INSIDE)	EA.	1	
12	15" HDPE	L.F.	1996	
13	18" HDPE	L.F.	328	
14	24" HDPE	L.F.	203	
15	CONNECTION TO EXISTING	EA.	5	

CONTROL POINT TABLE

POINT NUMBER	NORTHING	EASTING	POINT ELEVATION	DESCRIPTION
11	978424.224	2811650.442	1030.85	⅝" 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	⅝" 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	⅝" 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	⅝" 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	⅝" 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.

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www.olsson.com

STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

GENERAL NOTES
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

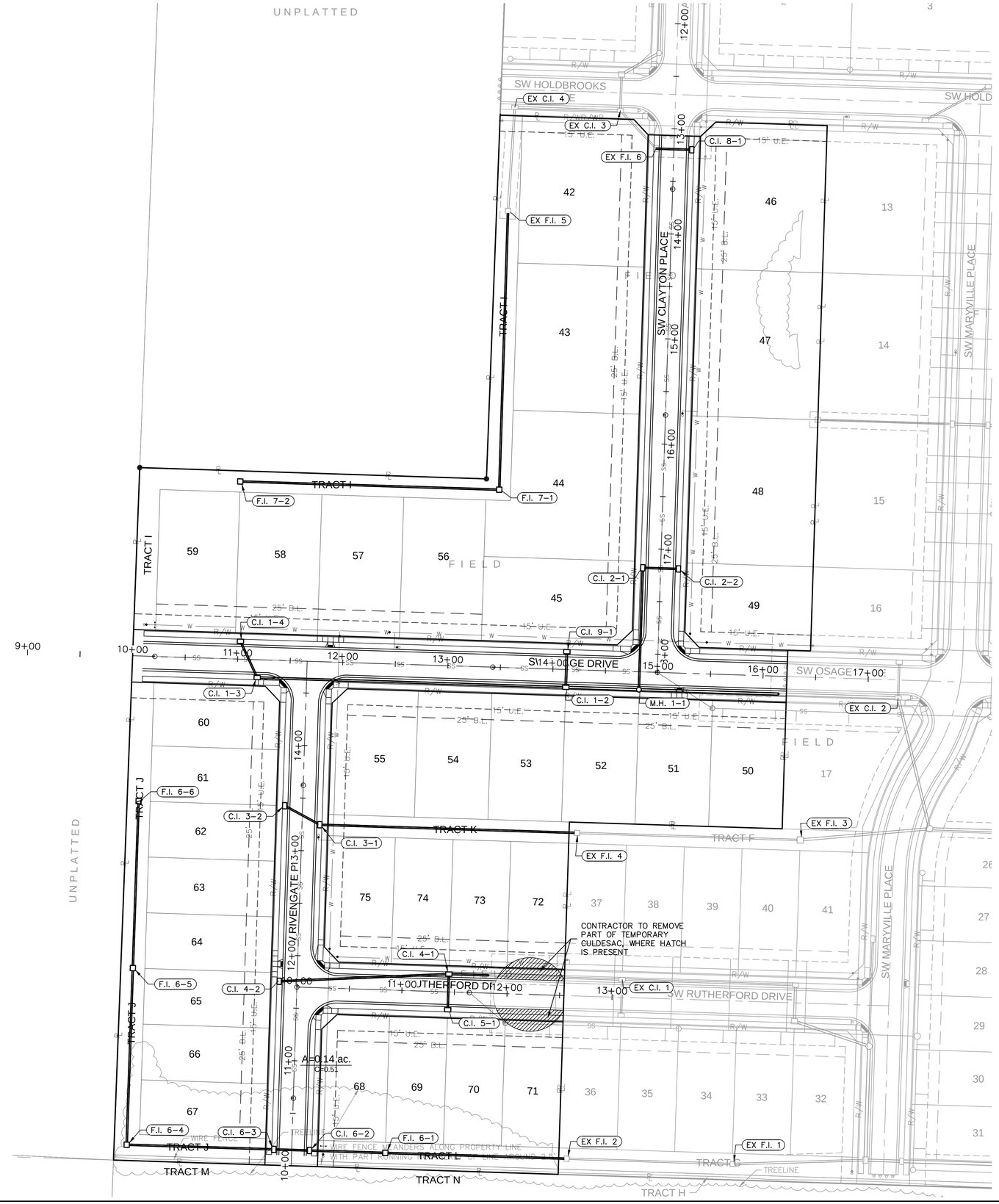
drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.08.21

SHEET
C102

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_TTL01_C192339.dwg USER: aabdigaliyev
DATE: Oct 01, 2020 8:39pm XREFS: C_PBNDY_C192339 C_PTBLK_A192339 C_PTBLK_C192339

Structure Table		
STRUCTURE ID	NORTHING	EASTING
C.I. 1–2	977598.7777	2811350.3990
C.I. 1–3	977608.0764	2811056.9286
C.I. 1–4	977642.5988	2811040.9780
C.I. 2–1	977712.5148	2811423.6554
C.I. 2–2	977711.4380	2811457.6384
C.I. 3–1	977468.0529	2811116.5240
C.I. 3–2	977486.1870	2811083.0816
C.I. 4–1	977326.0305	2811239.2055
C.I. 4–2	977319.1371	2811077.7885
C.I. 5–1	977292.0475	2811238.1288
C.I. 6–2	977158.1391	2811106.7044
C.I. 6–3	977159.2158	2811072.7214
C.I. 8–1	978110.2379	2811470.2744
C.I. 9–1	977632.7606	2811351.4758
EX C.I. 1	977320.8051	2811404.1227
EX C.I. 2	977588.7590	2811666.5942
EX C.I. 3	978147.4055	2811402.4174
EX C.I. 4	978150.5883	2811301.9679
EX F.I. 1	977145.2863	2811509.1437
EX F.I. 2	977150.3910	2811351.1993
EX F.I. 3	977453.5763	2811573.4124
EX F.I. 4	977460.3060	2811361.0190
EX F.I. 5	978052.0411	2811295.4838
EX F.I. 6	978111.3146	2811436.2915
F.I. 6–1	977155.8549	2811178.7819

Structure Table		
STRUCTURE ID	NORTHING	EASTING
F.I. 6–4	977163.6498	2810932.7838
F.I. 6–5	977331.7198	2810938.6323
F.I. 6–6	977490.5887	2810944.1607
F.I. 7–1	977786.8342	2811287.1599
F.I. 7–2	977794.6401	2811040.8007
M.H. 1–1	977596.5729	2811419.9818



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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
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PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

GENERAL LAYOUT
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

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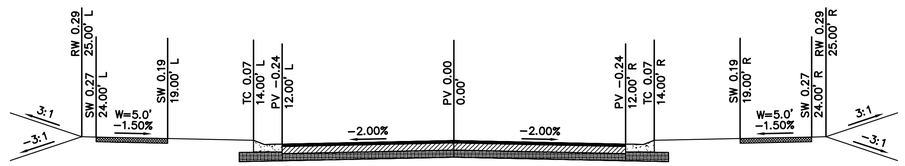
SHEET
C103



CLAYTON PLACE, OSAGE DRIVE, RIVENGATE PLACE & RUTHERFORD DRIVE

RESIDENTIAL LOCAL

N.T.S.

2" TYPE 6 ASPHALTIC CONCRETE SURFACE
4" TYPE 5 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
6" FLYASH STABILIZED SUBGRADE
CG-2 CURB & GUTTER

1 Scale: N.T.S.
RESIDENTIAL LOCAL STREET

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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
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

TYPICAL SECTIONS
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.08.21

SHEET
C104

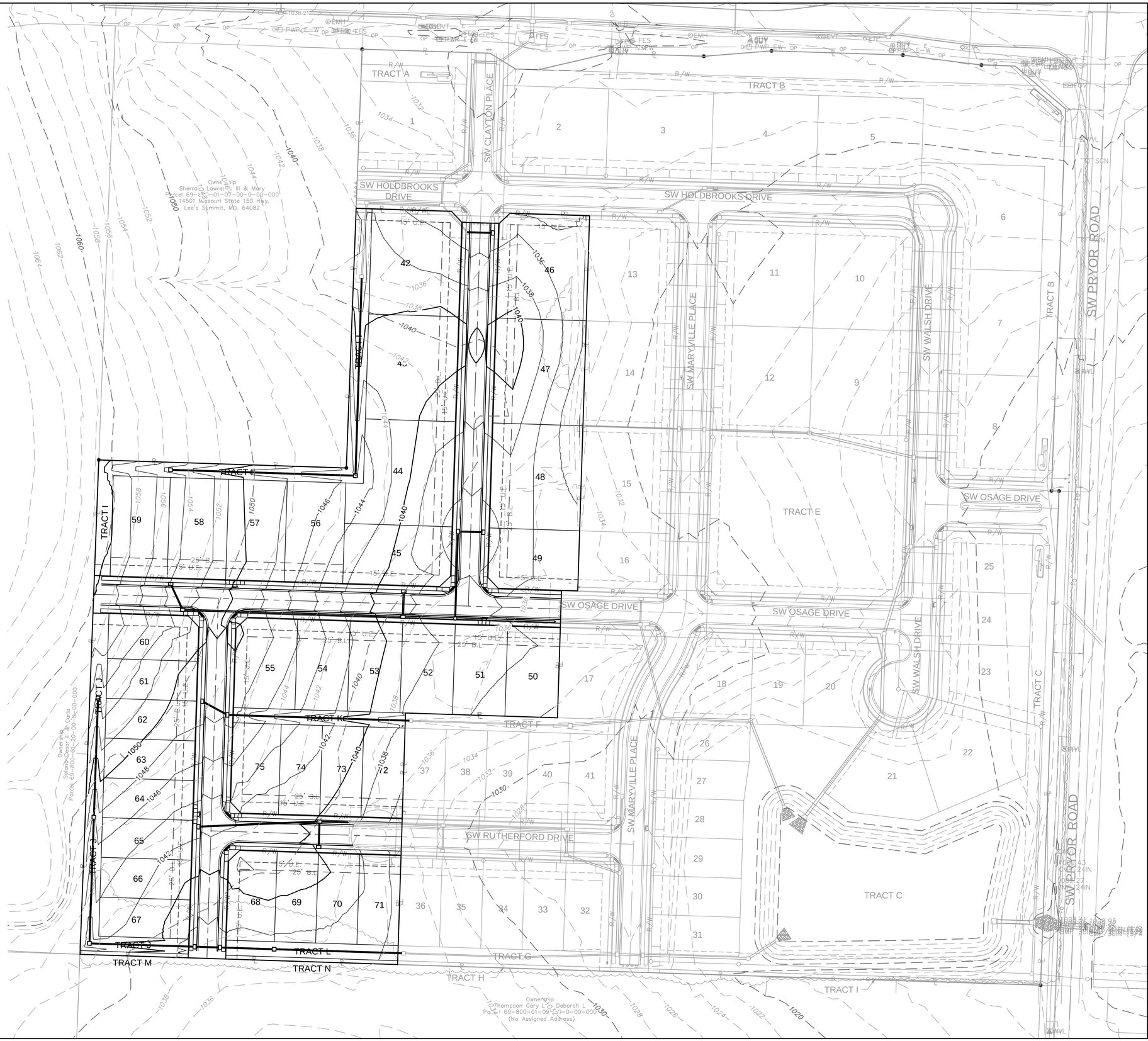
DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_TYP01_C192339.dwg USER: aabdigaliyev
DATE: Oct 01, 2020 8:39pm XREFS: C_PTBLK_C192339

GENERAL NOTES:

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.

2. AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL TO A DEPTH AS RECOMMENDED BY GEOTECHNICAL ENGINEER AND OR TESTING AGENCY. SOILS REMOVED DURING SITE STRIPPING SHOULD BE EVALUATED TO DETERMINE IF PORTIONS OF THE TOPSOIL STRATUM MAY BE UTILIZED AS STRUCTURAL FILL WITHIN PAVEMENT AREAS. ANY MATERIAL NOT DEEMED AS SUITABLE FILL MATERIAL BY THE GEOTECHNICAL ENGINEER AND OR TESTING AGENCY SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR AT HIS EXPENSE.

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.



N

0' 30' 60' 120'
SCALE IN FEET

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

EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	2,438	827
SITE	7,812	5,520
TOTAL	10,250	6,347

EARTHWORK QUANTITIES NOTES:
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.

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REVISIONS

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

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C105

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_GR001_C192339.dwg USER: aabdigaliyev
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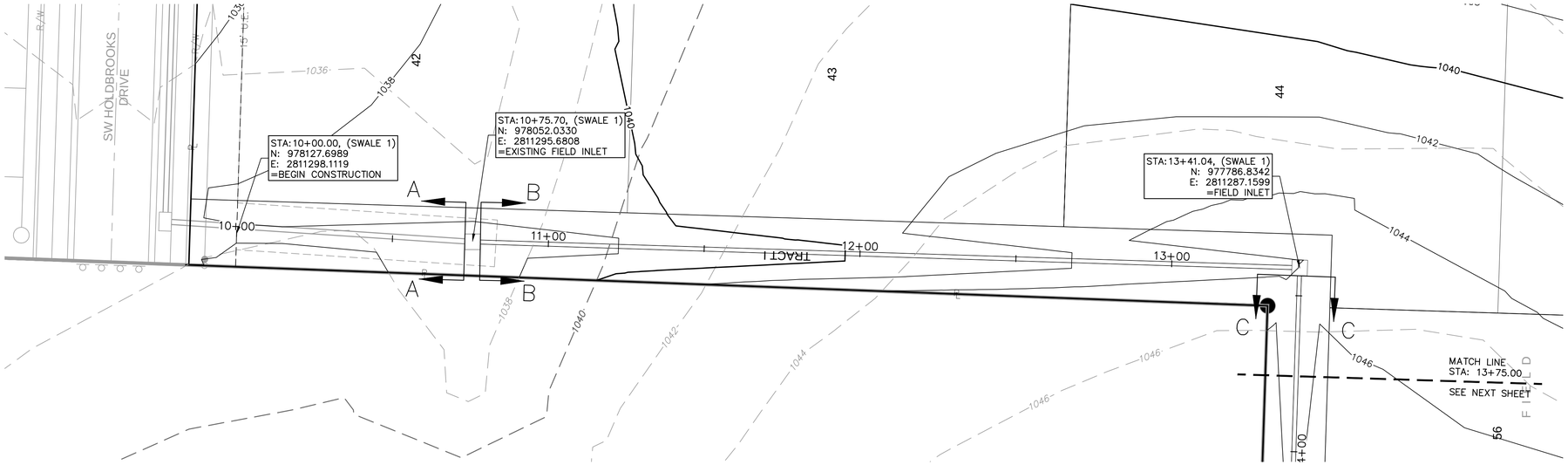
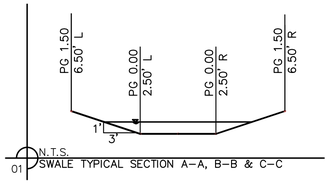


SWALE GRADING NOTES:

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.

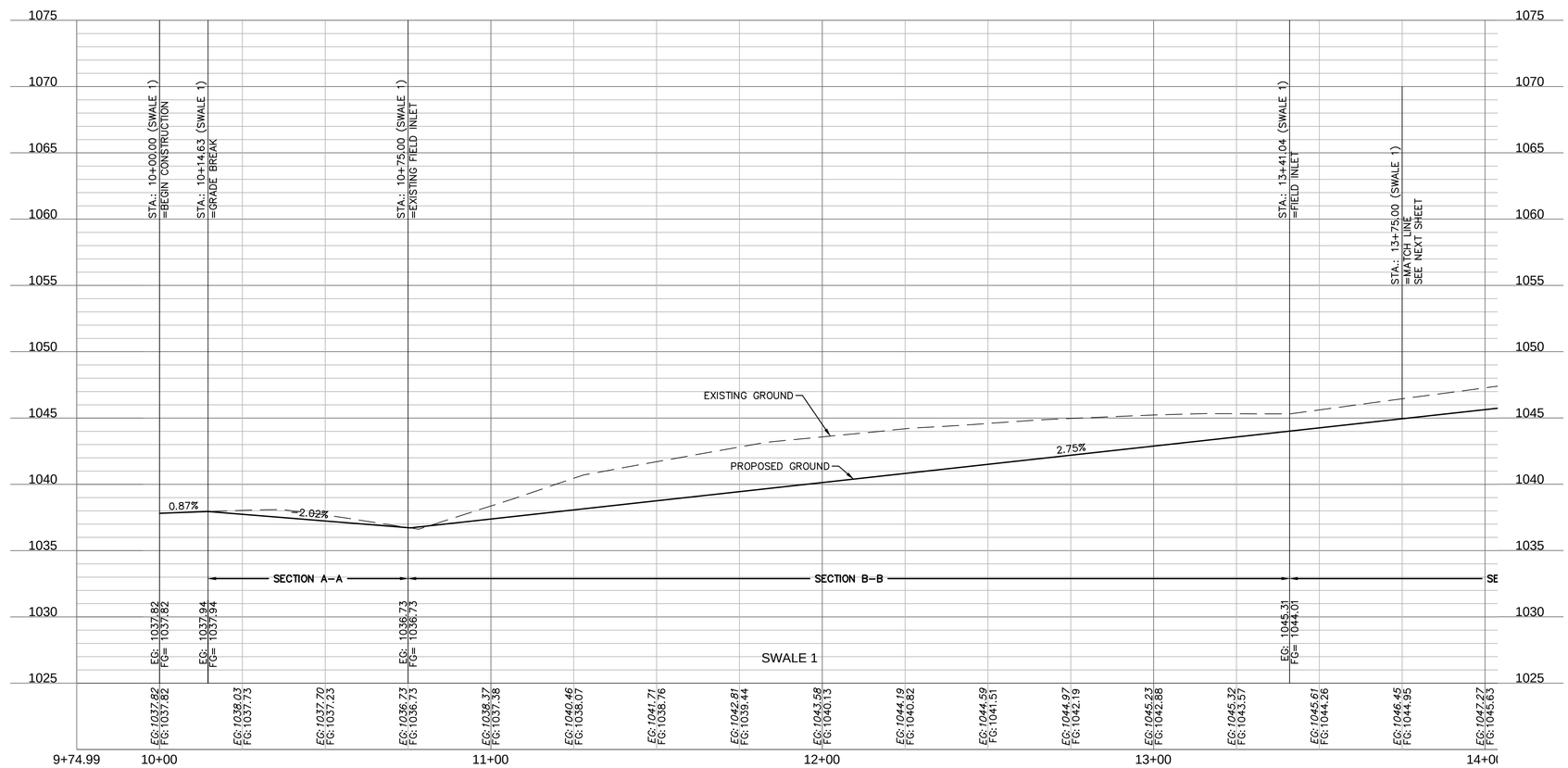


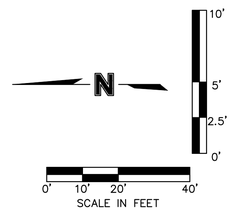
SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)

SECTION DATA								RESULTS							
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^3)
A-A	0.03	2.02%	1.5	3:1	3:1	5	7.76	0.39	2.41	3.22	7.47	7.34	0.39	0.41
B-B	0.03	2.75%	1.5	3:1	3:1	5	22.11	0.64	4.43	4.99	9.05	8.84	0.73	0.84
C-C	0.03	2.75%	2.5	3:1	3:1	6	6.05	0.31	1.84	3.29	6.96	6.86	0.34	0.45

Swale Drainage Area Table (100 year Return Frequency)

Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
A-A	1.18	0.51	5	10.32	1.25	7.76
B-B	3.36	0.51	5	10.32	1.25	22.11
C-C	0.92	0.51	9.16	10.32	1.25	6.05





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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

SWALE 1 PLAN & PROFILE
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

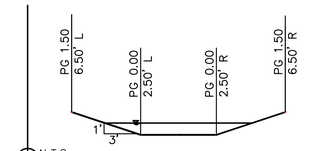
drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C106

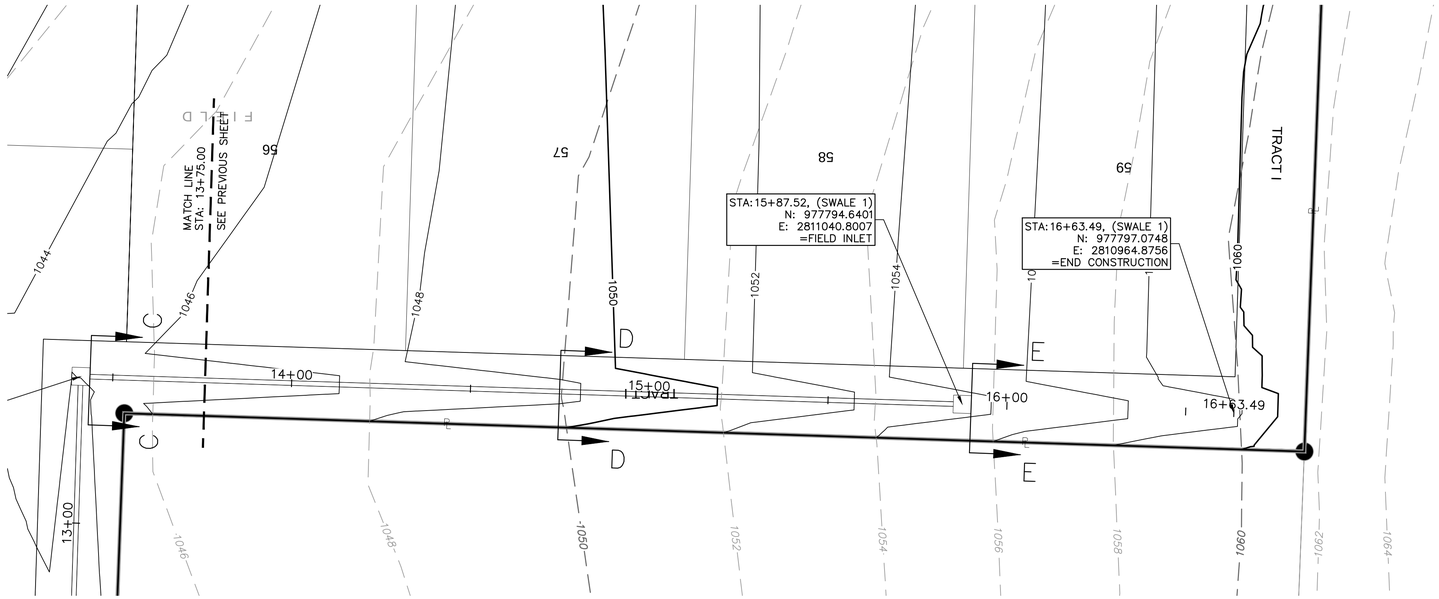
DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_SWL01_C192339.dwg USER: aabdigaliyev
DATE: Oct 01, 2020 8:41pm XREFS: C_PBASE_C192339 C_XBASE_C192339 C_PBNDY_C192339 C_PTBLK_C192339 C_PSTRM_C192339 C_PSSWR_C192339 C_PWATR_C192339 C_PSURF_C192339

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.

