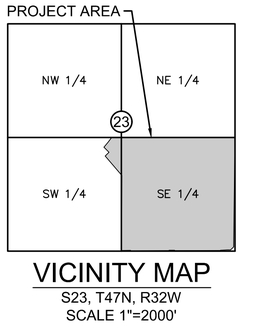
HOOK FARMS
FIRST PLAT
STREET AND STORM SEWER PLANS

SECTION 23, TOWNSHIP 47 N, RANGE 32 W
IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



VICINITY MAP
S23, T47N, R32W
SCALE 1"=2000'

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PROJECT TEAM & UTILITY CONTACT LIST
OWNER / DEVELOPER HUNT MIDWEST REAL ESTATE DEVELOPMENT, INC. 8300 NE UNDERGROUND DRIVE KANSAS CITY, MO 64161 CONTACT: AARON SCHMIDT PHONE: 816.459.4285 EMAIL: ASCHMIDT@HUNTMIDWEST.COM
ENGINEER OLSSON 1301 BURLINGTON STREET, SUITE 100 NORTH KANSAS CITY, MISSOURI 64116 CONTACT: JULIE E. SELLERS, P.E. PHONE: 816.361.1177
SURVEYOR OLSSON 1301 BURLINGTON STREET, SUITE 100 NORTH KANSAS CITY, MISSOURI 64116 CONTACT: JASON ROUDEBUSH, P.L.S. PHONE: 816.361.1177

☐ NOT FOR CONSTRUCTION

☒ REVIEWED FOR CONSTRUCTION

CALL BEFORE YOU DIG 1-800-DIG-RITE MISSOURI ONE CALL SYSTEM

PROPERTY DESCRIPTION:

A tract of land in the Southeast Quarter of Section 23, 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 Roudebush, P.L.S. 2002014092 as follows: Commencing at the Southeast corner of said Southeast Quarter; thence North 02°45'34" East, on the East line of said Southeast Quarter, 2,635.08 feet to the Northeast corner of said Southeast Quarter; thence North 87°45'24" West, on the North line of said Southeast Quarter, 50.00 feet to the Southeast corner of Lot 3, EAGLE CREEK–FIRST PLAT, a subdivision in said Lee's Summit recorded as Instrument Number 110409 in Book I65 at Page 01 in Jackson County Recorder of Deeds Office, also being the Northwest corner of SW Pryor Road as described in the Right of Way Deed recorded as Instrument Number 2005I0087407 in said Jackson County Recorder of Deeds Office, also being Point of Beginning of the tract of land to be herein described; thence South 02°45'34" West, on the existing Westerly right–of–way line of said SW Pryor Road of said Right of Way Deed, 1,220.74 feet; thence leaving said existing Westerly right–of–way line, North 87°00'50" West, 245.56 feet; thence North 02°59'10" East, 25.00 feet; thence North 87°00'50" West, 438.50 feet; thence North 60°49'13" West, 252.48 feet; thence North 67°11'53" West, 74.21 feet; thence North 27°18'12" East, 138.17 feet; thence Westerly, on a curve to the left, having an initial tangent bearing of North 62°41'48" West with a radius of 275.00 feet, a central angle of 11°57'16" and an arc distance of 57.38 feet; thence North 15°20'56" East, 50.00 feet; thence North 29°10'47" East, 375.17 feet; thence North 07°19'52" East, 64.17 feet; thence South 87°00'50" East, 126.12 feet; thence North 02°59'10" East, 116.00 feet; thence North 42°00'50" West, 19.80 feet; thence North 02°59'10" East, 50.00 feet; thence South 87°00'50" East, 36.00 feet; thence North 02°59'10" East, 277.38 feet to a point on the South line of said EAGLE CREEK–FIRST PLAT and said North line of said Southeast Quarter; thence South 87°45'24" East, on said South and said North line, 643.83 feet to the Point of Beginning. Containing 953,270 square feet or 21.88 acres, more or less.

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/19/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25, 26 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

TITLE SHEET
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C101

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_TTL01_0194061.dwg USER: nheiser
DATE: Mar 30, 2021 1:44pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061