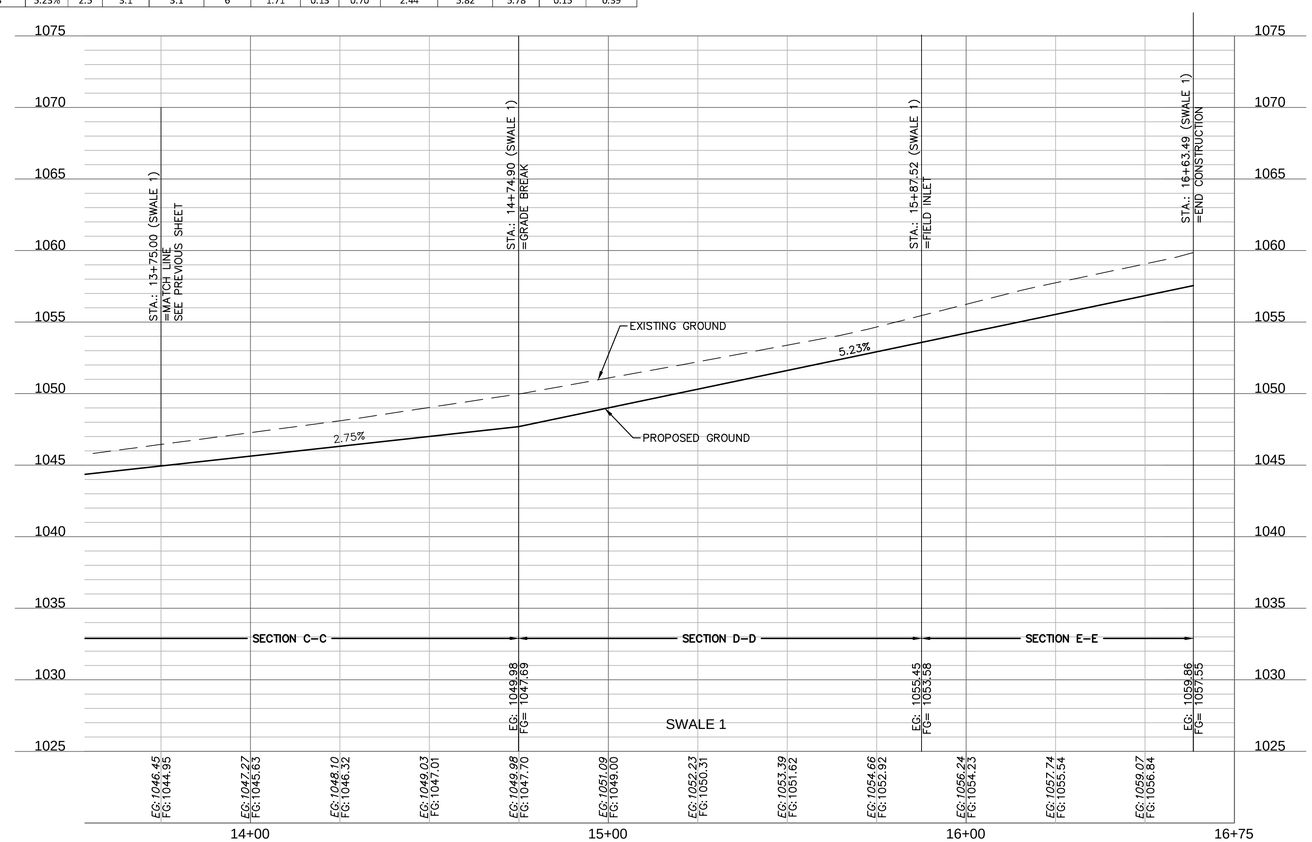


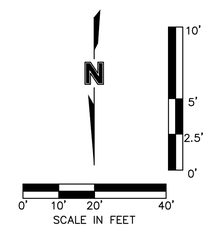
01 N.T.S.
SWALE TYPICAL SECTION C–C, D–D, & E–E



SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)														
SECTION DATA								RESULTS						
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)
C-C	0.03	2.75%	1.5	3:1	3:1	5	6.05	0.31	1.84	3.29	6.96	6.86	0.34	0.45
D-D	0.03	5.23%	1.5	3:1	3:1	5	1.64	0.12	0.64	2.55	5.76	5.72	0.15	0.36
E-E	0.03	5.23%	2.5	3:1	3:1	6	1.71	0.13	0.70	2.44	5.82	5.78	0.15	0.39

Swale Drainage Area Table (100 year Return Frequency)						
Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C-C	0.92	0.51	9.16	10.32	1.25	6.05
D-D	0.25	0.51	9.16	10.32	1.25	1.64
E-E	0.26	0.51	5.00	10.32	1.25	1.71





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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

SWALE 1 PLAN & PROFILE (CONT'D)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.08.21

SHEET
C107

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_SWL01_C192339.dwg USER: aabdigaliyev
DATE: Oct 01, 2020 8:41pm XREFS: C_PBASE_C192339 C_XBASE_C192339 C_PBNDY_C192339 C_PTBLK_C192339 C_PSTRM_C192339 C_PSSWR_C192339 C_PWATR_C192339 C_PSURF_C192339

SWALE GRADING NOTES:

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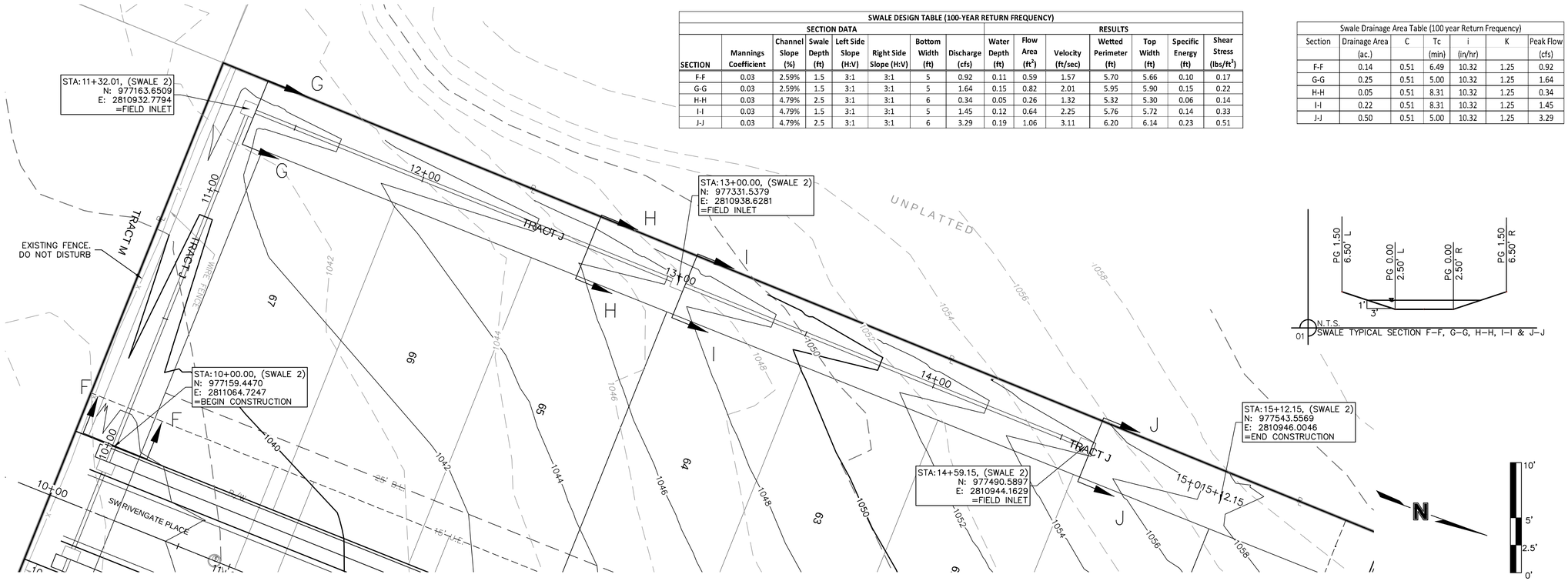
2. AS-BUILT SURVEY IS REQUIRED/APPROVED BY CITY FOR ALL SWALES AND PRIOR TO APPROVAL FOR ANY BUILDING FOUNDATION PERMIT. CONTRACTOR SHALL BE REQUIRED TO REGRADE SWALES AT CONTRACTOR'S EXPENSE IF ABOVE REQUIREMENTS ARE NOT MET.

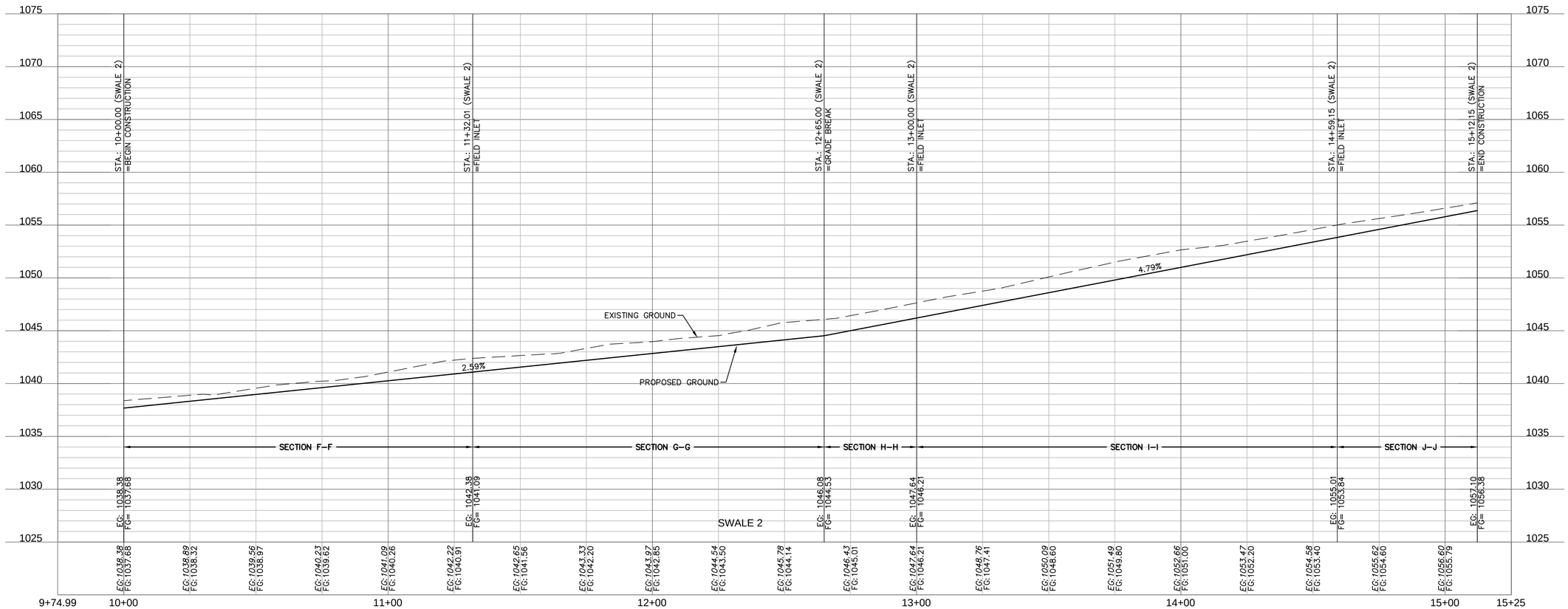
SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)

SECTION DATA								RESULTS						
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)
F-F	0.03	2.59%	1.5	3:1	3:1	5	0.92	0.11	0.59	1.57	5.70	5.66	0.10	0.17
G-G	0.03	2.59%	1.5	3:1	3:1	5	1.64	0.15	0.82	2.01	5.95	5.90	0.15	0.22
H-H	0.03	4.79%	2.5	3:1	3:1	6	0.34	0.05	0.26	1.32	5.32	5.30	0.06	0.14
I-I	0.03	4.79%	1.5	3:1	3:1	5	1.45	0.12	0.64	2.25	5.76	5.72	0.14	0.33
J-J	0.03	4.79%	2.5	3:1	3:1	6	3.29	0.19	1.06	3.11	6.20	6.14	0.23	0.51

Swale Drainage Area Table (100 year Return Frequency)

Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
F-F	0.14	0.51	6.49	10.32	1.25	0.92
G-G	0.25	0.51	5.00	10.32	1.25	1.64
H-H	0.05	0.51	8.31	10.32	1.25	0.34
I-I	0.22	0.51	8.31	10.32	1.25	1.45
J-J	0.50	0.51	5.00	10.32	1.25	3.29





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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

SWALE 2 PLAN & PROFILE
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.08.21

SHEET
C108

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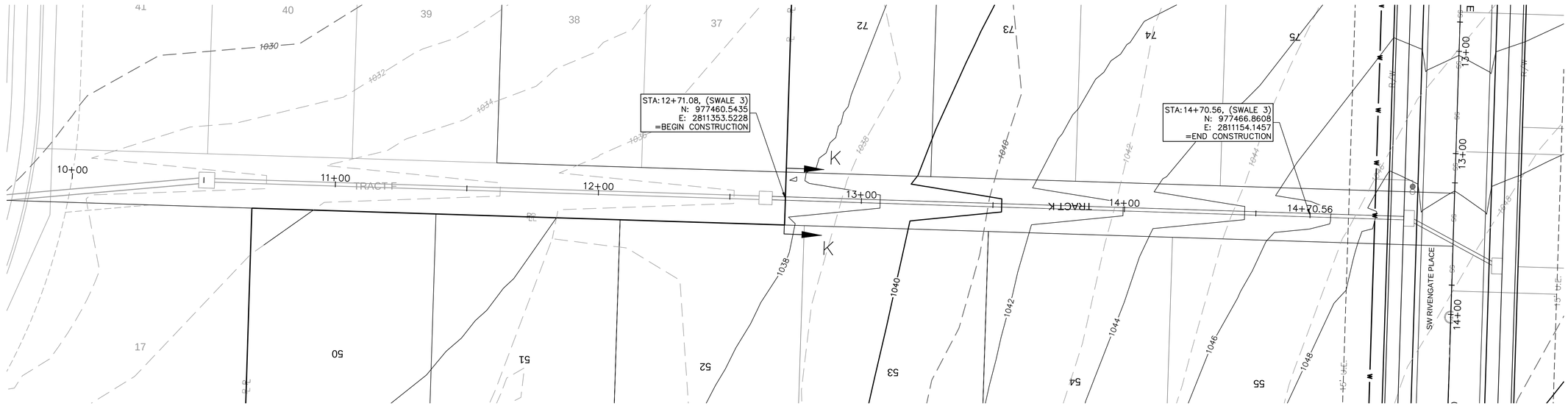


SWALE GRADING NOTES:

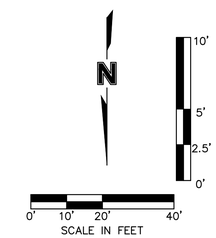
1. CONTRACTOR SHALL CONSTRUCT SWALES WITH MINIMUM SLOPE, WIDTH AND DEPTH AS SHOWN IN THE SWALE DESIGN TABLES.
2. AS-BUILT SURVEY IS REQUIRED/APPROVED BY CITY FOR ALL SWALES AND PRIOR TO APPROVAL FOR ANY BUILDING FOUNDATION PERMIT. CONTRACTOR SHALL BE REQUIRED TO REGRADE SWALES AT CONTRACTOR'S EXPENSE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

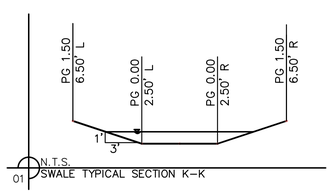
SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)

SECTION DATA								RESULTS						
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)
K-K	0.03	4.33%	1.5	3:1	3:1	5	1.68	0.13	0.70	2.40	5.82	5.78	0.15	0.33

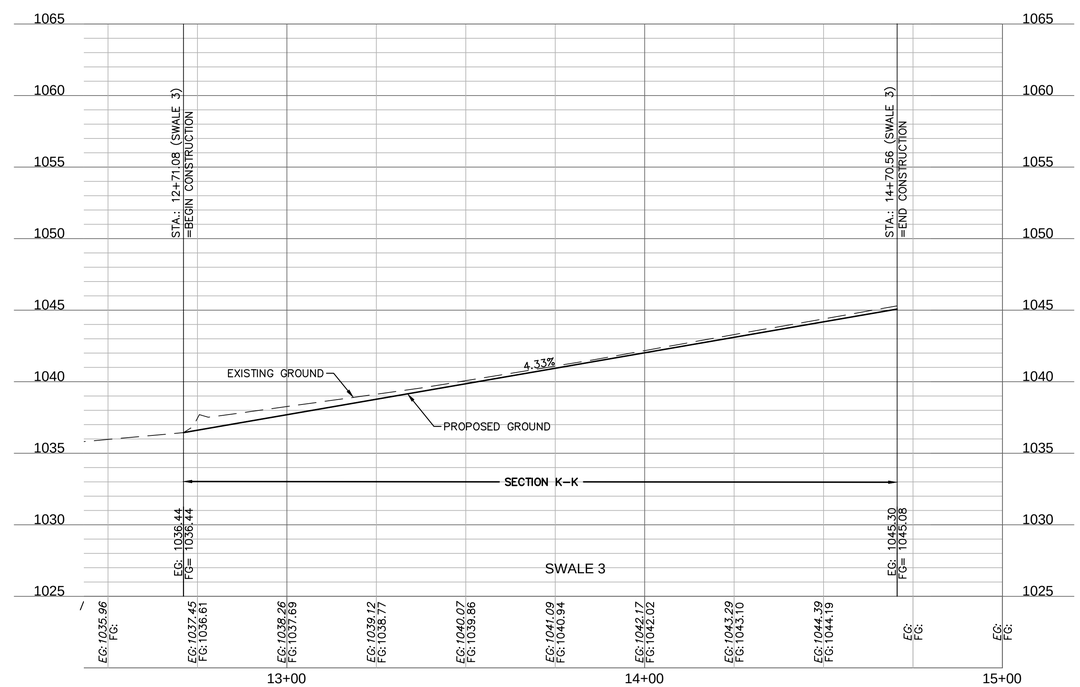
Swale Drainage Area Table (100 year Return Frequency)

Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
K-K	0.26	0.51	5	10.32	1.25	1.68





01 N.T.S.
SWALE TYPICAL SECTION K–K



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STATE OF MISSOURI
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NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

SWALE 3 PLAN & PROFILE
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C109

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_SWL01_C192339.dwg USER: aabdigaliyev
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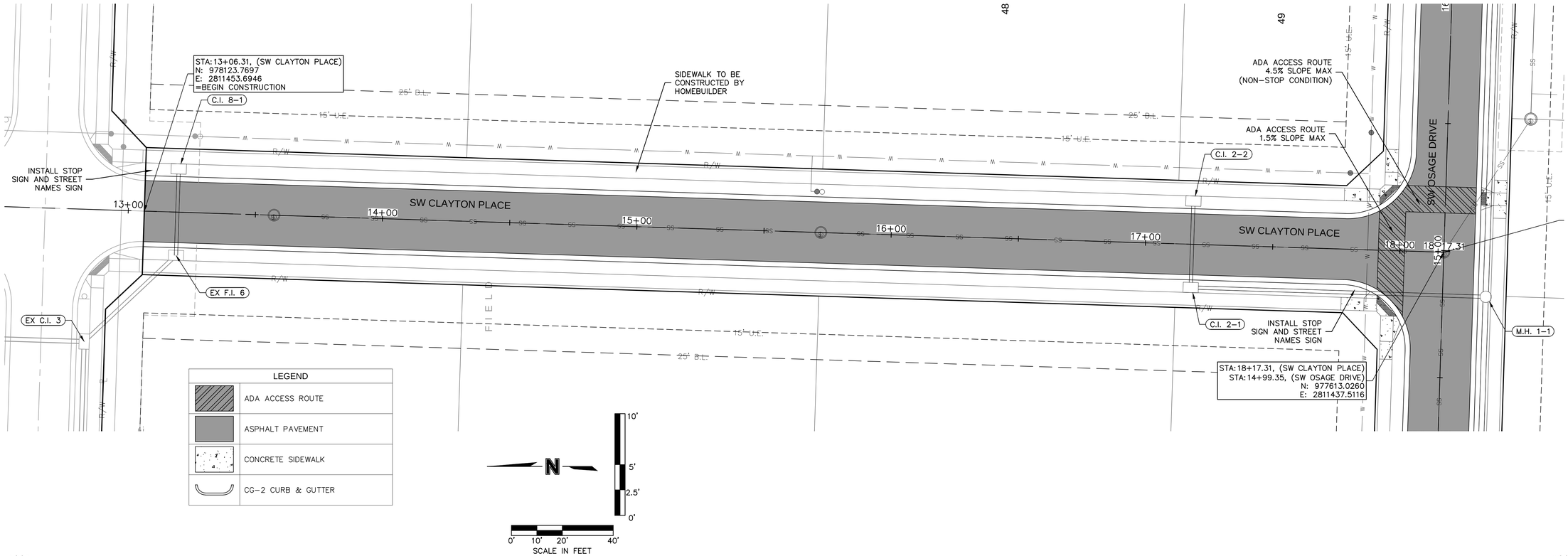

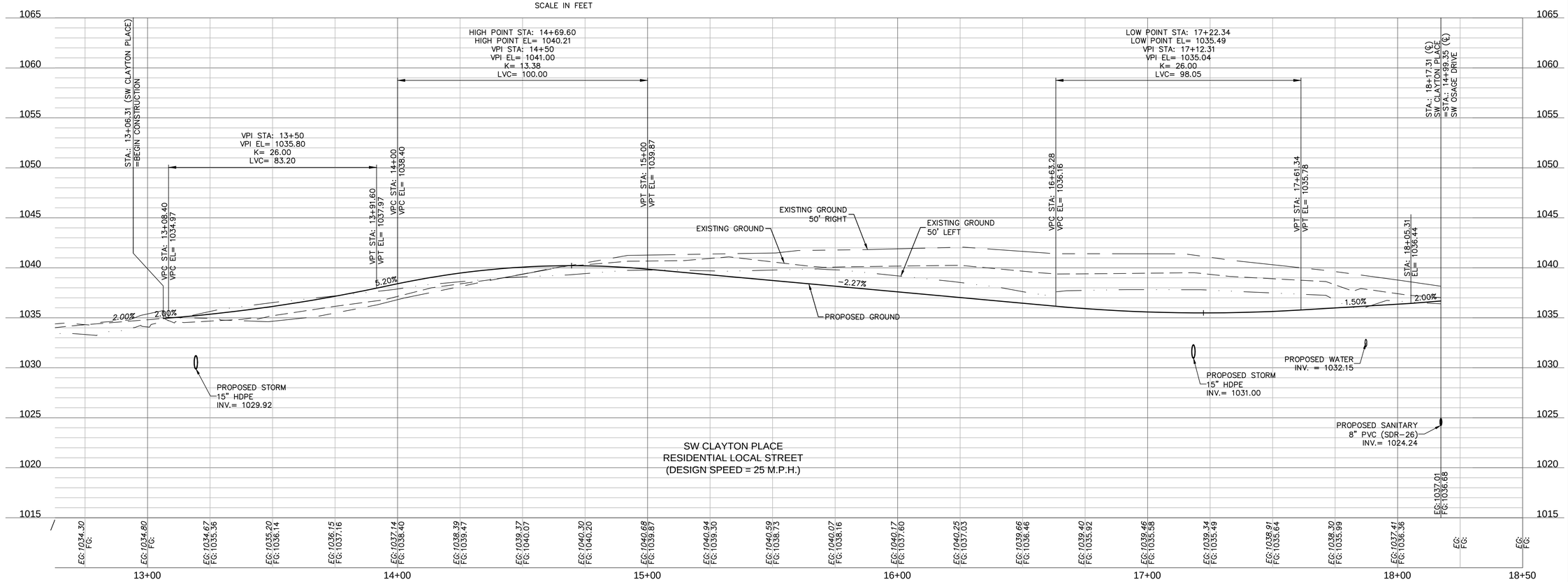

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

ROADWAY PLAN & PROFILE (SW CLAYTON PLACE)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
Q/A/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C110