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. ARCHITECTURAL AND STRUCTURAL ELEMENTS SHOWN IN THESE PLANS ARE FOR REFERENCE ONLY. CONTRACTORS AND SURVEYORS SHALL REFERENCE THEIR RESPECTIVE PLANS FOR DESIGN INFORMATION.
2. THE CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AS PROVIDED BY THE GEOTECHNICAL ENGINEER INCLUDING ALL CURRENT ADDENDUMS. THE STANDARDS AND SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI SHALL ALSO APPLY AND TAKE PRECEDENCE WHEN STRICTER THAN THE GEOTECHNICAL REPORT OR WHEN NO GEOTECHNICAL REPORT IS GIVEN.
3. 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 MISSOURI DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MISSOURI DEPARTMENT OF TRANSPORTATION.
   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. IN ADDITION TO THE CONDITIONS OF THE GEOTECHNICAL REPORT AND AS A MINIMUM THE CONTRACTOR SHALL PERFORM THE GRADING AS FOLLOWS:
   A. THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY BUILDING AND PAVING. STRIPPING EXISTING TOPSOIL AND ORGANIC MATTER SHALL BE TO A MINIMUM DEPTH OF 6 INCHES. TOPSOIL FOR REPLACEMENT ON SLOPES MAY BE STOCKPILED ON SITE IN AREAS DESIGNATED BY THE OWNER. CONTRACTOR SHALL REMOVE EXCESS STRIPPINGS AND EXCESS EXCAVATION WITHIN 30 DAYS OF COMPLETION OF GRADING OPERATIONS.
   B. AREAS TO RECEIVE FILL AND AREAS CUT TO SUBGRADE LEVEL SHALL BE SCARIFIED AND THE TOP 8-INCH DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE SUBGRADE SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS. ANY UNSUITABLE AREAS SHALL BE UNDERCUT AND REPLACED WITH SUITABLE MATERIAL BEFORE ANY FILL MATERIAL CAN BE APPLIED.
   C. FILL SHALL BE PLACED IN MAXIMUM OF 8 INCH LIFTS.
   D. TOPSOIL SHALL BE PLACED TO A MINIMUM DEPTH OF 6 INCHES OVER ALL AREAS DISTURBED BY THE WORK. LARGE STONES, STICKS AND LUMPS SHALL BE REMOVED OR BROKEN UP, AND THE TOPSOIL SHALL BE LEVELED AND RAKED. ALL DISTURBED AREAS SHALL BE LANDSCAPED PER LANDSCAPE PLANS OR SHALL BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED.
   E. CONTRACTOR SHALL PROVIDE COMPACTION TEST RESULTS AS REQUIRED.
4. THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.
5. 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.
6. 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 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. ALL SANITARY SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
   C. ALL SITE FENCING AND RAILING INCLUDING ANY GATES.
   D. ALL LANDSCAPE AND RETAINING WALLS.
   E. ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN "APPROVED EQUAL" ALTERNATIVE.

STORM SEWER PLAN NOTES

1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH LEE'S SUMMIT, MISSOURI.
2. ALL PIPE LENGTHS AND ELEVATIONS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
3. 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.
4. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF STORM SEWER.
5. 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.
6. 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.
7. PIPE PENETRATIONS SHALL BE GROUTED TO ENSURE WATERTIGHT SEALS.

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
	STREET			
1	EXCAVATION	C.Y.	5,854	
2	EMBANKMENT	C.Y.	15,100	
3	SUBGRADE STABILIZATION (6" FLYASH TREATMENT)	S.Y.	11,866	
4	6" ASPHALT PAVEMENT	S.Y.	9,612	
5	CONCRETE CURB & GUTTER (CG-2)	L.F.	6,335	
6	CONCRETE CURB & GUTTER (CG-1 DRY)	L.F.	245	
7	5' CONCRETE SIDEWALK	L.F.	143	
8	ADA RAMP	EA.	11	
9	STOP SIGNS	EA.	5	
10	STREET NAME SIGNS	EA.	10	
11	TYPE IV OBJECT MARKERS	EA.	2	
	STORM			
12	STD. CURB INLET (5'x3' INSIDE)	EA.	19	
13	STD. CURB INLET (6'x3' INSIDE)	EA.	3	
14	STD. FIELD INLET (4'x4' INSIDE)	EA.	6	
15	STD. MANHOLE (5' DIA. INSIDE)	EA.	1	
16	WATER QUALITY BASIN OUTLET STRUCTURE	EA.	1	
17	6" PVC	L.F.	175.99	
18	15" HDPE	L.F.	419.42	
19	18" HDPE	L.F.	1552.87	
20	24" HDPE	L.F.	436.49	
21	30" HDPE	L.F.	284.64	
22	36" HDPE	L.F.	94.79	
23	18" FLARED END SECTION	L.F.	2	
24	24" FLARED END SECTION	L.F.	1	
25	30" FLARED END SECTION	EA.	1	
26	36" FLARED END SECTION	EA.	1	
27	15" HDPE PLUG	EA.	1	
28	RIPRAP	S.Y.	55.1	