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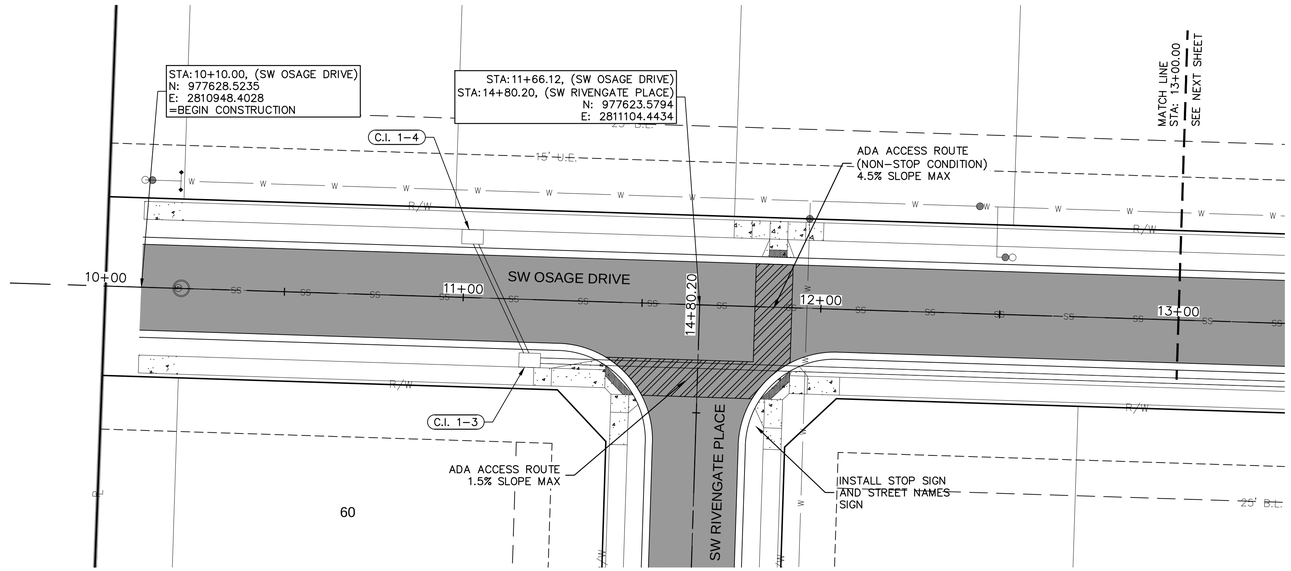
DATE: Oct 01, 2020 8:42pm XREFS: C_PBASE_C192339 C_XBASE_C192339 C_PBNDY_C192339 C_PTBLK_C192339 C_PSTRM_C192339 C_PSWR_C192339 C_PWATR_C192339 C_PSURF_C192339 C_PPATT_C192339 C_PSPOT_C192339



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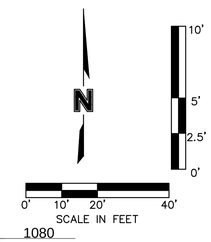
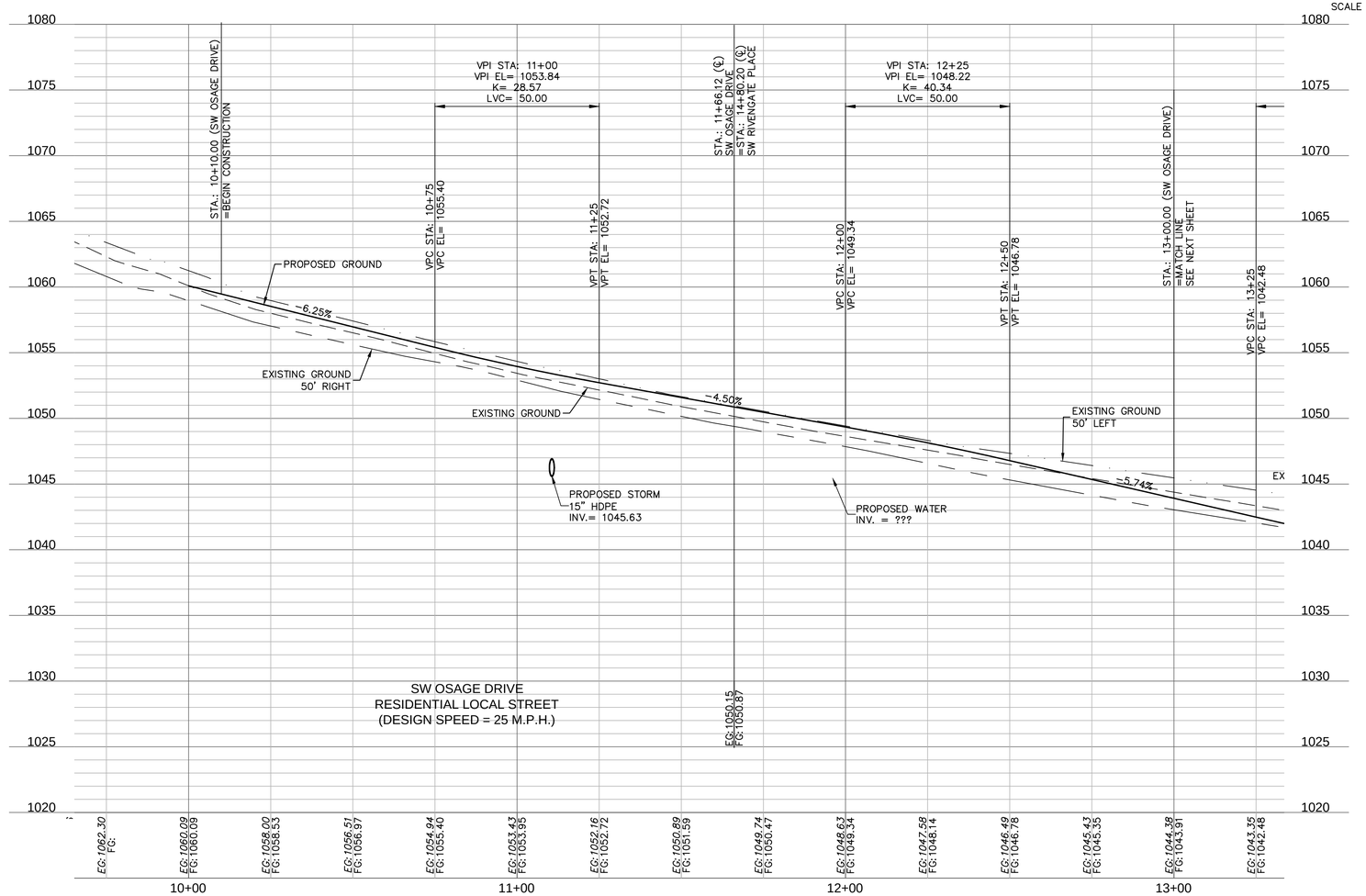
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CG-2 CURB & GUTTER





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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

ROADWAY PLAN & PROFILE (SW OSAGE DRIVE)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C111

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_RPP01_C192339.dwg USER: aabdigaliyev
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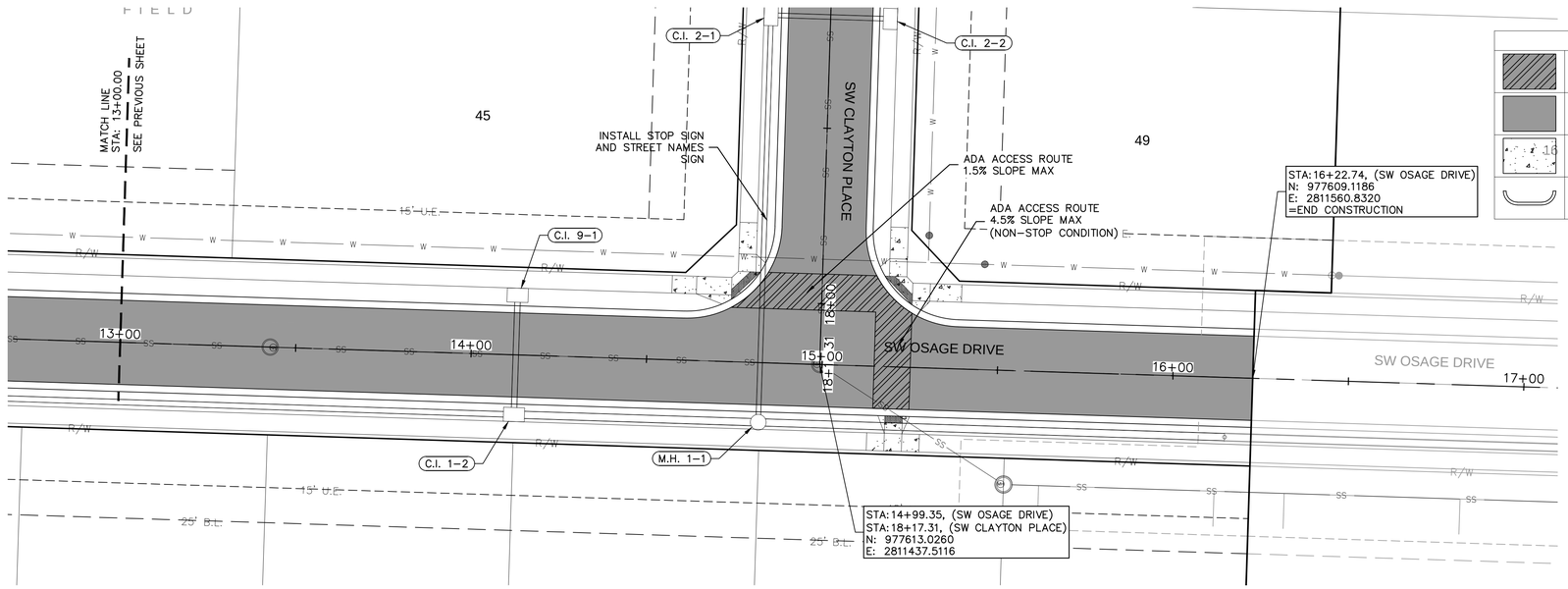

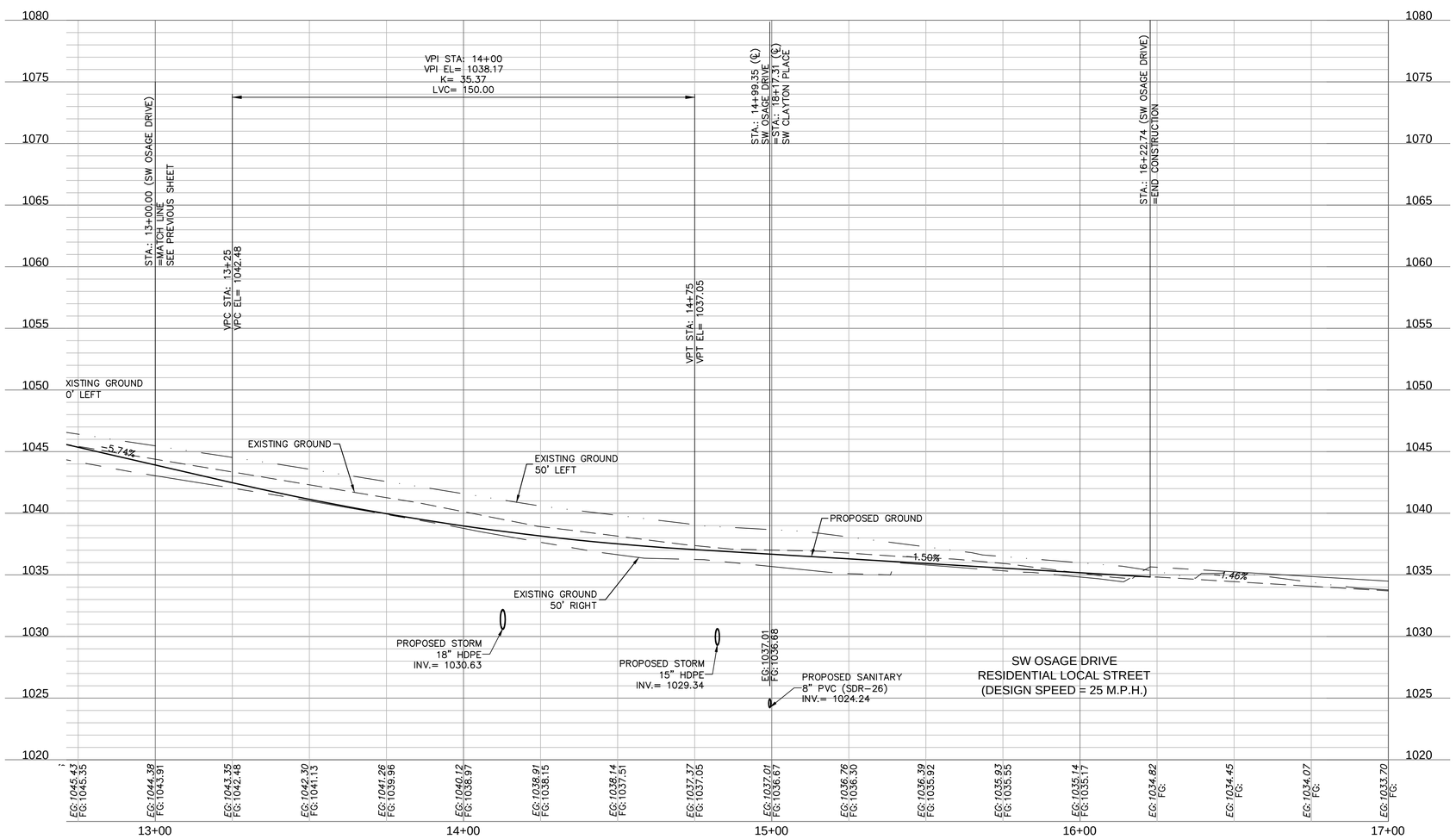

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

ROADWAY PLAN & PROFILE (SW OSAGE DRIVE CONT'D)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.Q. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C112

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_RPP01_C192339.dwg USER: aabdigaliyev
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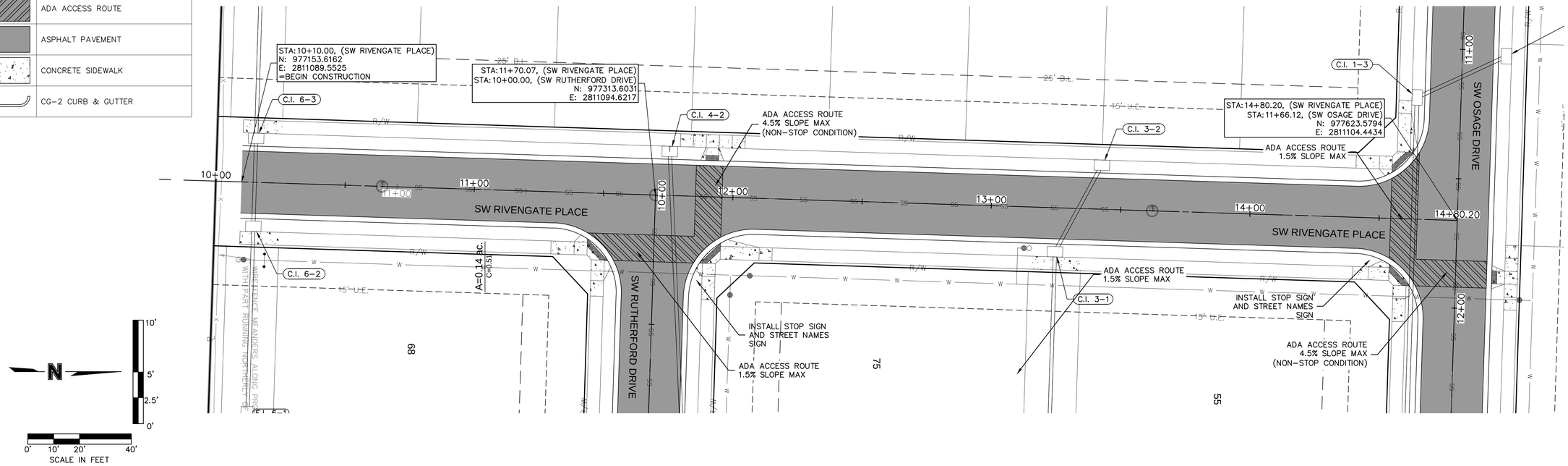
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CG-2 CURB & GUTTER



N

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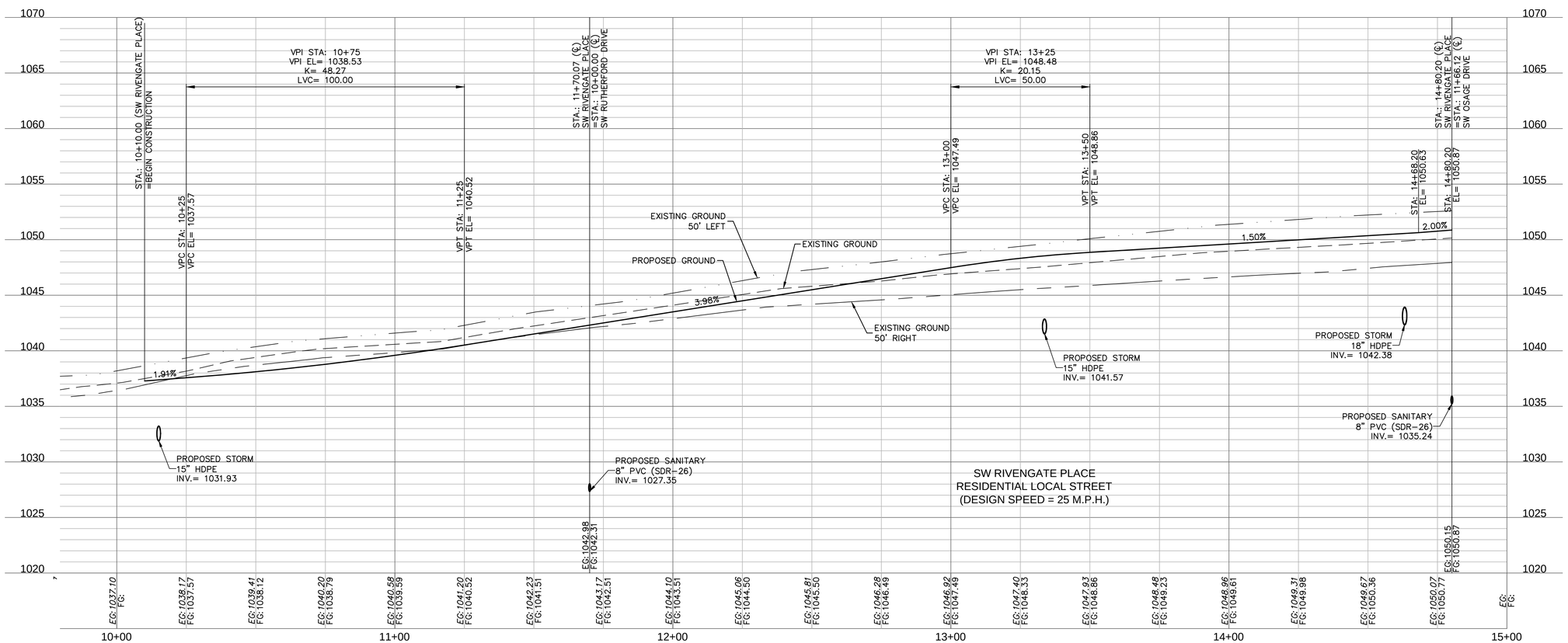
0' 10' 20' 40'
SCALE IN FEET



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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

ROADWAY PLAN & PROFILE (SW RIVENGATE PLACE)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C113

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_RPP01_C192339.dwg USER: aabdigaliyev
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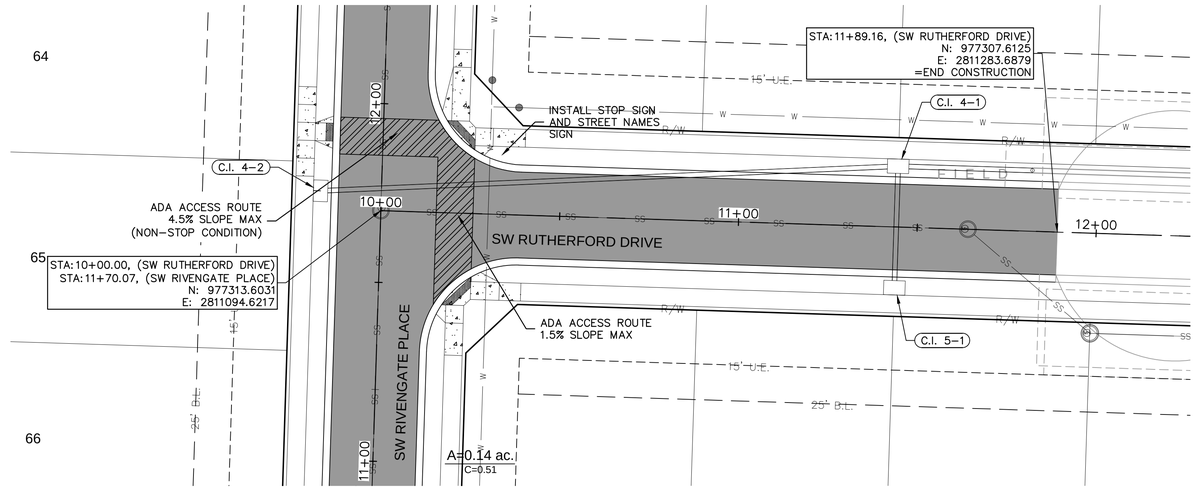