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

GENERAL NOTES
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C102

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_TTL01_0194061.dwg
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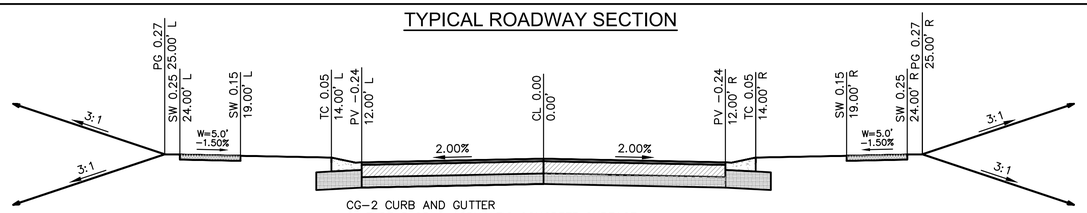
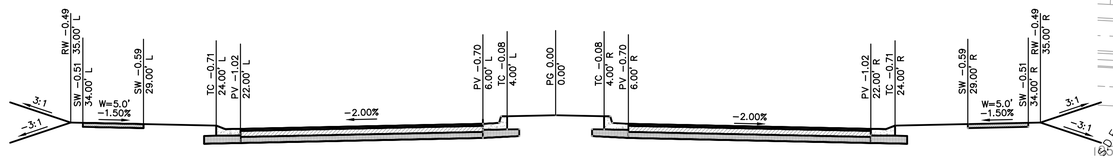
USER: nheiser

TYPICAL ROADWAY SECTION



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



RESIDENTIAL LOCAL STREET - ENTRANCE (48' BK-BK)
SW 26TH TERRACE

CG-2 CURB & GUTTER
CG-1 DRY CURB & GUTTER AT MEDIAN
2" TYPE 6 ASPHALTIC CONCRETE SURFACE
4" TYPE 5 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
6" FLYASH STABILIZED SUBGRADE

N

0' 30' 60' 120'
SCALE IN FEET

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REVISIONS

GENERAL LAYOUT
STREET AND STORM SEWER PLANS

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LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
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SHEET
C103

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_GEN01_0194061.dwg USER: nheiser
DATE: Mar 12, 2021 10:04am XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PUTIL_0194061

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.