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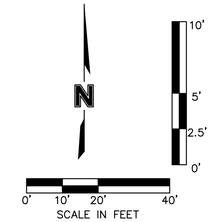
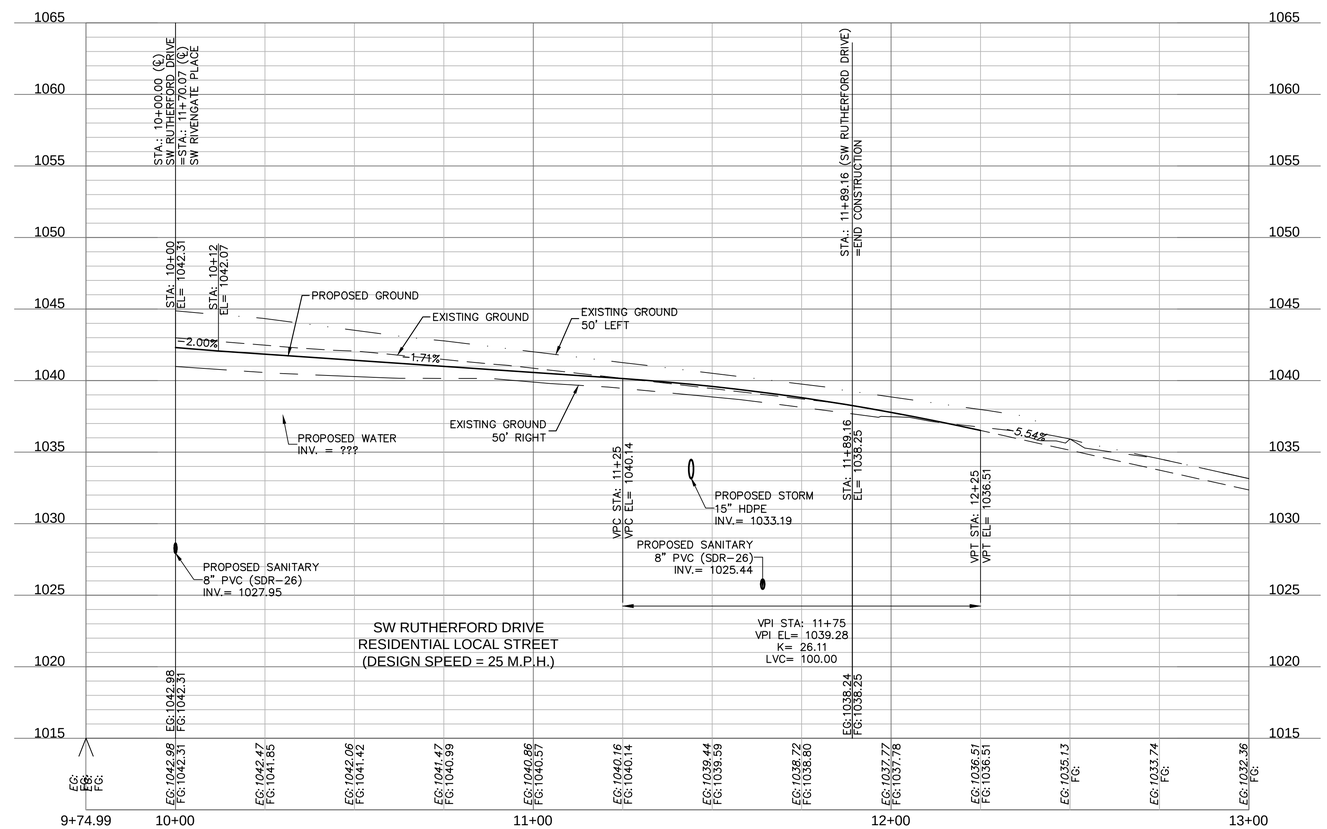
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CG–2 CURB & GUTTER





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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

ROADWAY PLAN & PROFILE (SW RUTHERFORD DRIVE)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C114

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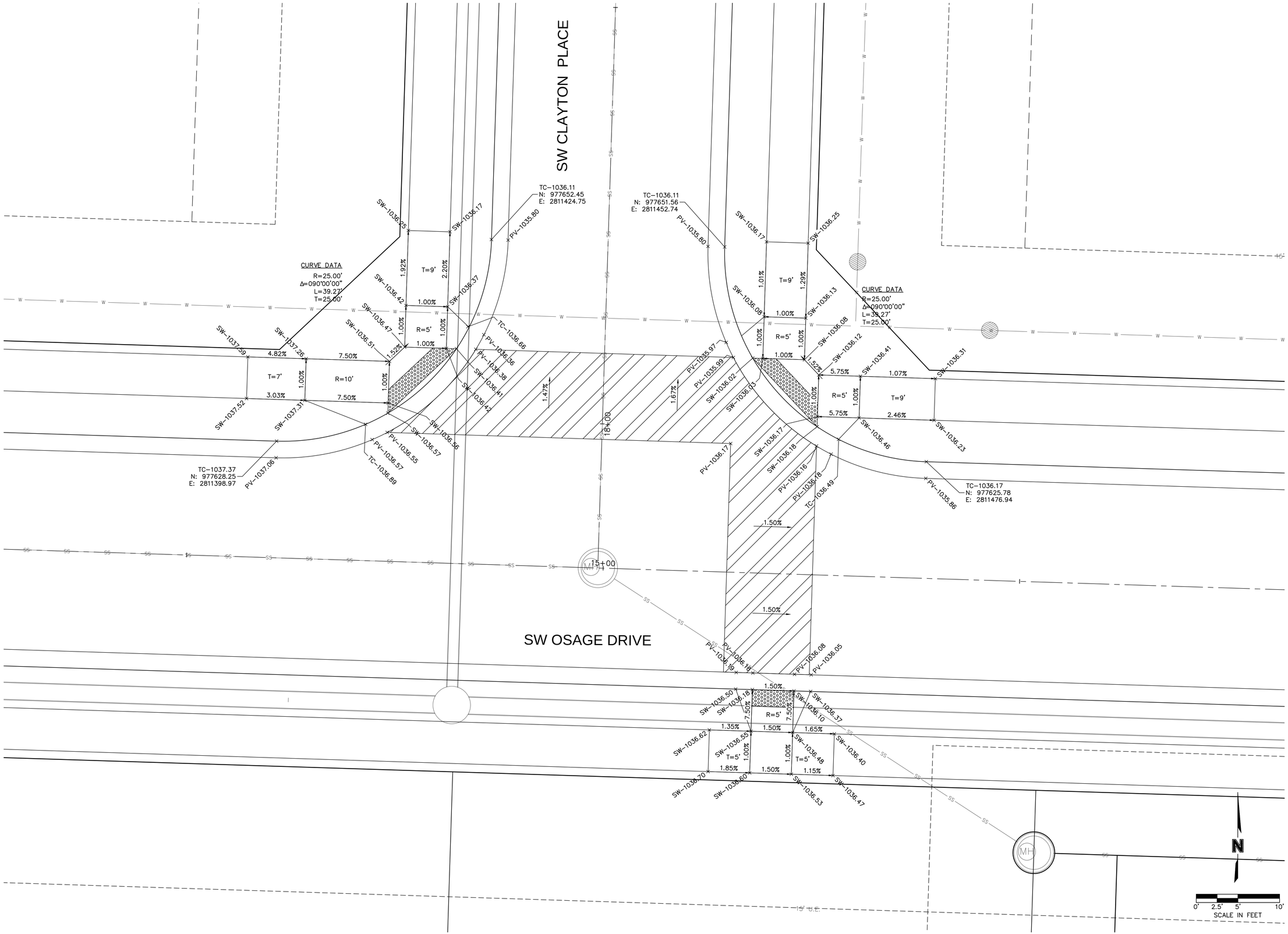

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REVISIONS

SW OSAGE DRIVE AND SW CLAYTON PLACE INTERSECTION
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

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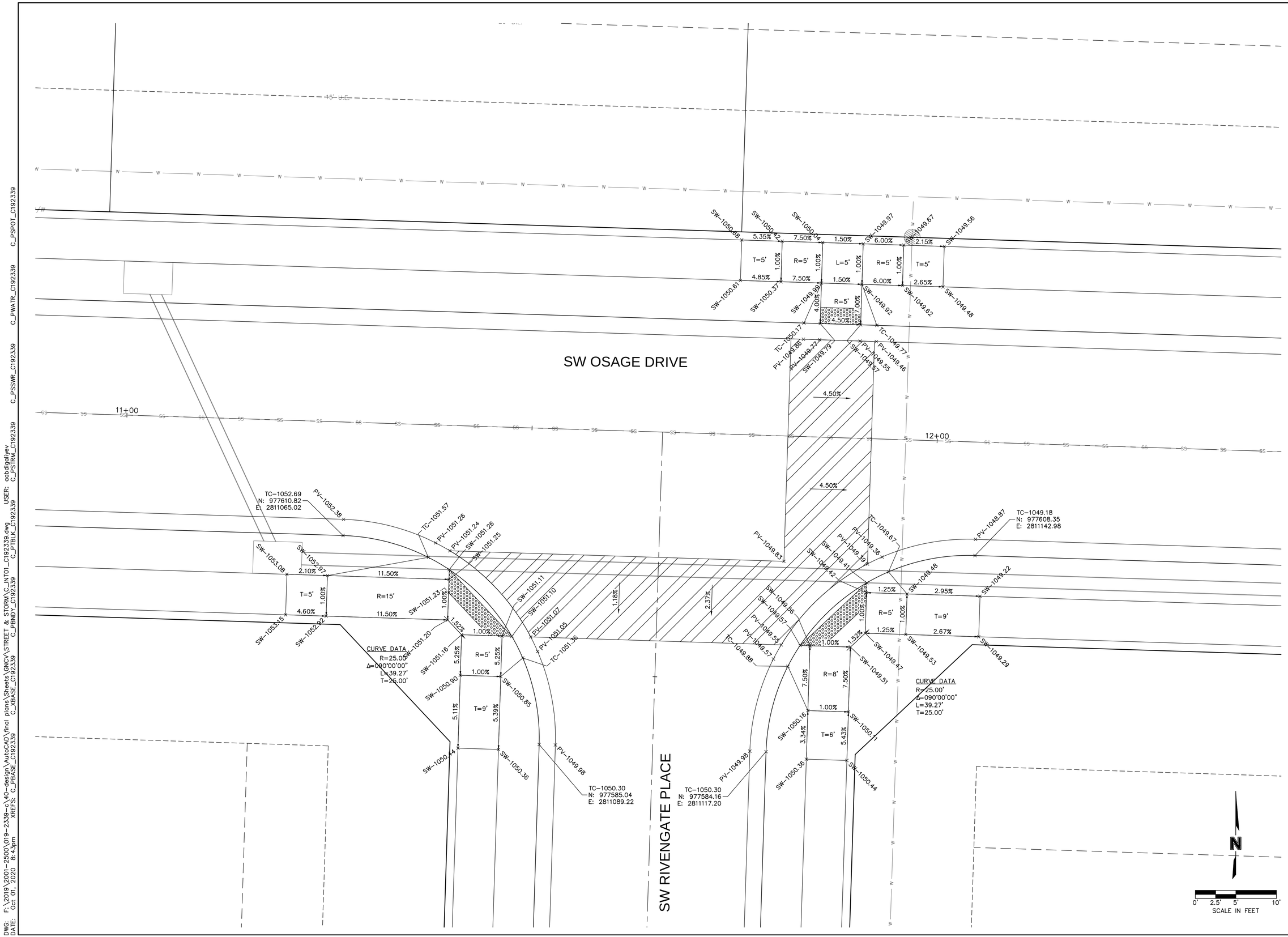
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C115



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DATE: Oct 01, 2020 8:43pm XREFS: C_PBASE_C192339 C_XBASE_C192339 C_PBNDY_C192339 C_PTBLK_C192339 C_PSWR_C192339 C_PWATR_C192339 C_PSPOT_C192339

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REVISIONS

SW OSAGE DRIVE AND SW RIVENGATE PLACE INTERSECTION
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C116

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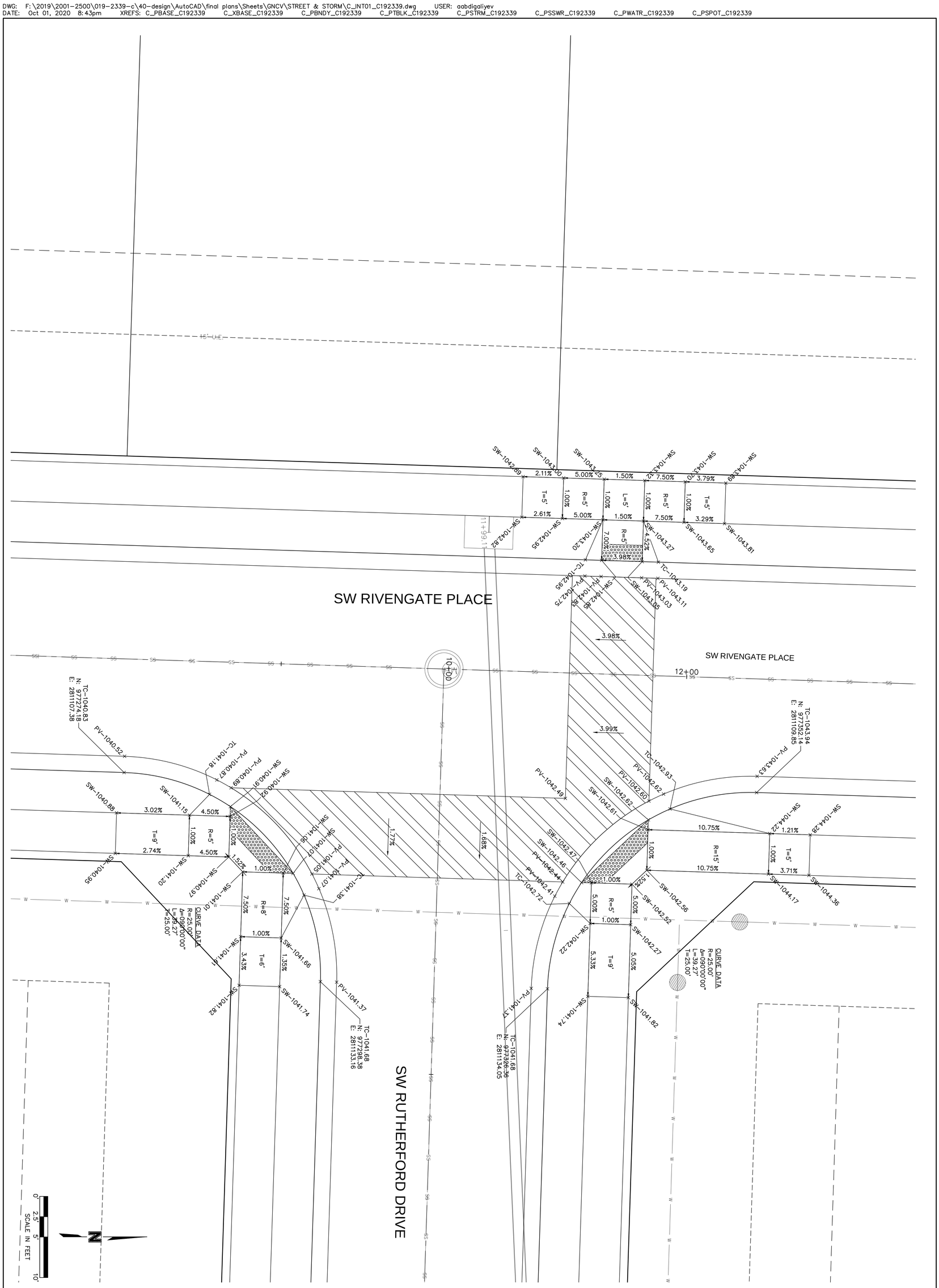

SHEET C117

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: C.V.
QA/QC by: J.E.S.
project no.: C192339
date: 2020.08.21

SW RIVENGATE PLACE AND SW RUTHERFORD DRIVE INTERSECTION
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

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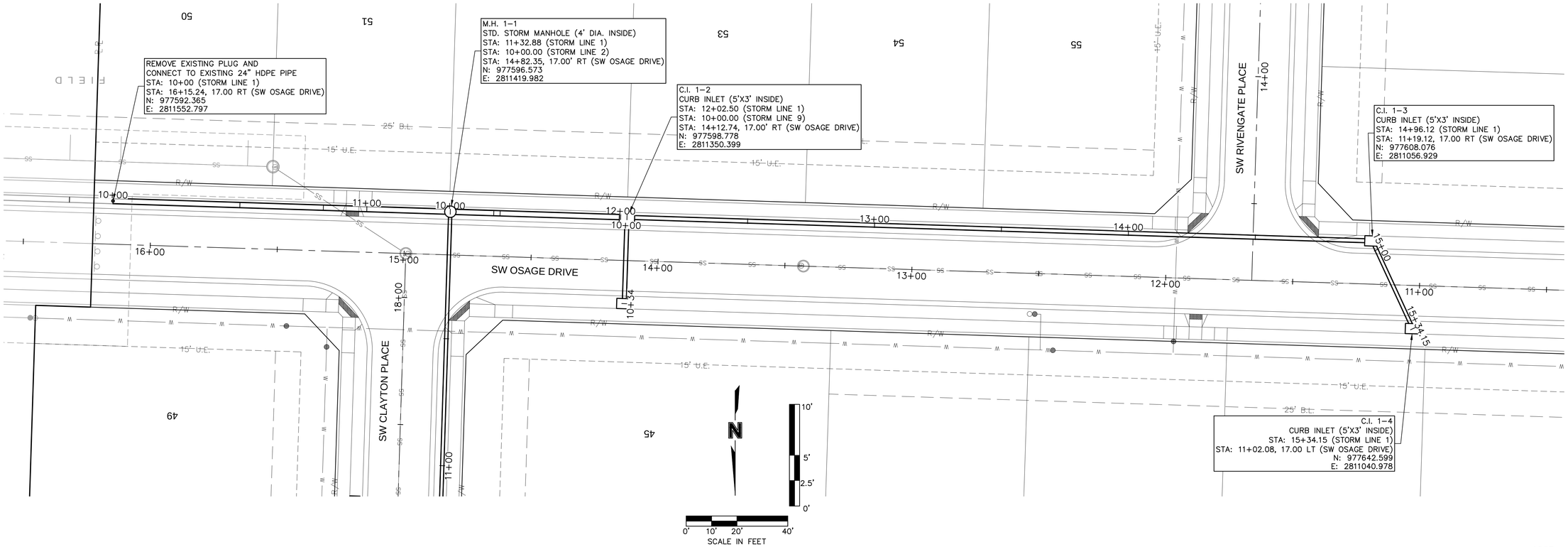

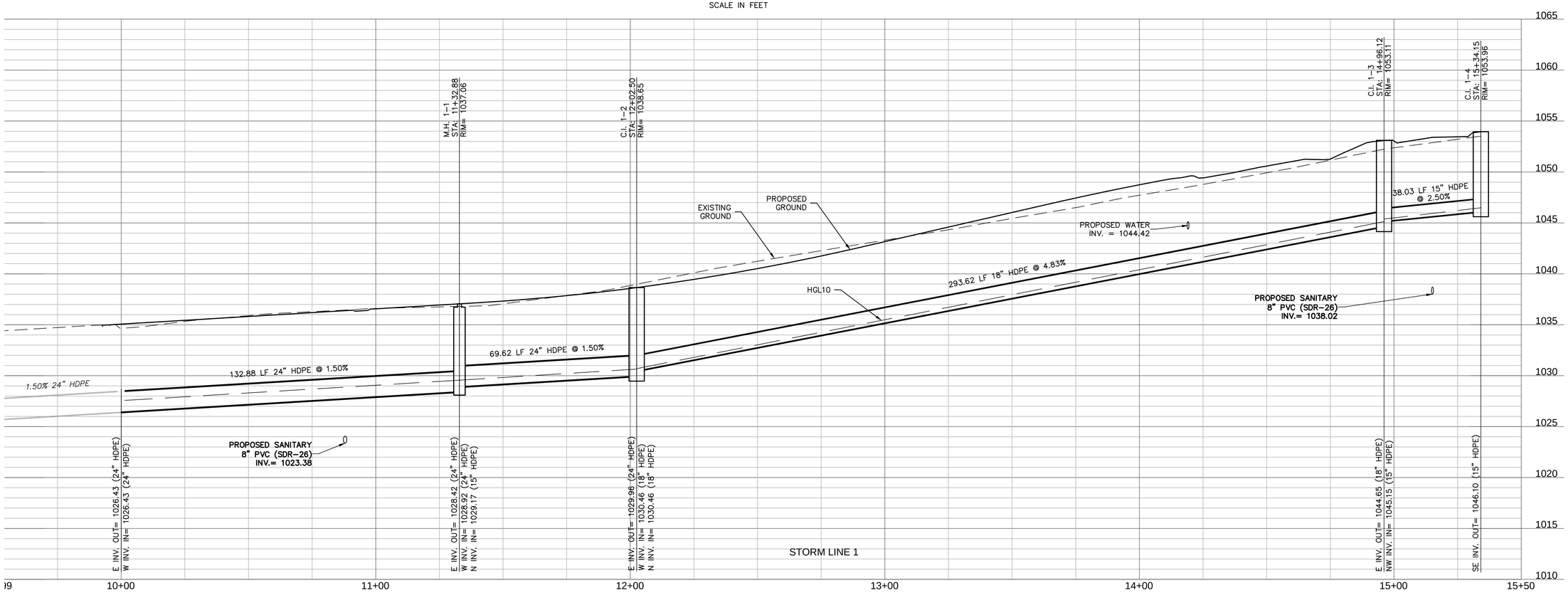

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

STORM SEWER PLAN & PROFILE (LINE 1)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C118

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_STM01_C192339.dwg USER: aabdigaliyev
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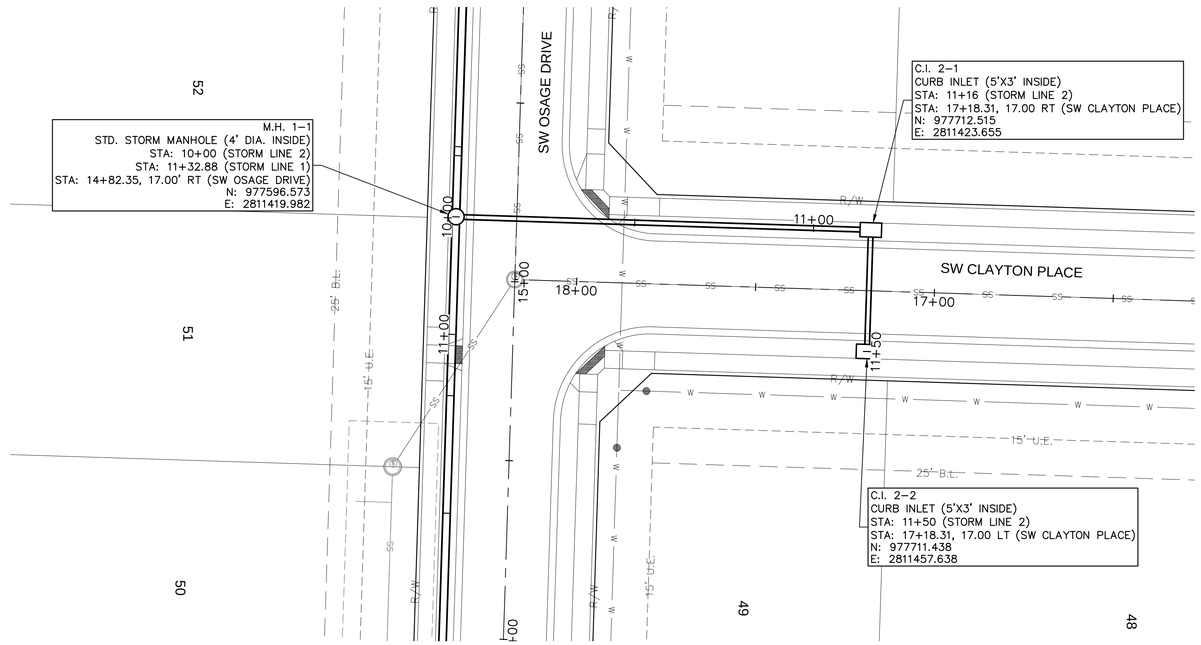

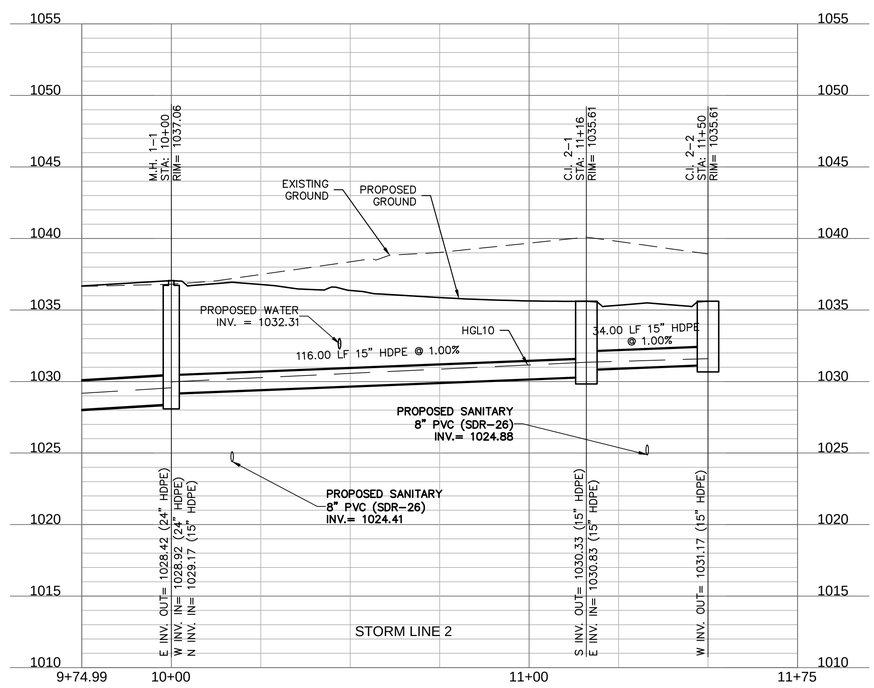

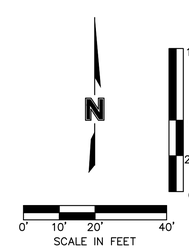

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REVISIONS

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

OSAGE
SECOND PLAT

2020

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checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C119

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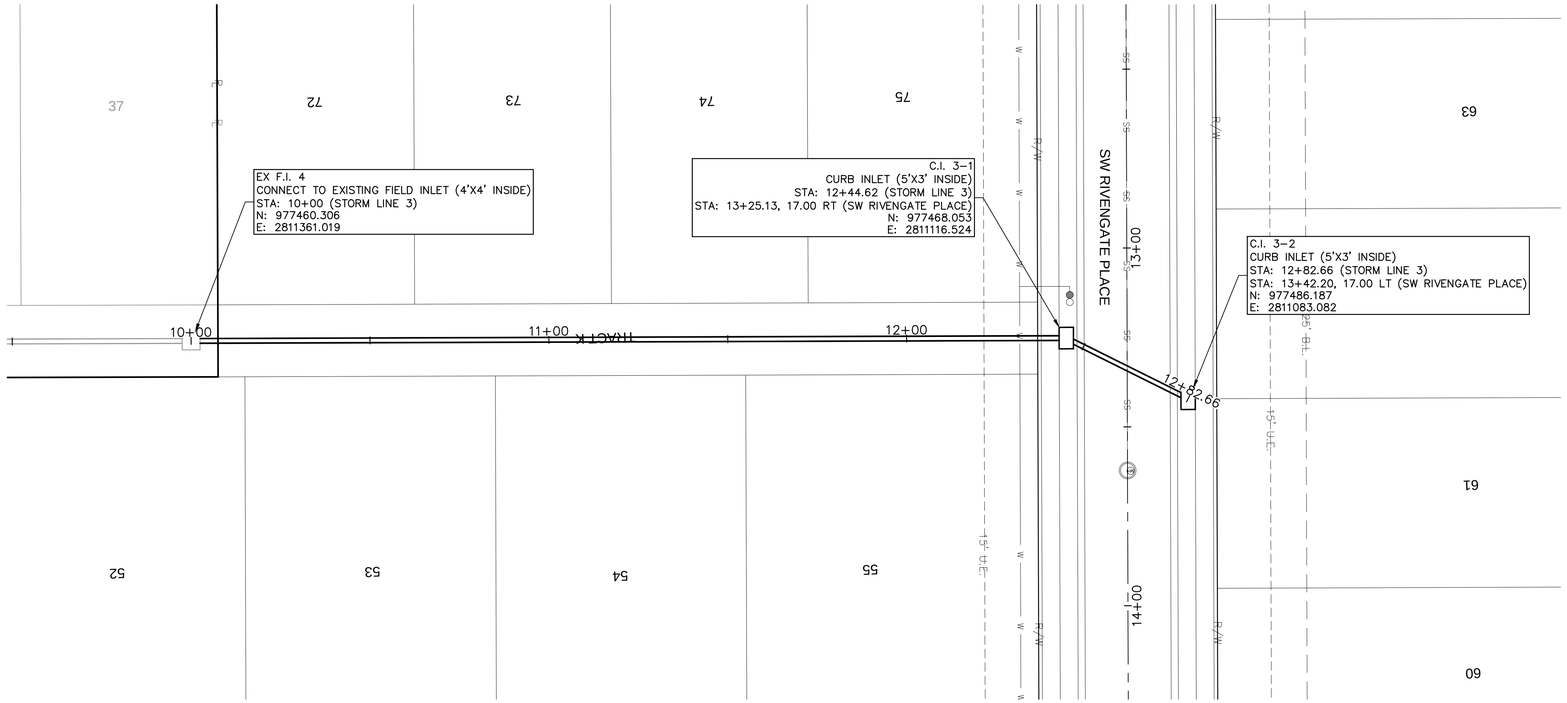

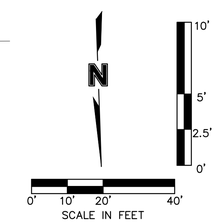

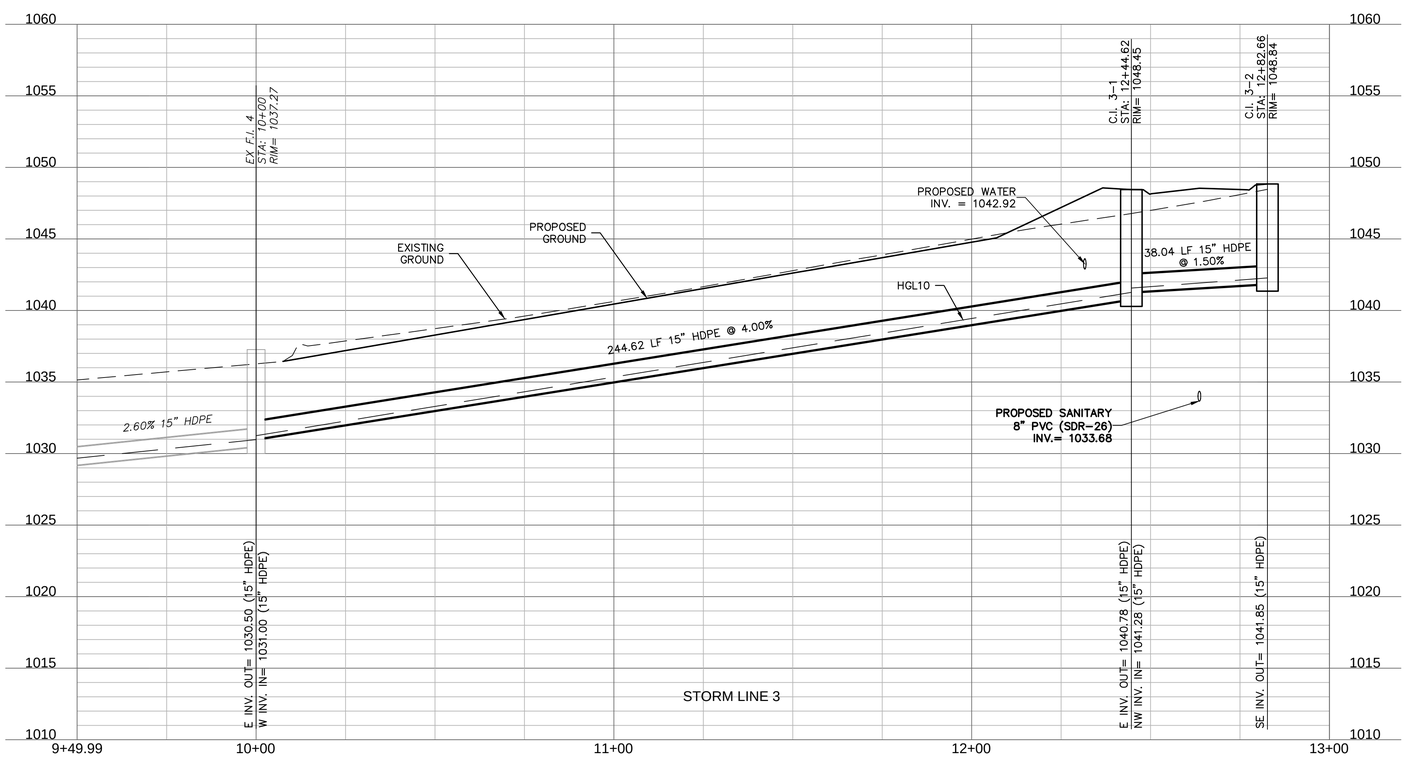

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DATE: Oct 01, 2020 8:44pm XREFS: C_PBASE_C192339 C_XBASE_C192339 C_PBNDY_C192339 C_PTBLK_C192339 C_PSTRM_C192339 C_PSSWR_C192339 C_PWATR_C192339

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

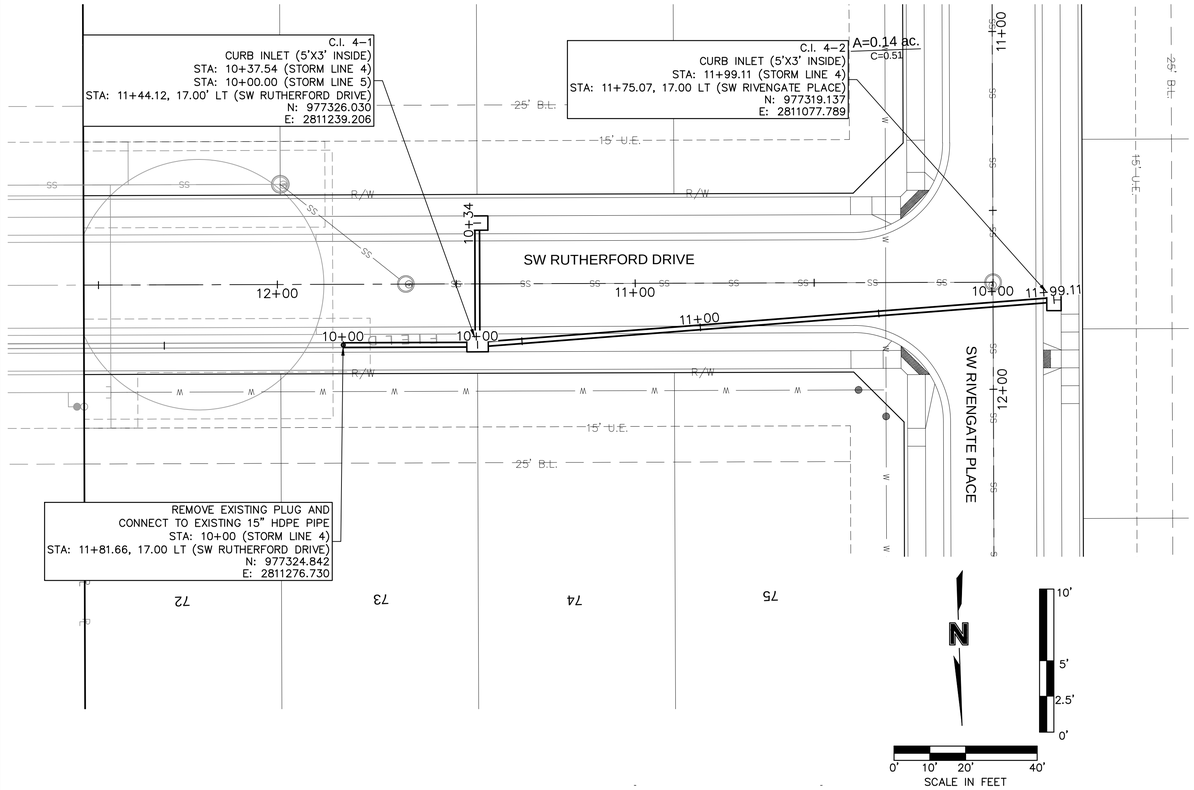
STORM SEWER PLAN & PROFILE (LINE 3)
STREET & STORM SEWER PLANS

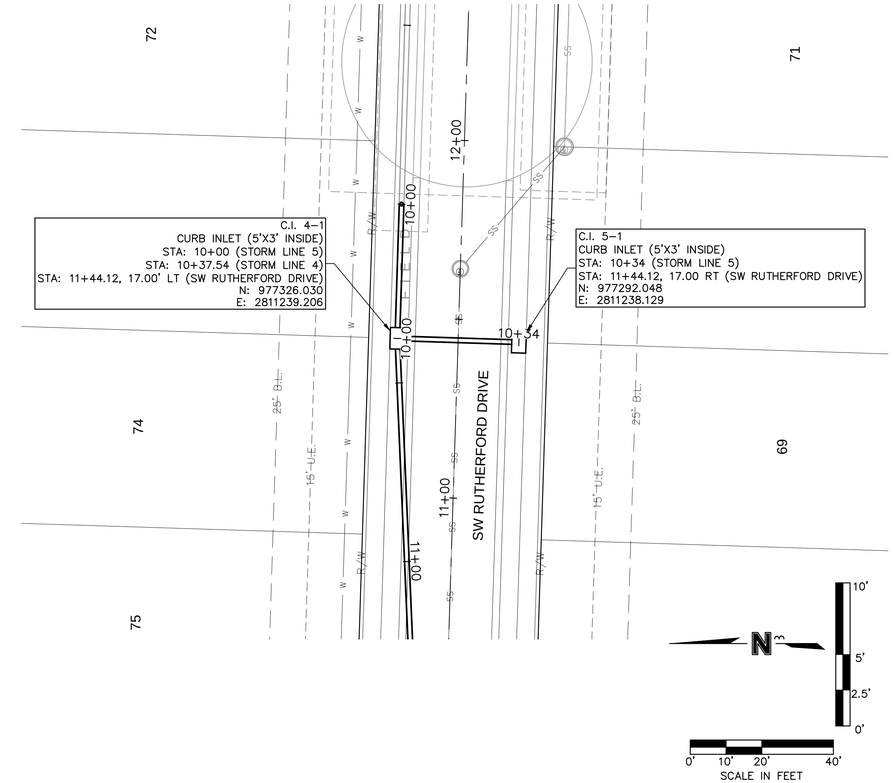
OSAGE
SECOND PLAT

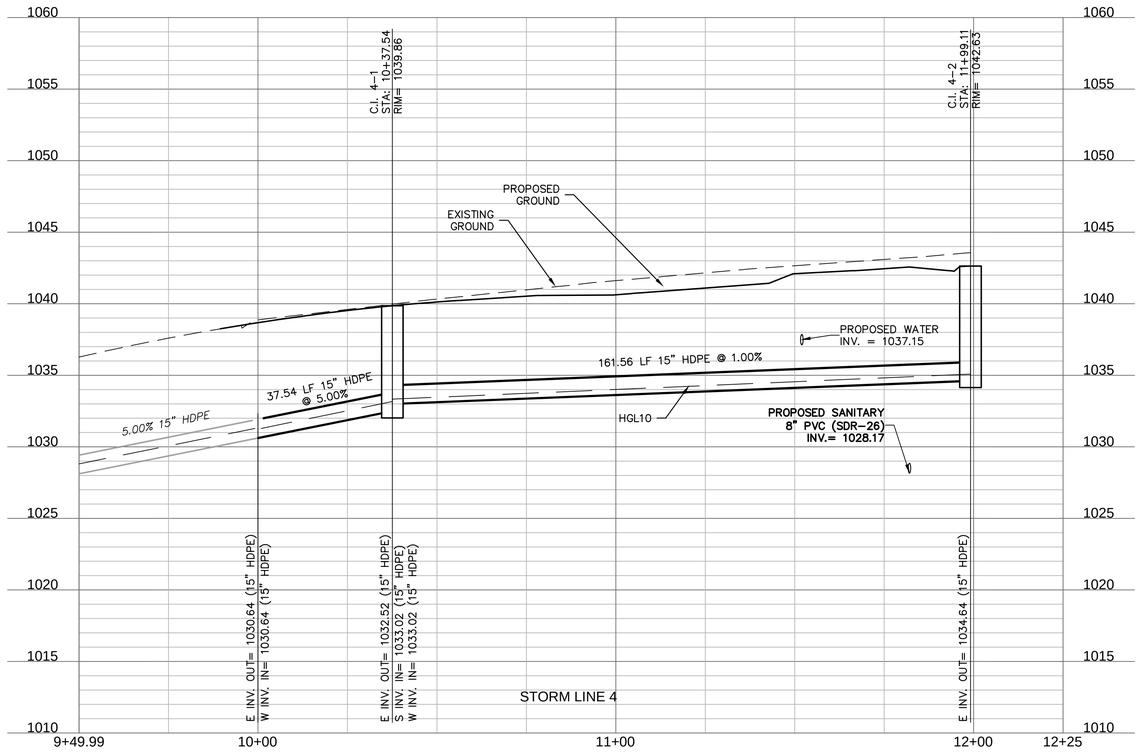
2020

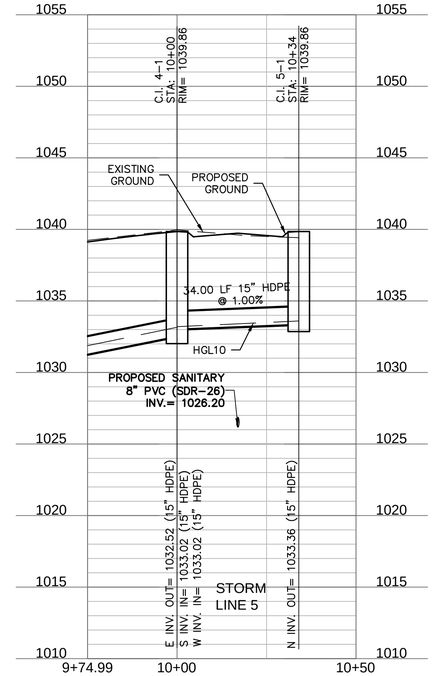
drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C120









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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

STORM SEWER PLAN & PROFILE (LINES 4 & 5)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C121

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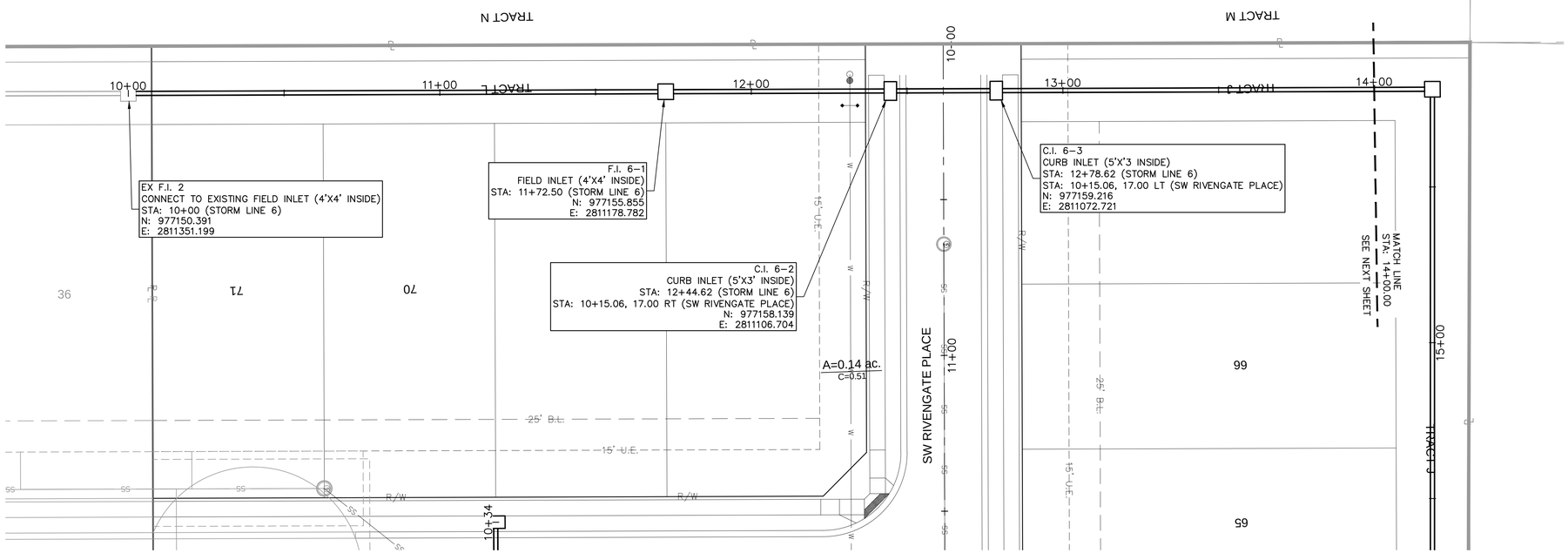

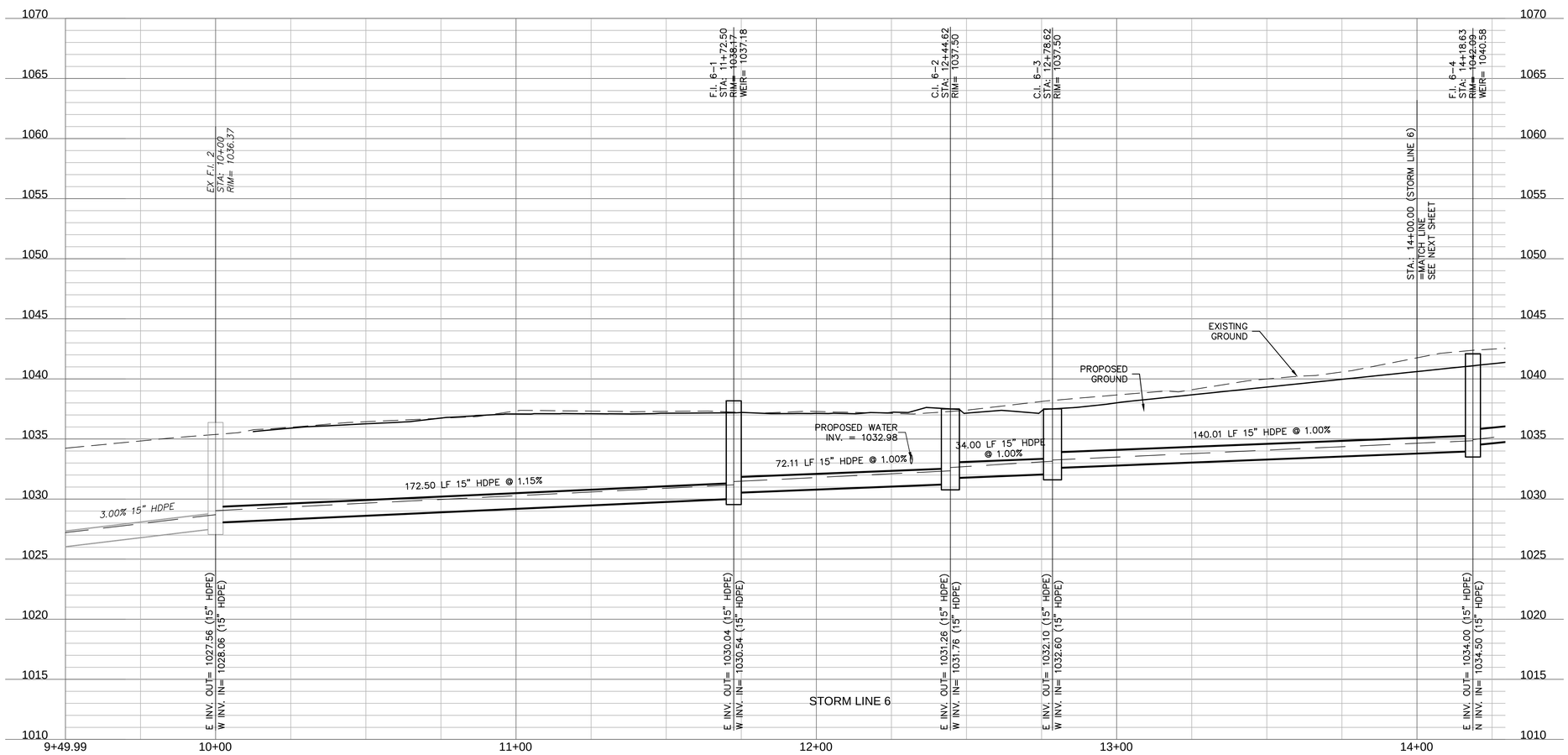

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NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

STORM SEWER PLAN & PROFILE (LINE 6)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C122

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_STM02_C192339.dwg USER: aabdigaliyev
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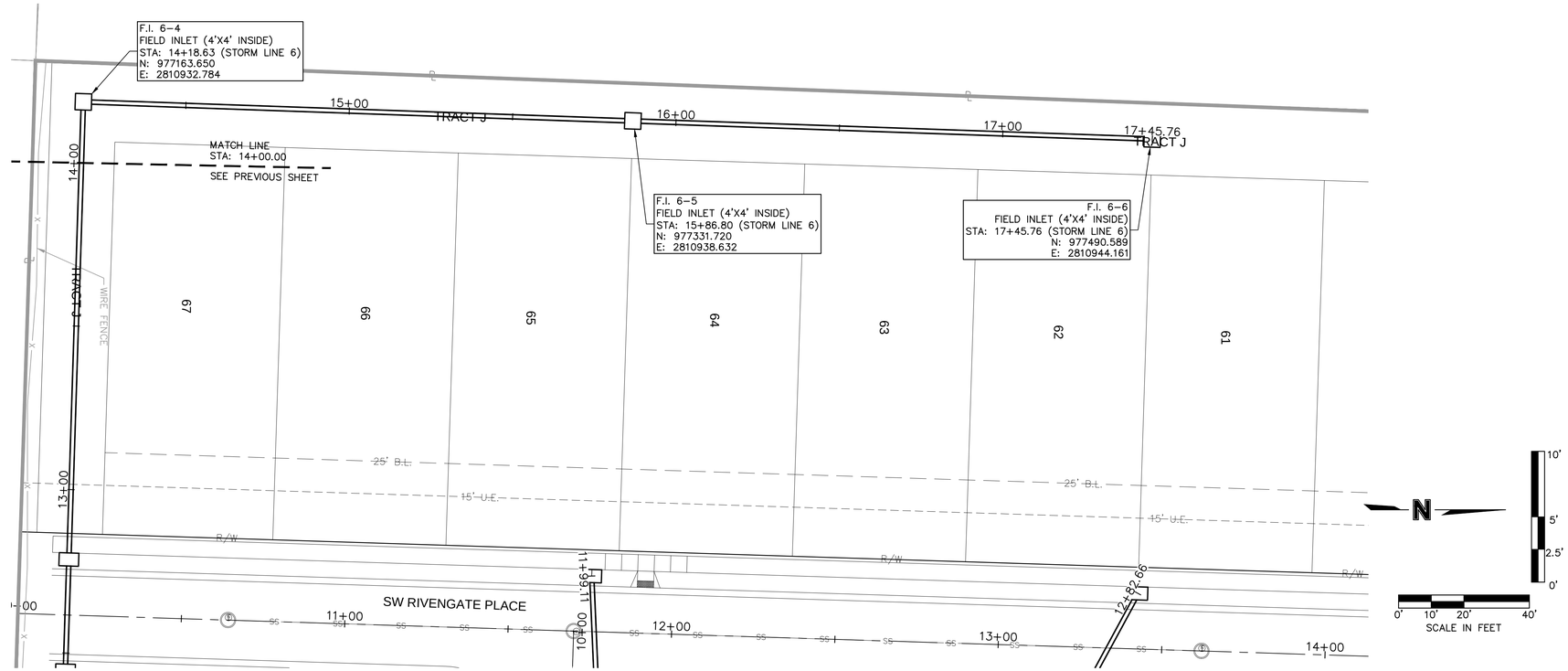

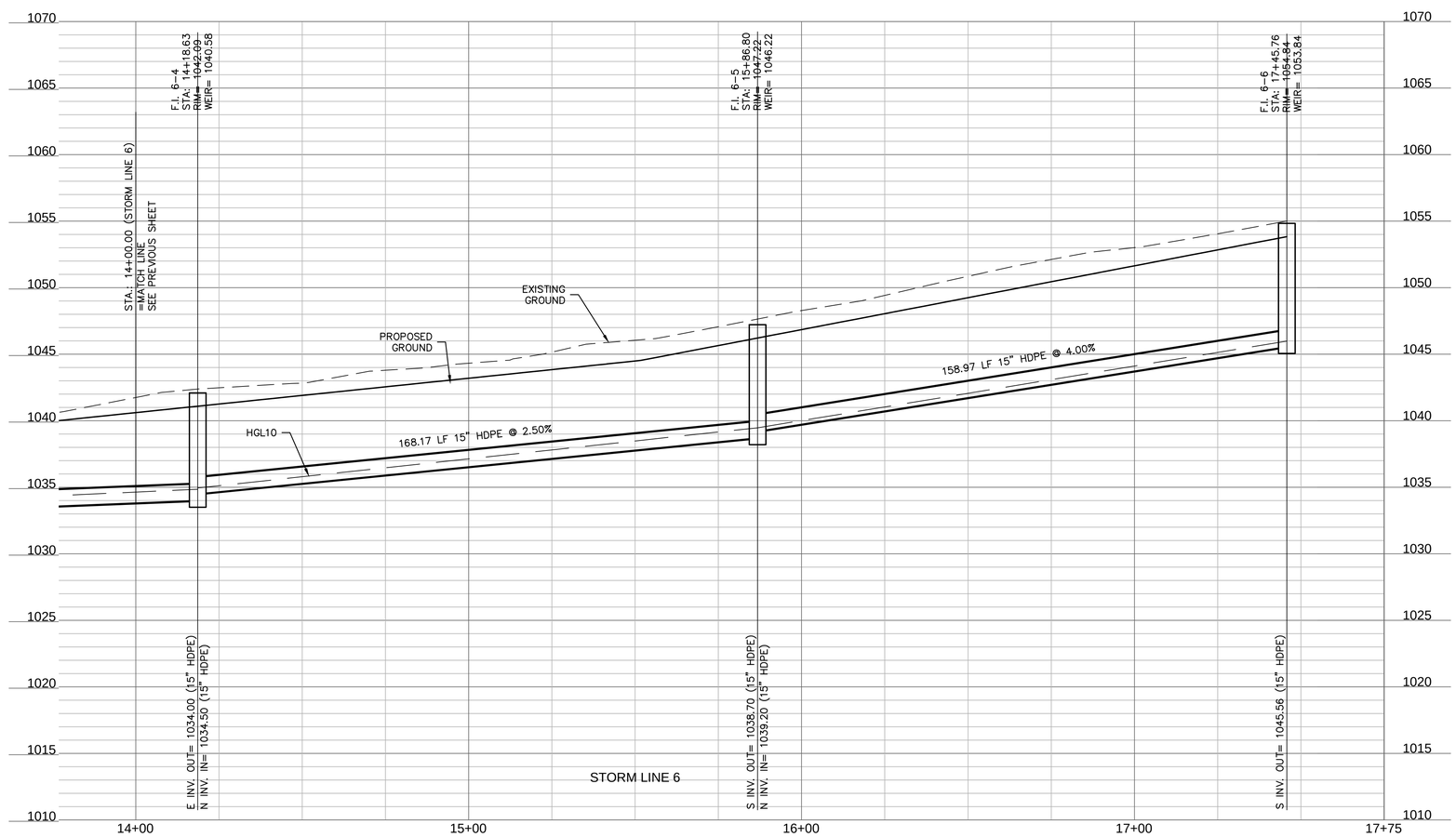

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

STORM SEWER PLAN & PROFILE (LINE 6 CONT'D)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

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checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C123

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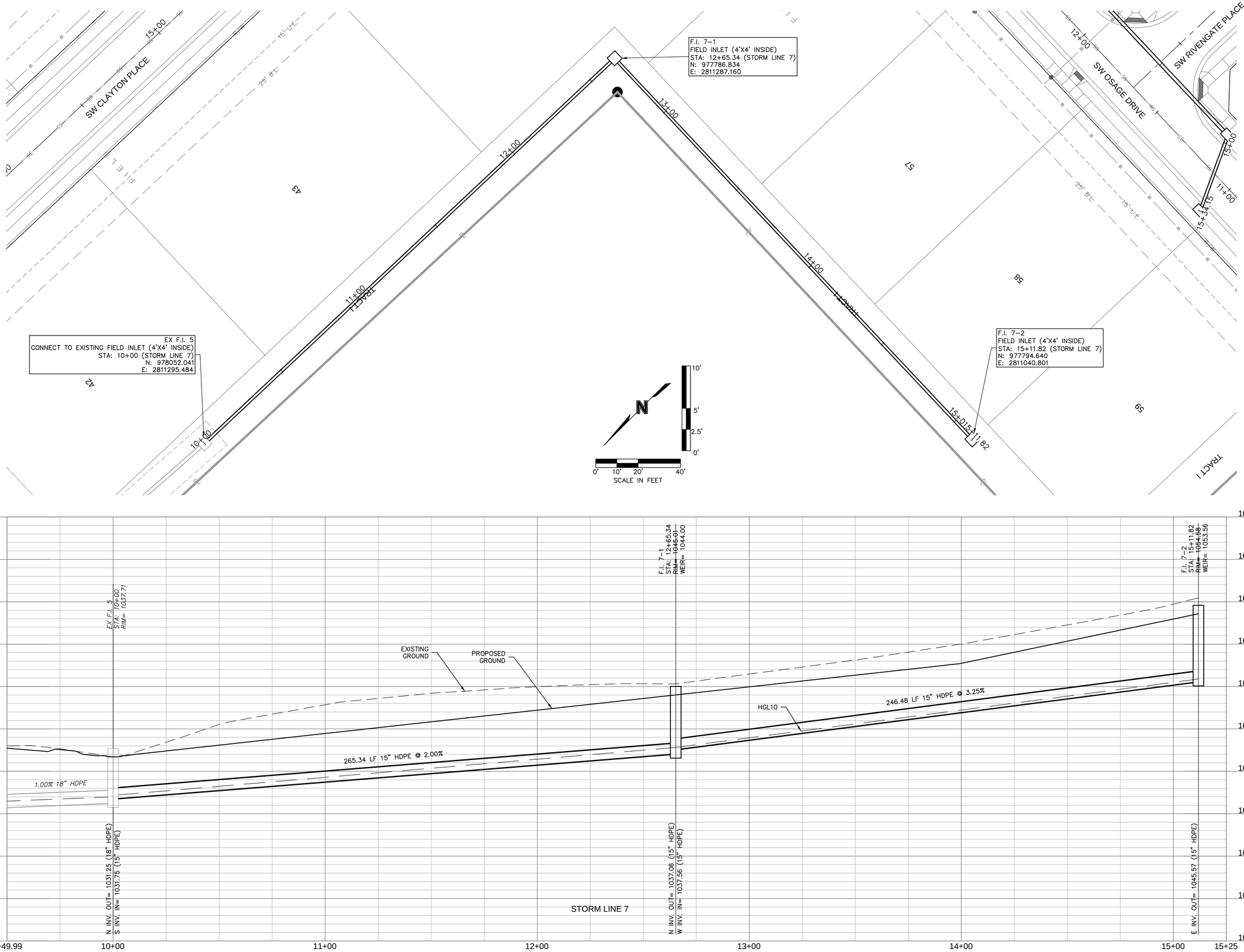

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

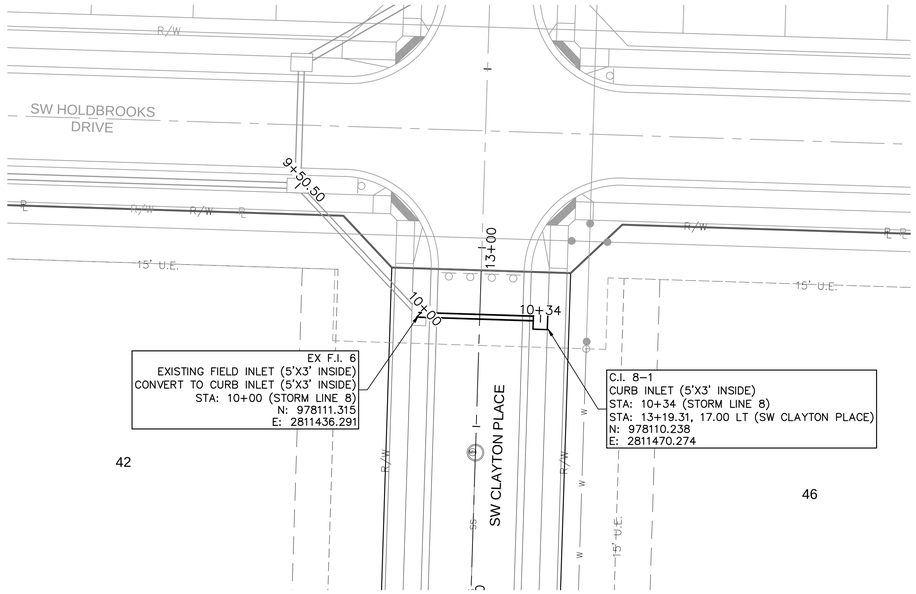
STORM SEWER PLAN & PROFILE (LINE 7)
STREET & STORM SEWER PLANS

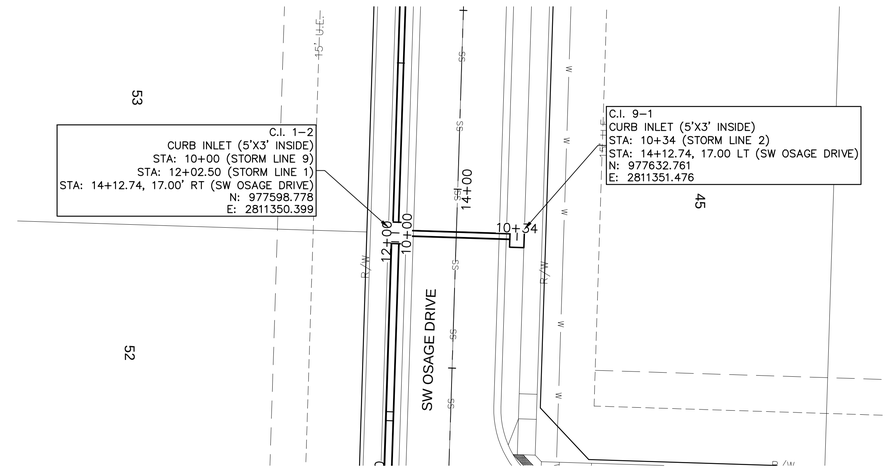
OSAGE
SECOND PLAT

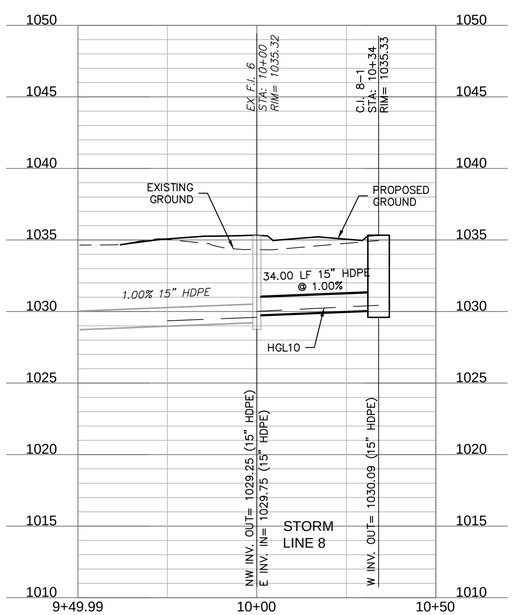
2020

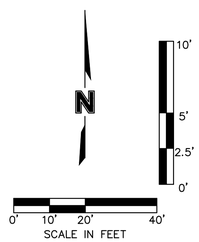
drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

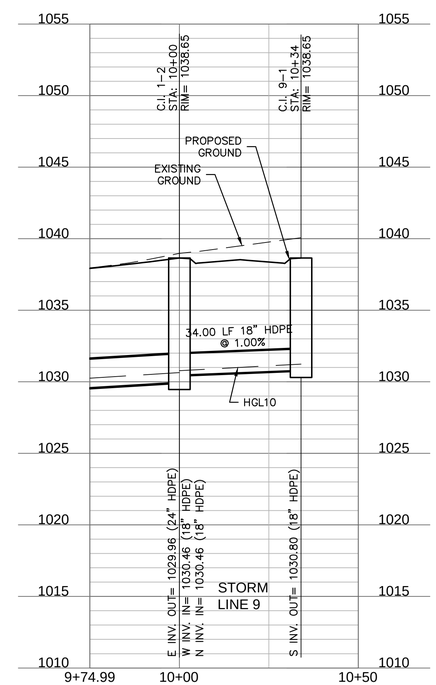
SHEET
C124

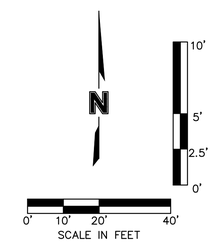












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STATE OF MISSOURI
JULIE ELAINE SELLERS
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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

STORM SEWER PLAN & PROFILE (LINES 8 & 9)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C125

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_STM02_C192339.dwg USER: aabdigaliyev
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C_PWATR_C192339 C_PSSWR_C192339

LEGEND	
—100—	FINISHED INDEX CONTOURS
—100—	FINISHED INTERMEDIATE CONTOURS

BASEMENT TYPES

- (S) STANDARD
- (W) WALKOUT
- (D) DAYLIGHT

NOTES:

MBOE – MINIMUM BUILDING OPENING ELEVATION

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 C106–C109 FOR SWALE GRADING DETAILS.

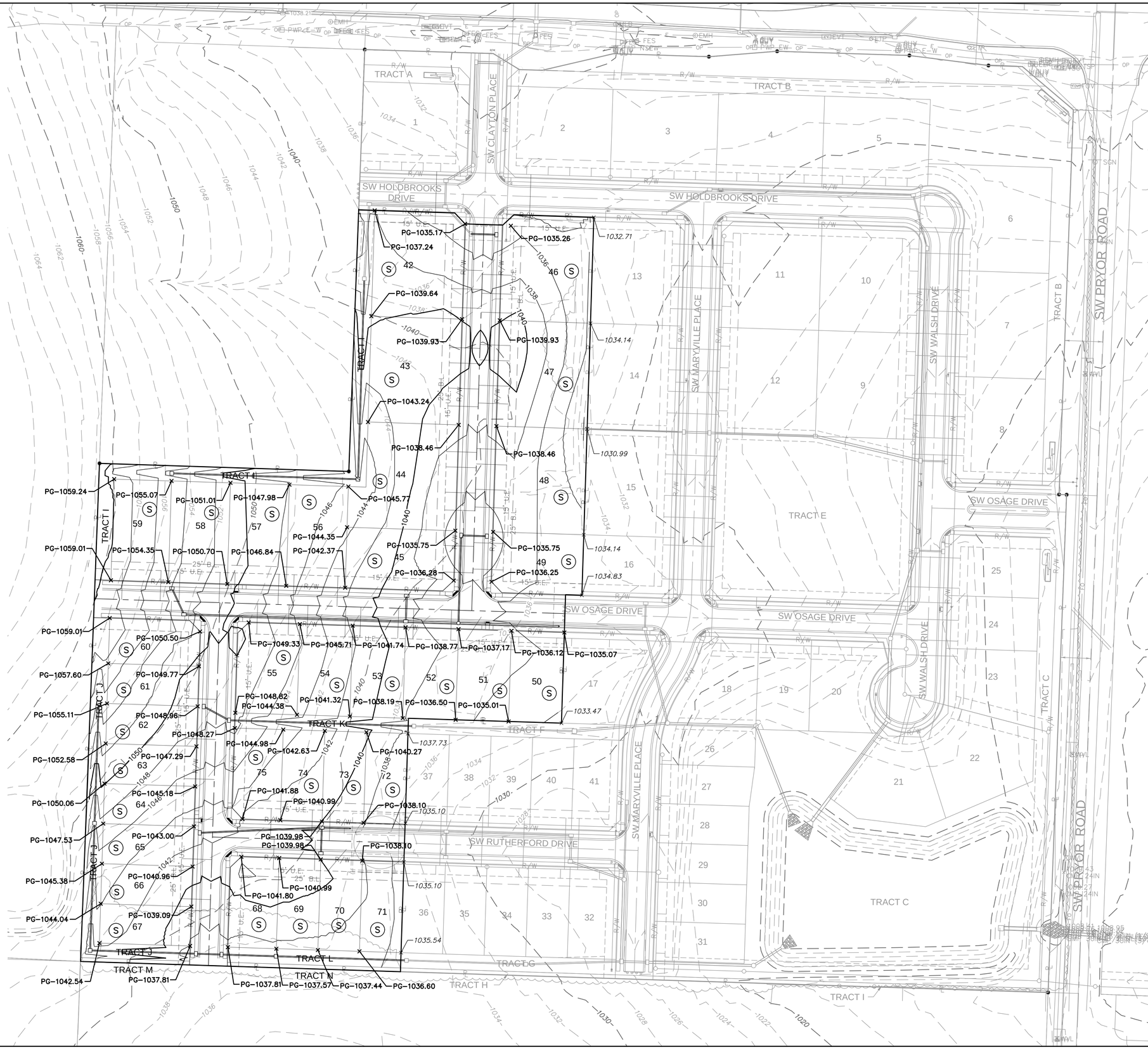
6. DRAINAGE PATHS TO BE CONSTRUCTED BETWEEN EACH OF THE LOTS LABELED AS STANDARD LOTS TO DRAIN WEST.

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.

Osage 2nd Plat
Minimum Building Opening Elevation

Lot	Rear Left MBOE	Rear Right MBOE	Front Left MBOE	Front Right MBOE	As-Built Grading Plan Required
42	1042.46	1037.70	1040.48	1035.72	X
43	1041.00	1042.46	1039.02	1040.48	X
44	1038.28	1041.00	1036.30	1039.02	X
45	1039.11	1038.58	1036.83	1036.30	X
46	1037.70	1042.46	1035.72	1040.48	
47	1042.46	1041.00	1040.48	1039.02	
48	1041.00	1038.28	1039.02	1036.30	
49	1038.58	1039.11	1036.30	1036.83	
50	1034.57	1035.86	-	-	X
51	1035.86	1037.26	-	-	X
52	1040.00	1041.60	1037.72	1039.32	X
53	1041.60	1044.58	1039.32	1042.30	X
54	1044.58	1048.55	1042.30	1046.27	X
55	1048.55	1052.18	1046.27	1049.90	X
56	1049.71	1045.40	1047.43	1042.92	X
57	1053.54	1049.71	1051.26	1047.43	X
58	1057.19	1053.54	1054.91	1051.26	X
59	1061.86	1057.19	1059.58	1054.91	X
60	1052.61	1053.30	1050.33	1051.02	
61	1051.79	1052.61	1049.51	1050.33	X
62	1050.13	1051.79	1047.85	1049.51	X
63	1048.00	1050.13	1045.72	1047.85	X
64	1045.85	1048.00	1043.57	1045.72	X
65	1043.79	1045.85	1041.51	1043.57	X
66	1041.91	1043.79	1039.63	1041.51	X
67	1040.65	1041.91	1038.37	1039.63	X
68	1038.92	1038.63	-	-	
69	1038.62	1038.92	-	-	
70	1037.58	1038.62	-	-	
71	1037.97	1040.89	1035.69	1038.61	
72	1040.88	1037.97	1038.60	1035.69	X
73	1042.80	1040.88	1040.52	1038.60	X
74	1043.82	1042.80	1041.54	1040.52	X
75	1044.68	1043.82	1042.40	1041.54	X

X indiciates condition applies to the lot.
MBOE's have been provided per lot lines, facing the lot from the street. Interpolation will be allowed between the right and left side MBOE's provided, depending on the location of the lowest opening on the proposed structure.



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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

MASTER DRAINAGE PLAN
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C126

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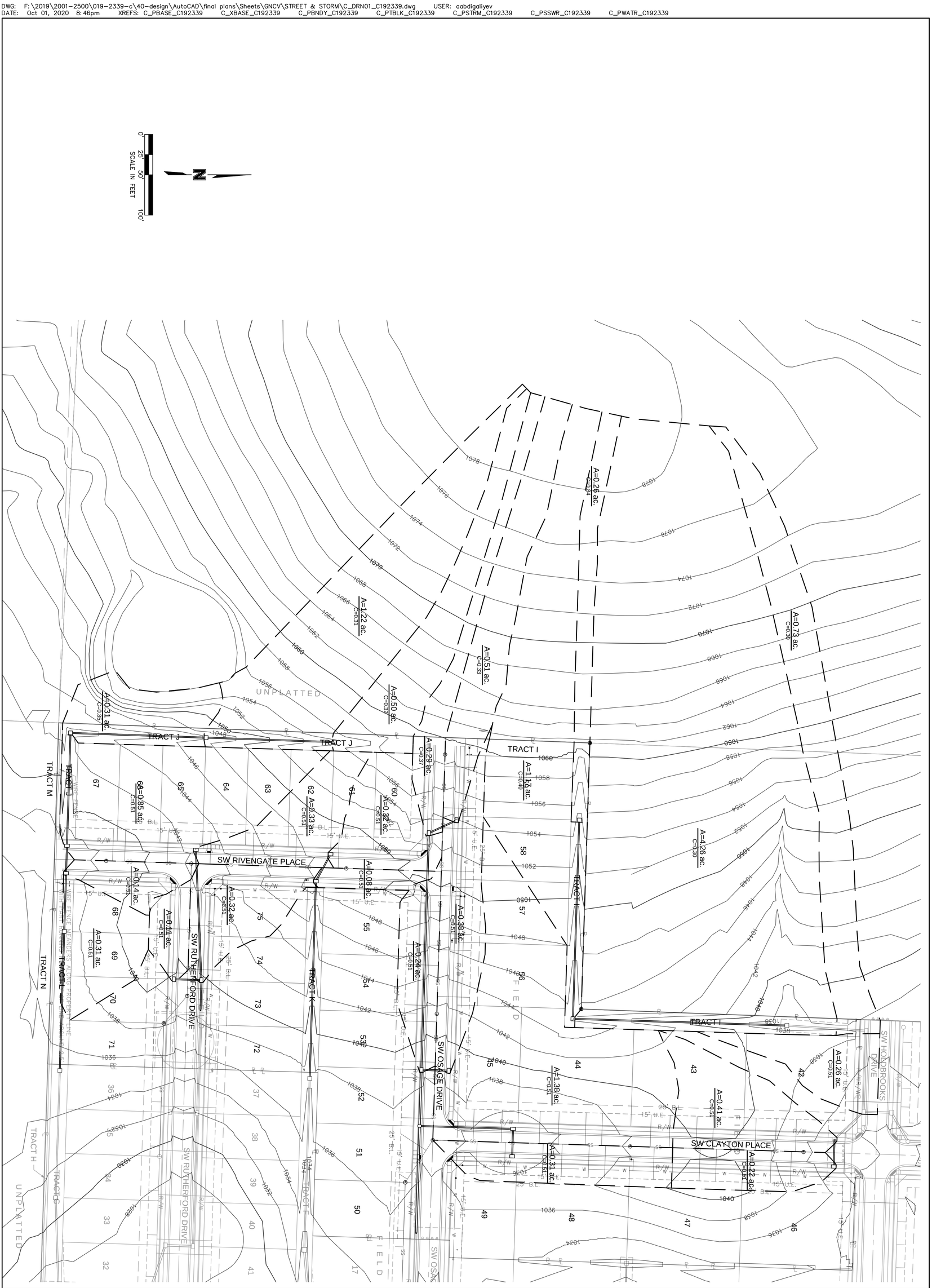
DATE: Oct 01, 2020 8:46pm XREFS: C_PBASE_C192339 C_XBASE_C192339 C_PBNDY_C192339 C_PTBLK_C192339 C_PSTRM_C192339 C_PSSWR_C192339 C_PWATR_C192339



SHEET C127

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: D.K.W.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.08.21

DRAINAGE PLAN
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

REV. NO.	DATE	REVISIONS DESCRIPTION

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STATE OF MISSOURI
JULIE ELAINE SELLERS
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Inlet Design Table

10 Year Return Frequency

Inlet ID	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
C.I. 1-2	0.80	0.10	88.43%	0.10	5.13	...
C.I. 1-3	0.69	0.10	86.80%	0.09	4.57	...
C.I. 1-4	0.98	0.27	78.25%	0.11	5.30	...
C.I. 2-1(L)	...	...	...	0.11	5.50	...
C.I. 2-1(R)	...	...	...	0.14	7.10	...
C.I. 2-1	5.18	0.00	100.00%	...	...	...
C.I. 2-2(L)	...	...	...	0.05	2.34	...
C.I. 2-2(R)	...	...	...	0.09	4.71	...
C.I. 2-2	1.16	0.00	100.00%	...	...	...
C.I. 3-1	0.29	0.01	97.21%	0.07	3.52	...
C.I. 3-2	1.15	0.15	88.48%	0.13	6.52	...
C.I. 4-1	1.05	0.15	87.26%	0.12	6.05	...
C.I. 4-2	1.11	0.28	80.00%	0.12	5.82	...
C.I. 5-1	0.40	0.02	96.15%	0.08	4.04	...
F.I. 6-1	1.16	0.00	100.00%	...	...	0.08
C.I. 6-2	0.54	0.03	95.46%	0.10	4.76	...
C.I. 6-3	2.41	0.90	72.75%	0.19	9.25	...
F.I. 6-4	0.81	0.00	100.00%	...	...	0.06
F.I. 6-5	2.47	0.00	100.00%	...	...	0.13
F.I. 6-6	1.18	0.00	100.00%	...	...	0.08
F.I. 7-1	2.92	0.00	100.00%	...	...	0.15
F.I. 7-2	0.65	0.00	100.00%	...	...	0.05
C.I. 8-1	0.78	0.05	94.15%	0.11	5.75	...
C.I. 9-1	1.34	0.36	78.82%	0.13	6.51	...

Notes:
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing Both theoretical capacity and reduced capacity are shown.
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual

Drainage Area Design Table

10 Year Return Frequency

Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C.I. 1-2	0.24	0.51	5.00	7.35	1.00	0.90
C.I. 1-3	0.29	0.51	5.00	7.35	1.00	0.79
C.I. 1-4	0.51	0.37	5.00	7.35	1.00	1.25
C.I. 2-1(L)	0.10	0.33	5.00	7.35	1.00	0.38
C.I. 2-1(R)	0.45	0.51	5.00	7.35	1.00	1.69
C.I. 2-1(B)	0.83	0.51	5.00	7.35	1.00	3.11
C.I. 2-1	1.38	0.51	5.00	7.35	1.00	5.18
C.I. 2-2(L)	0.02	0.51	5.00	7.35	1.00	0.08
C.I. 2-2(R)	0.15	0.51	5.00	7.35	1.00	0.56
C.I. 2-2(B)	0.14	0.51	5.00	7.35	1.00	0.53
C.I. 2-2	0.31	0.51	5.00	7.35	1.00	1.16
C.I. 3-1	0.08	0.51	5.00	7.35	1.00	0.30
C.I. 3-2	0.32	0.51	5.00	7.35	1.00	1.20
C.I. 4-1	0.32	0.51	5.00	7.35	1.00	1.20
C.I. 4-2	0.33	0.51	5.00	7.35	1.00	1.24
C.I. 5-1	0.11	0.51	5.00	7.35	1.00	0.41
F.I. 6-1	0.31	0.51	5.00	7.35	1.00	1.16
C.I. 6-2	0.15	0.51	5.00	7.35	1.00	0.56
C.I. 6-3	0.86	0.51	6.49	6.92	1.00	3.03
F.I. 6-4	0.31	0.51	5.00	7.35	1.00	0.81
F.I. 6-5	1.22	0.35	8.31	6.46	1.00	2.47
F.I. 6-6	0.50	0.31	5.00	7.35	1.00	1.18
F.I. 7-1	1.17	0.32	9.16	6.26	1.00	2.92
F.I. 7-2	0.26	0.40	5.00	7.35	1.00	0.65
C.I. 8-1	0.22	0.34	5.00	7.35	1.00	0.83
C.I. 9-1	0.38	0.51	5.00	7.35	1.00	1.43

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)
CONNECT TO EX. 1	EX C.I. 2	113.85	1026.43	1024.72	1.50	24	0.010	10.15	9.85	36.04	1.14	1027.57	1028.70
M.H. 1-1	CONNECT TO EX. 1	132.88	1028.42	1026.43	1.50	24	0.010	10.15	5.49	36.01	1.14	1029.56	1037.06
C.I. 1-2	M.H. 1-1	69.62	1029.96	1028.92	1.49	24	0.010	3.81	4.38	35.94	0.68	1030.64	1038.65
C.I. 1-3	C.I. 1-2	293.62	1044.65	1030.46	4.83	18	0.010	1.67	9.12	30.01	0.49	1045.14	1053.11
C.I. 1-4	C.I. 1-3	38.03	1046.10	1045.15	2.50	15	0.010	0.98	6.31	13.27	0.39	1046.49	1053.96
C.I. 2-1	M.H. 1-1	116.00	1030.33	1029.17	1.00	15	0.010	6.34	7.51	8.39	1.01	1031.35	1035.61
C.I. 2-2	C.I. 2-1	34.00	1031.17	1030.83	1.00	15	0.010	1.16	2.43	8.40	0.42	1031.59	1035.61
C.I. 9-1	C.I. 1-2	34.00	1030.80	1030.46	1.00	18	0.010	1.34	4.91	13.65	0.43	1031.23	1038.65
EX F.I. 4	EX F.I. 3	212.50	1030.50	1024.98	2.60	15	0.010	1.45	7.18	13.53	0.48	1030.98	1037.27
C.I. 3-1	EX F.I. 4	244.62	1040.79	1031.00	4.00	15	0.010	1.45	8.37	16.79	0.48	1041.27	1048.45
C.I. 3-2	C.I. 3-1	38.04	1041.85	1041.28	1.50	15	0.010	1.15	5.53	10.28	0.42	1042.27	1048.84
EX F.I. 2	EX F.I. 1	158.03	1027.56	1022.82	3.00	15	0.010	8.57	12.33	14.54	1.14	1028.70	1036.37
F.I. 6-1	EX F.I. 2	172.50	1030.04	1028.06	1.15	15	0.010	8.57	8.34	8.99	1.14	1031.18	1038.17
C.I. 6-2	F.I. 6-1	72.11	1031.26	1030.54	1.00	15	0.010	7.41	7.71	8.39	1.08	1032.34	1037.50
C.I. 6-3	C.I. 6-2	34.00	1032.10	1031.76	1.00	15	0.010	6.87	7.63	8.39	1.05	1033.15	1037.50
F.I. 6-4	C.I. 6-3	140.01	1034.00	1032.60	1.00	15	0.010	4.46	6.94	8.39	0.86	1034.86	1042.09
F.I. 6-5	F.I. 6-4	168.17	1038.70	1034.50	2.50	15	0.010	3.65	9.22	13.27	0.77	1039.47	1047.22
F.I. 6-6	F.I. 6-5	158.97	1045.56	1039.20	4.00	15	0.010	1.18	6.02	16.79	0.43	1045.99	1054.84
EX F.I. 5	EX C.I. 5	98.76	1031.25	1030.26	1.00	18	0.010	3.57	6.50	13.67	0.72	1031.97	1037.71
F.I. 7-1	EX F.I. 5	265.34	1037.06	1031.75	2.00	15	0.010	3.57	8.46	11.88	0.76	1037.82	1045.01
F.I. 7-2	F.I. 7-1	246.48	1045.57	1037.56	3.25	15	0.010	0.65	3.48	15.13	0.31	1045.89	1054.58
CONNECT TO EX. 2	EX C.I. 1	127.46	1030.64	1024.27	5.00	15	0.010	2.69	10.84	18.77	0.66	1031.30	1032.33
C.I. 4-1	CONNECT TO EX. 2	37.54	1032.52	1030.64	5.01	15	0.010	2.69	4.11	18.79	0.66	1033.18	1039.86
C.I. 4-2	C.I. 4-1	161.56	1034.64	1033.02	1.00	15	0.010	1.24	4.90	8.41	0.44	1035.08	1042.63
C.I. 5-1	C.I. 4-1	34.00	1033.36	1033.02	1.00	15	0.010	0.40	3.51	8.39	0.25	1033.61	1039.86
EX C.I. 4	EX C.I. 3	49.50	1029.25	1028.76	0.99	15	0.010	0.78	4.26	8.35	0.35	1029.60	1035.32
C.I. 8-1	EX C.I. 4	34.00	1030.09	1029.75	1.00	15	0.010	0.78	4.27	8.39	0.35	1030.44	1035.33

Inlet Design Table

100 Year Return Frequency

Inlet ID	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
C.I. 1-2	1.27	0.31	80.14%	0.13	6.34	...
C.I. 1-3	1.08	0.31	77.66%	0.11	5.64	...
C.I. 1-4	1.43	0.76	65.42%	0.13	6.55	...
C.I. 2-1(L)	...	...	...	0.16	7.76	...
C.I. 2-1(R)	...	...	...	0.18	8.77	...
C.I. 2-1	9.08	0.00	100.00%	...	...	...
C.I. 2-2(L)	...	...	...	0.06	2.89	...
C.I. 2-2(R)	...	...	...	0.12	5.81	...
C.I. 2-2	2.04	0.00	100.00%	...	...	...
C.I. 3-1	0.50	0.03	94.35%	0.09	4.34	...
C.I. 3-2	1.92	0.50	79.24%	0.16	8.22	...
C.I. 4-1	1.67	0.46	78.23%	0.15	7.49	...
C.I. 4-2	1.75	0.92	65.42%	0.15	7.44	...
C.I. 5-1	0.67	0.05	92.55%	0.10	4.99	...
F.I. 6-1	2.04	0.00	100.00%	...	...	0.11
C.I. 6-2	0.90	0.08	91.39%	0.12	5.88	...
C.I. 6-3	3.51	2.75	56.02%	0.24	11.75	...
F.I. 6-4	1.42	0.00	100.00%	...	...	0.09
F.I. 6-5	4.36	0.00	100.00%	...	...	0.19
F.I. 6-6	2.07	0.00	100.00%	...	...	0.12
F.I. 7-1	5.16	0.00	100.00%	...	...	0.21
F.I. 7-2	1.14	0.00	100.00%	...	...	0.08
C.I. 8-1	1.29	0.16	89.23%	0.14	7.10	...
C.I. 9-1	2.08	1.18	63.82%	0.17	8.31	...

Notes:
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing Both theoretical capacity and reduced capacity are shown.
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual

Drainage Area Design Table

100 Year Return Frequency

Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C.I. 1-2	0.24	0.51	5.00	10.32	1.25	1.58
C.I. 1-3	0.29	0.51	5.00	10.32	1.25	1.39
C.I. 1-4	0.51	0.37	5.00	10.32	1.25	2.19
C.I. 2-1(L)	0.10	0.33	5.00	10.32	1.25	0.66
C.I. 2-1(R)	0.45	0.51	5.00	10.32	1.25	2.96
C.I. 2-1(B)	0.83	0.51	5.00	10.32	1.25	5.46
C.I. 2-1	1.38	0.51	5.00	10.32	1.25	9.08
C.I. 2-2(L)	0.02	0.51	5.00	10.32	1.25	0.13
C.I. 2-2(R)	0.15	0.51	5.00	10.32	1.25	0.99
C.I. 2-2(B)	0.14	0.51	5.00	10.32	1.25	0.92
C.I. 2-2	0.31	0.51	5.00	10.32	1.25	2.04
C.I. 3-1	0.08	0.51	5.00	10.32	1.25	0.53
C.I. 3-2	0.32	0.51	5.00	10.32	1.25	2.11
C.I. 4-1	0.32	0.51	5.00	10.32	1.25	2.11
C.I. 4-2	0.33	0.51	5.00	10.32	1.25	2.17
C.I. 5-1	0.11	0.51	5.00	10.32	1.25	0.72
F.I. 6-1	0.31	0.51	5.00	10.32	1.25	2.04
C.I. 6-2	0.15	0.51	5.00	10.32	1.25	0.99
C.I. 6-3	0.86	0.51	6.49	9.74	1.25	5.34
F.I. 6-4	0.31	0.51	5.00	10.32	1.25	1.42
F.I. 6-5	1.22	0.35	8.31	9.11	1.25	4.36
F.I. 6-6	0.50	0.31	5.00	10.32	1.25	2.07
F.I. 7-1	1.17	0.32	9.16	8.84	1.25	5.16
F.I. 7-2	0.26	0.40	5.00	10.32	1.25	1.14
C.I. 8-1	0.22	0.34	5.00	10.32	1.25	1.45
C.I. 9-1	0.38	0.51	5.00	10.32	1.25	2.50

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)
CONNECT TO EX. 1	EX C.I. 2	113.85	1026.43	1024.72	1.50	24	0.010	16.98	11.30	36.04	1.48	1027.91	1028.70
M.H. 1-1	CONNECT TO EX. 1	132.88	1028.42	1026.43	1.50	24	0.010	16.98	6.79	36.01	1.48	1029.91	1037.06
C.I. 1-2	M.H. 1-1	69.62	1029.96	1028.92	1.49	24	0.010	5.86	3.79	35.94	0.85	1030.82	1038.65
C.I. 1-3	C.I. 1-2	293.62	1044.65	1030.46	4.83	18	0.010	2.51	7.86	30.01	0.60	1045.25	1053.11
C.I. 1-4	C.I. 1-3	38.03	1046.10	1045.15	2.50	15	0.010	1.43	7.06	13.27	0.47	1046.57	1053.96
C.I. 2-1	M.H. 1-1	116.00	1030.33	1029.17	1.00	15	0.010	11.12	9.06	8.39	1.25	1032.46	1035.61
C.I. 2-2	C.I. 2-1	34.00	1031.17	1030.83	1.00	15	0.010	2.04	1.66	8.40	1.25	1032.99	1035.61
C.I. 9-1	C.I. 1-2	34.00	1030.80	1030.46	1.00	18	0.010	2.08	5.58	13.65	0.54	1031.34	1038.65
EX F.I. 4	EX F.I. 3	212.50	1030.50	1024.98	2.60	15	0.010	2.42	8.34	13.53	0.62	1031.12	1037.27
C.I. 3-1	EX F.I. 4	244.62	1040.79	1031.00	4.00	15	0.010	2.42	9.72	16.79	0.62	1041.41	1048.45
C.I. 3-2	C.I. 3-1	38.04	1041.85	1041.28	1.50	15	0.010	1.92	6.41	10.28	0.55	1042.40	1048.84
EX F.I. 2	EX F.I. 1	158.03	1027.56	1022.82	3.00	15	0.010	14.30	13.50	14.54	1.23	1028.79	1036.37
F.I. 6-1	EX F.I. 2	172.50	1030.04	1028.06	1.15	15	0.010	14.30	11.65	8.99	1.25	1034.32	1038.17
C.I. 6-2	F.I. 6-1	72.11	1031.26	1030.54	1.00	15	0.010	12.26	9.99	8.39	1.25	1036.70	1037.50
C.I. 6-3	C.I. 6-2	34.00	1032.10	1031.76	1.00	15	0.010	11.36	9.26	8.39	1.25	1037.95	1037.50
F.I. 6-4	C.I. 6-3	140.01	1034.00	1032.60	1.00	15	0.010	7.85	6.40	8.39	1.25	1039.70	1042.09
F.I. 6-5	F.I. 6-4	168.17	1038.70	1034.50	2.50	15	0.010	6.43	5.24	13.27	1.25	1040.95	1047.22
F.I. 6-6	F.I. 6-5	158.97	1045.56	1039.20	4.00	15	0.010	2.07	1.69	16.79	0.57	1046.13	1054.84
EX F.I. 5	EX C.I. 5	98.76	1031.25	1030.26	1.00	18	0.010	6.30	7.58	13.67	0.97	1032.22	1037.71
F.I. 7-1	EX F.I. 5	265.34	1037.06	1031.75	2.00	15	0.010	6.30	9.82	11.88	1.01	1038.07	1045.01
F.I. 7-2	F.I. 7-1	246.48	1045.57	1037.56	3.25	15	0.010	1.14	2.41	15.13	0.42	1045.99	1054.58
CONNECT TO EX. 2	EX C.I. 1	127.46	1030.64	1024.27	5.00	15	0.010	4.09	12.23	18.77	0.82	1031.46	1032.33
C.I. 4-1	CONNECT TO EX. 2	37.54	1032.52	1030.64	5.01	15	0.010	4.09	4.81	18.79	0.82	1033.34	1039.86
C.I. 4-2	C.I. 4-1	161.56	1034.64	1033.02	1.00	15	0.010	1.75	5.41	8.41	0.52	1035.17	1042.63
C.I. 5-1	C.I. 4-1	34.00	1033.36	1033.02	1.00	15	0.010	0.67	2.73	8.39	0.32	1033.68	1039.86
EX C.I. 4	EX C.I. 3	49.50	1029.25	1028.76	0.99	15	0.010	1.29	4.93	8.35	0.45	1029.70	1035.32
C.I. 8-1	EX C.I. 4	34.00	1030.09	1029.75	1.00	15	0.010	1.29	4.95	8.39	0.45	1030.54	1035.33

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
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

2020

DRAINAGE TABLES
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.08.21

SHEET
C128

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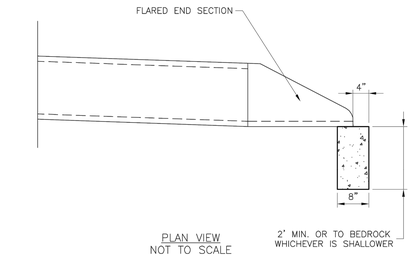
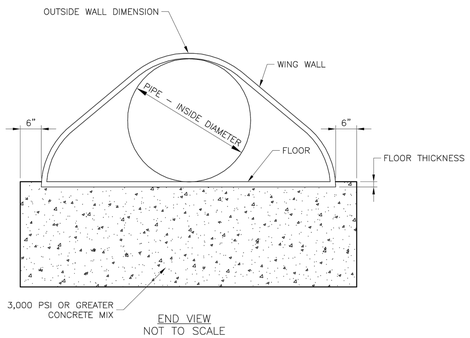


PLAN VIEW
NOT TO SCALE



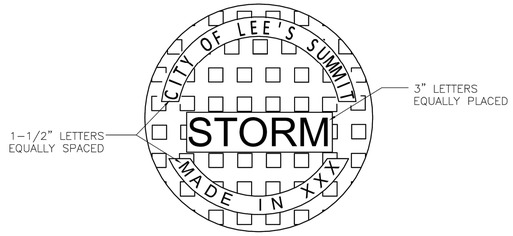
END VIEW
NOT TO SCALE

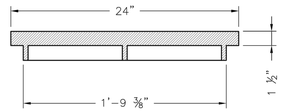
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

FLARED END SECTION SUPPORT DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-5





STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

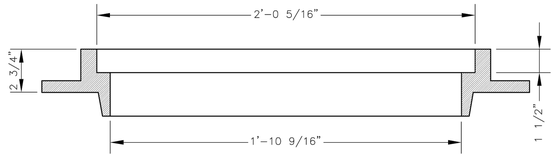
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

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

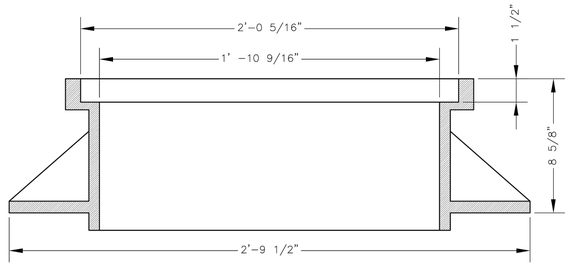
STORM MANHOLE COVER DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-6



SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB



STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

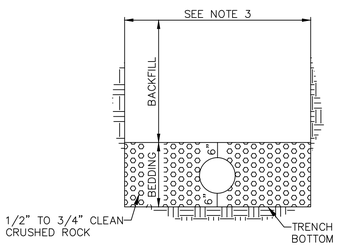
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

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

STORM MANHOLE FRAME DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-7



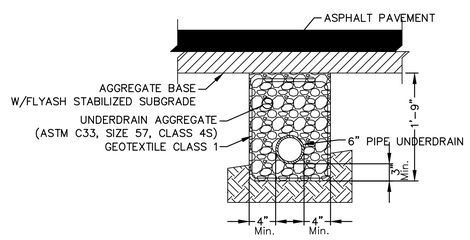
TYPICAL SECTION FOR PLASTIC PIPE
(IN ROCK OR SOIL)

UNDERGROUND PIPE INSTALLATION FOR STORM SEWER LINES
N.T.S.

1. BACKFILL SHALL BE JOB EXECAVATED 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.

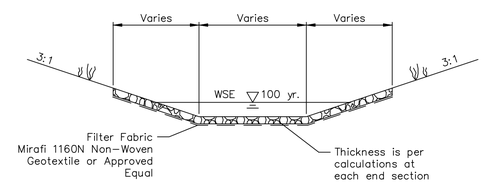
2. TRENCH BANKS MAY BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS, BUT ONLY IN AREAS WHERE THE INCREASED TRENCH WIDTH WILL NOT INTERFERE WITH SURFACE FEATURES. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.

3. MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.



PIPE UNDERDRAIN LATERAL
N.T.S.

NOTES:
1. 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.
2. All Underdrain Pipes shall be installed at a minimum slope of 1%.
3. Underdrain Pipe shall be installed with the perforations placed down.
4. Blanket Underdrain Aggregate, Pipe Underdrain Aggregate, Pipe Underdrain, Edge Underdrain and Outlet Pipe shall conform to City of Lee's Summit Specifications.
5. Overlap geotextile at top of trench a minimum of 12".



NOTE: DIMENSIONS ARE PER CALCULATIONS AT EACH END SECTION

RIPRAP DETAIL
N.T.S.

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

DETAILS
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
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project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C129

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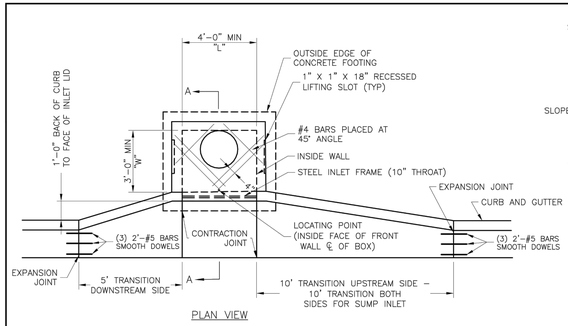
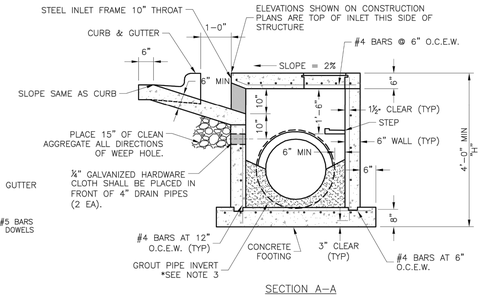
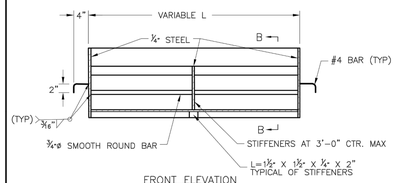


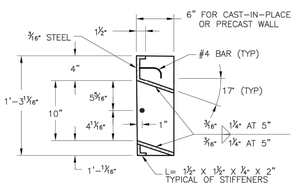
PLAN VIEW



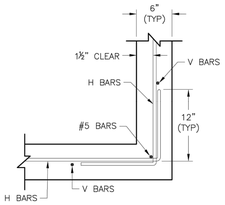
SECTION A–A



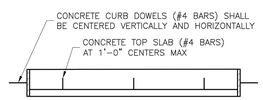
FRONT ELEVATION



SECTION B–B



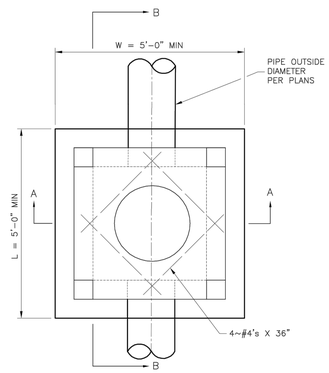
WALL CORNER DETAIL



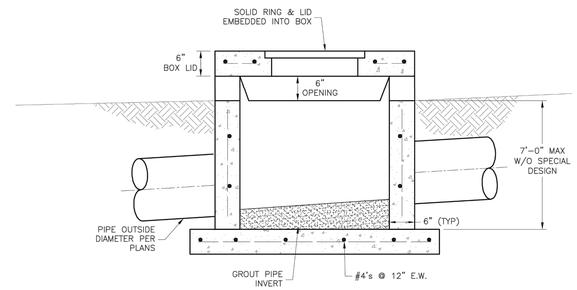
PLAN VIEW

STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY) OR EQUAL.

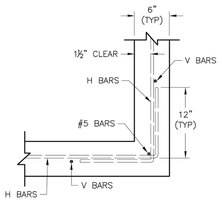
GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.



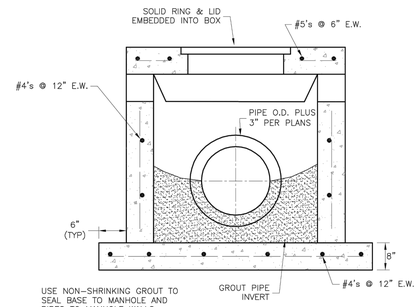
PLAN VIEW



SECTION B–B

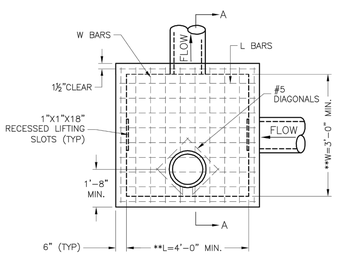


WALL CORNER DETAIL

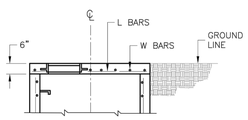


SECTION A–A

GENERAL NOTES:
1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 3' ON BLANK WALL IF POSSIBLE.
5. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE.
6. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
7. SHOW FIELD INLET ORIENTATION ON PLANS PLUS NUMBER AND SIDE OF OPENINGS.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.



PLAN

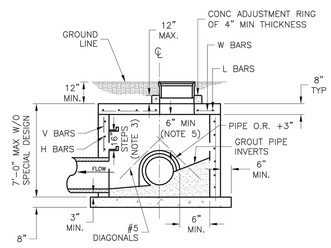


SLAB TOP ALTERNATE FOR JUNCTION BOX (SHALLOW)

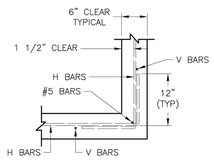
** INCREASE IN MULTIPLES OF 6" (7'–0") MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

BARS	BAR SIZE	SPACING (IN.)
H	4	12
V	4	12
L	5	6
W	5	6

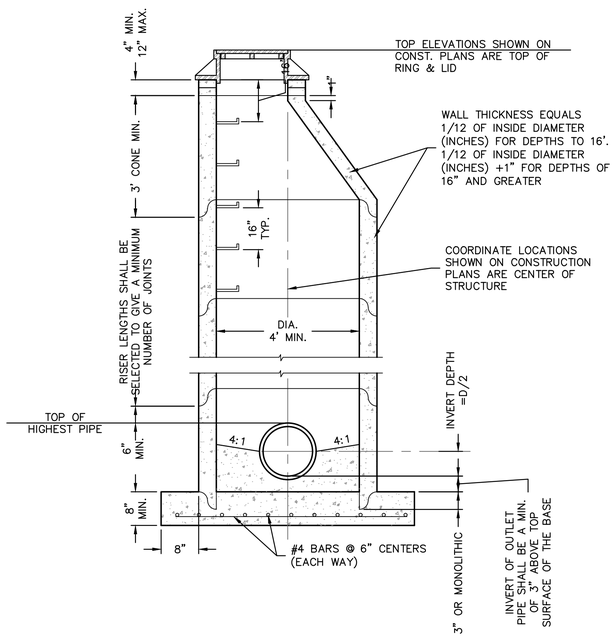


SECTION A–A



WALL CORNER DETAIL

GENERAL NOTES:
1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.



STORM MANHOLE NOTES

1. ALL MANHOLES ARE TO BE PRECAST CONCRETE AND OF ECCENTRIC CONE TYPE UNLESS OTHERWISE SPECIFIED.
2. MANHOLE TOP ADJUSTMENTS SHALL BE ACCOMPLISHED BY THE USE OF CONCRETE ADJUSTMENT RINGS.
3. TOP OF MANHOLE CASTING SHALL BE SET FLUSH AND ON SAME SLOPE AS FINISHED SURFACE OR AS DIRECTED BY THE ENGINEER.
4. REINFORCEMENT IN ALL SECTIONS SHALL EQUAL OR EXCEED A.S.T.M. C–478 SPECIFICATIONS.
5. THE ENGINEER SHALL DESIGNATE MODIFICATIONS FOR MANHOLES WITH SPECIAL DESIGNS.
6. THE INSIDE DIAMETER OF THE MANHOLE SHALL BE 4'–0" FOR PIPE DIAMETERS FROM 12" THRU 24", 5'–0" FOR PIPE DIAMETERS FROM 27" THRU 36", AND 6'–0" FOR PIPE DIAMETERS 42" THRU 48".
7. CLEARANCE TOLERANCE OF PIPE OPENINGS: THE MAXIMUM ALLOWABLE PIPE OPENING ON A HORIZONTAL AXIS SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 12". THE MAXIMUM ALLOWABLE PIPE OPENING ON VERTICAL AXIS SHALL BE THE OUTSIDE DIAMETER PLUS 8". THE MAXIMUM CLEARANCE BETWEEN THE OUTSIDE SURFACE OF AN INSTALLED PIPE AND THE CONCRETE OF THE MANHOLE SHALL BE 2".
8. INSTALLATION OF PIPE OPENINGS: ALL REQUIRED PIPE OPENINGS SHALL BE PLANT CAST IN MANHOLE UNITS. FIELD ALTERATIONS OF OPENINGS WILL BE PERMITTED PROVIDED WALLS ARE SCORED WITH A MASONRY SAW TO A DEPTH SUFFICIENT TO SEVER REINFOCING STEEL. A CHIPPING HAMMER MAY THEN BE USED TO REMOVE THE CONCRETE. MINIMUM DISTANCE BETWEEN ANY TWO ADJACENT PIPES SHALL BE 2".
9. NO DIRECT PAYMENT FOR SHAPING FLOOR OR CONNECTING PIPES AS SHOWN ON PLANS.
10. RING AND COVER TO BE NEENAH R–1736, CLAY & BAILEY #2008, DEETER # 1316, OR APPROVED EQUAL. (CASTING MAY VARY BY MUNICIPALITY, REFER TO PLANS & CONTRACT DOCUMENTS.)

STANDARD PRECAST STORM SEWER MANHOLE
NOT TO SCALE

olsson
Olsson - Civil Engineering
Missouri Corporate Authority #: 001592
1301 Burlington Street
North Kansas City, MO 64116
TEL 816.361.1177
www.olsson.com

STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

DETAILS (CONT'D)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C130

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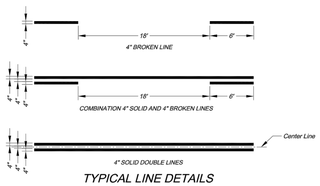
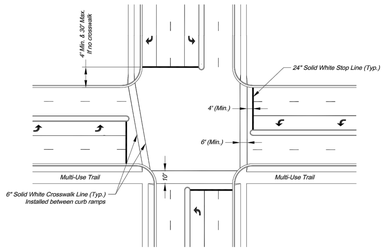
DATE: Oct 01, 2020 8:47pm XREFS: C_PTBLK_C192339



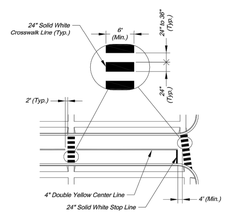
TYPICAL LINE DETAILS

NOTES:
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

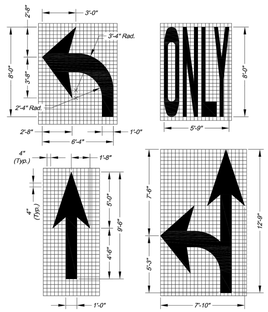


TYPICAL INTERSECTION MARKINGS

NOTES:
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.

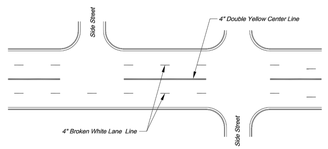


TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

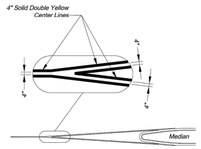


ARROW AND SYMBOL DETAILS

NOTES:
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.



TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY



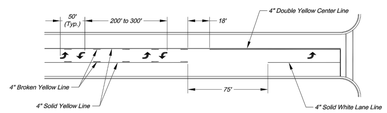
TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:
1. All pavement markings shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. All words and symbols shall conform to the latest edition of Standard Alphabets for Highway Signs and Pavement Markings printed by the U.S. Department of Transportation, Federal Highway Administration.
3. Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.
4. All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that misleads traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.
5. The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.
6. Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.
7. Edge lines shall be marked on all non-curbed streets.

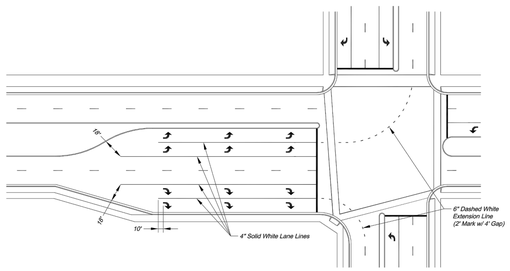
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1829

Project:
ROADWAY MARKING DETAILS
Sheet Name: STANDARD DRAWING PM-1

Drawn By: AG
Checked By: JR
Date: 09/09/2009
Project#
1 OF 2
1

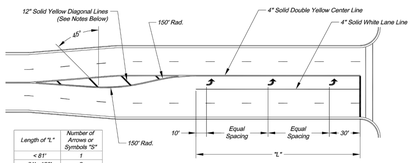


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



TYPICAL DUAL TURN LANE MARKINGS

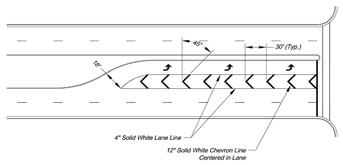
NOTE:
1. Dashed extension lines shall not extend through crosswalks.



Length of "L"	Number of Arrows or Symbols "S"
<81'	1
81'- 120'	2
121'- 200'	3
201'- 280'	4
281'- 360'	5
361'- 440'	6

TYPICAL TURN LANE MARKINGS

NOTES:
1. Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 250'.
2. Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.
3. Equal Spacing is calculated as (L - 40) / (S - 1).
4. When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.

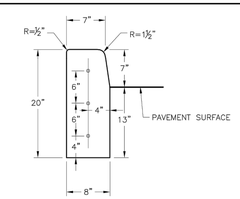


TYPICAL STRIPED OUT TURN LANE MARKINGS

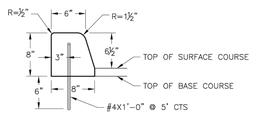
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1829

Project:
INTERSECTION MARKING DETAILS
Sheet Name: STANDARD DRAWING PM-2

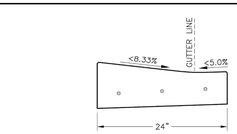
Drawn By: AG
Checked By: JR
Date: 09/09/2009
Project#
2 OF 2
2



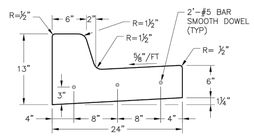
STRAIGHT CURB
(TYPE C-1)



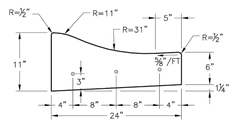
DOWELLED CURB
(TYPE DC)



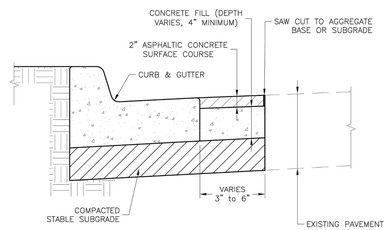
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



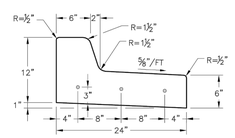
STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



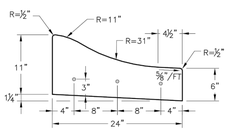
ROLL BACK CURB & GUTTER
(TYPE CG-2)



CURB REPLACEMENT DETAIL



STRAIGHT BACK DRY CURB & GUTTER
(TYPE CG-1 DRY)



ROLL BACK DRY CURB & GUTTER
(TYPE CG-2 DRY)

GENERAL NOTES

1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

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

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: CURB & GUTTER DETAIL

Project:
Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #
GEN-4

olsson

Olsson - Civil Engineering
Missouri Corporation Authority #: 001592
1301 Burlington Street
North Kansas City, MO 64116
TEL 816.361.1177
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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
10/1/20
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

DETAILS (CONTD)
STREET & STORM SEWER PLANS

OSAGE
SECOND PLAT

2020

drawn by:	D.F. / M.O. / A.A.
checked by:	C.G.W.
designed by:	A.A.
QA/QC by:	J.E.S.
project no.:	C19-2339
drawing no.:	
date:	2020.08.21

SHEET
C131

DWG: F:\2019\2001-2500\019-2339-c\40-design\AutoCAD\final plans\Sheets\GNCV\STREET & STORM\C_DET01_C192339.dwg USER: aabdigaliyev
DATE: Oct 01, 2020 8:47pm XREFS: C_PTBLK_C192339