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

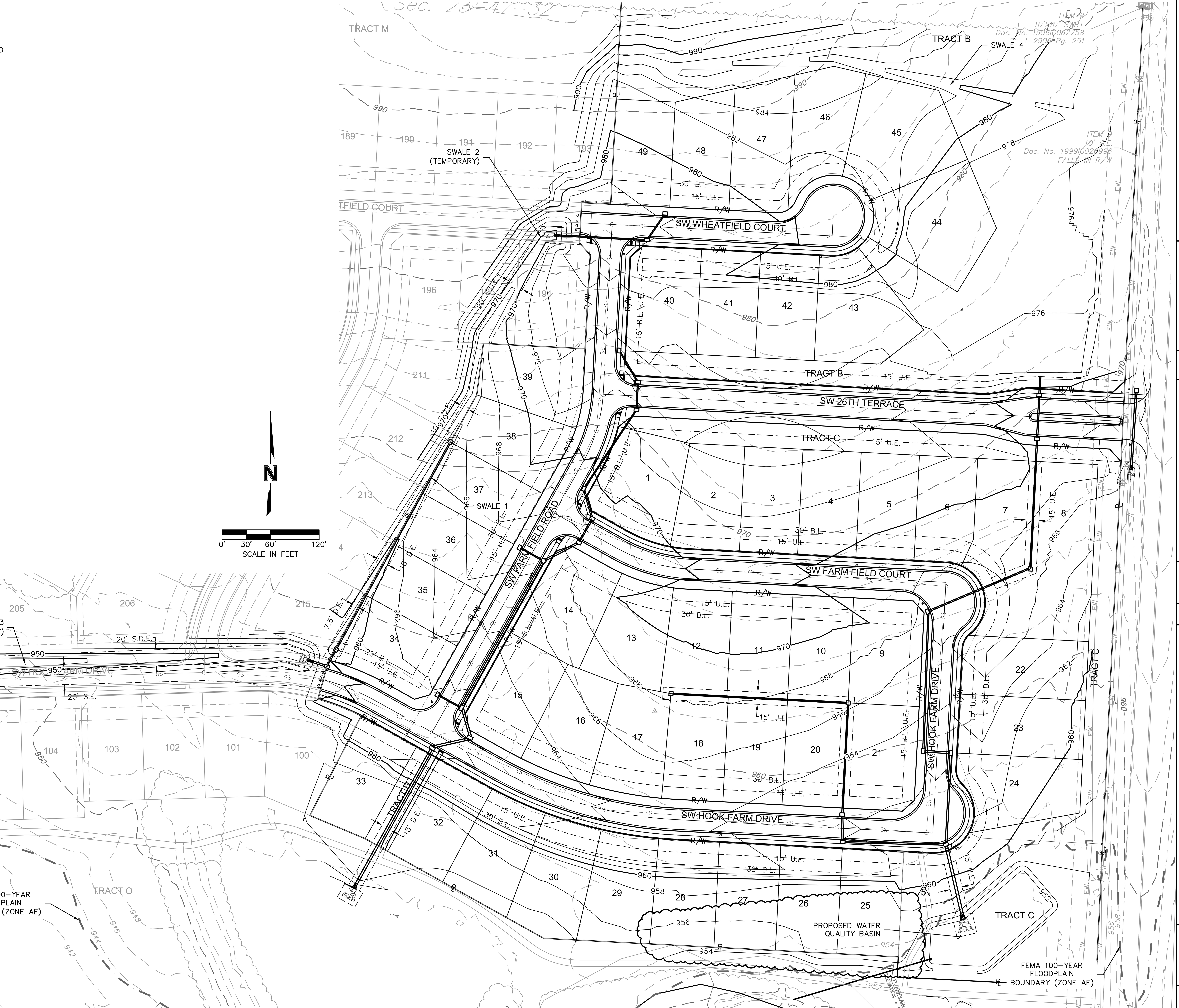
EARTHWORK QUANTITIES

LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	5,710	15,087
SITE	37,854	60,411
TOTAL	43,564	75,498

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.

3. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION THE IMPORTED STOCKPILE (APPROX. 20,000 CY) FROM KESSLER RIDGE 2ND PLAT.



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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/01/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

2020

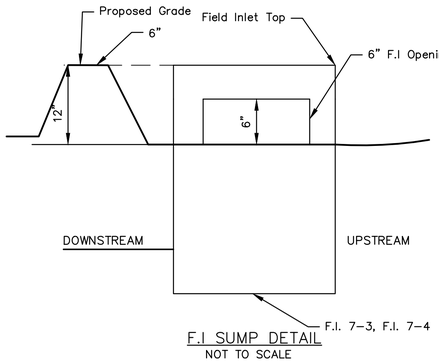
GRADING PLAN
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

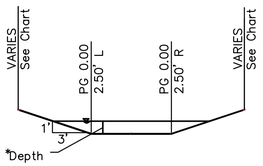
drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C104

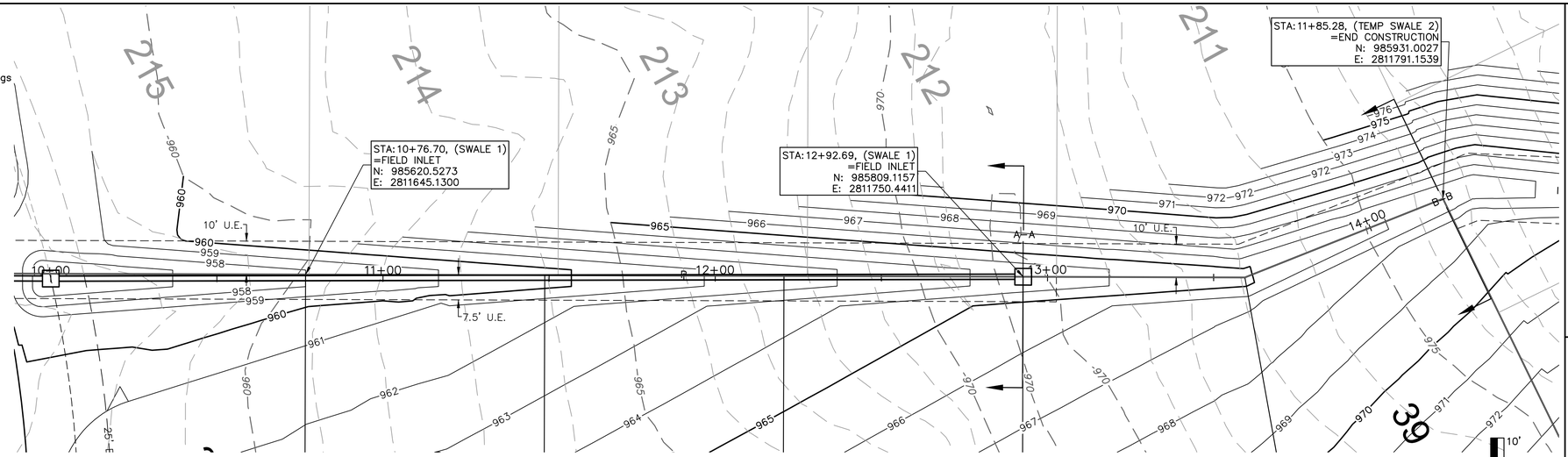


F.I SUMP DETAIL
NOT TO SCALE

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



Swale Typical Section
*See table for swale depth
NTS

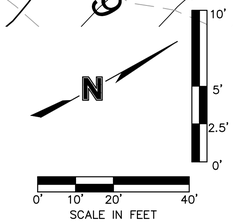


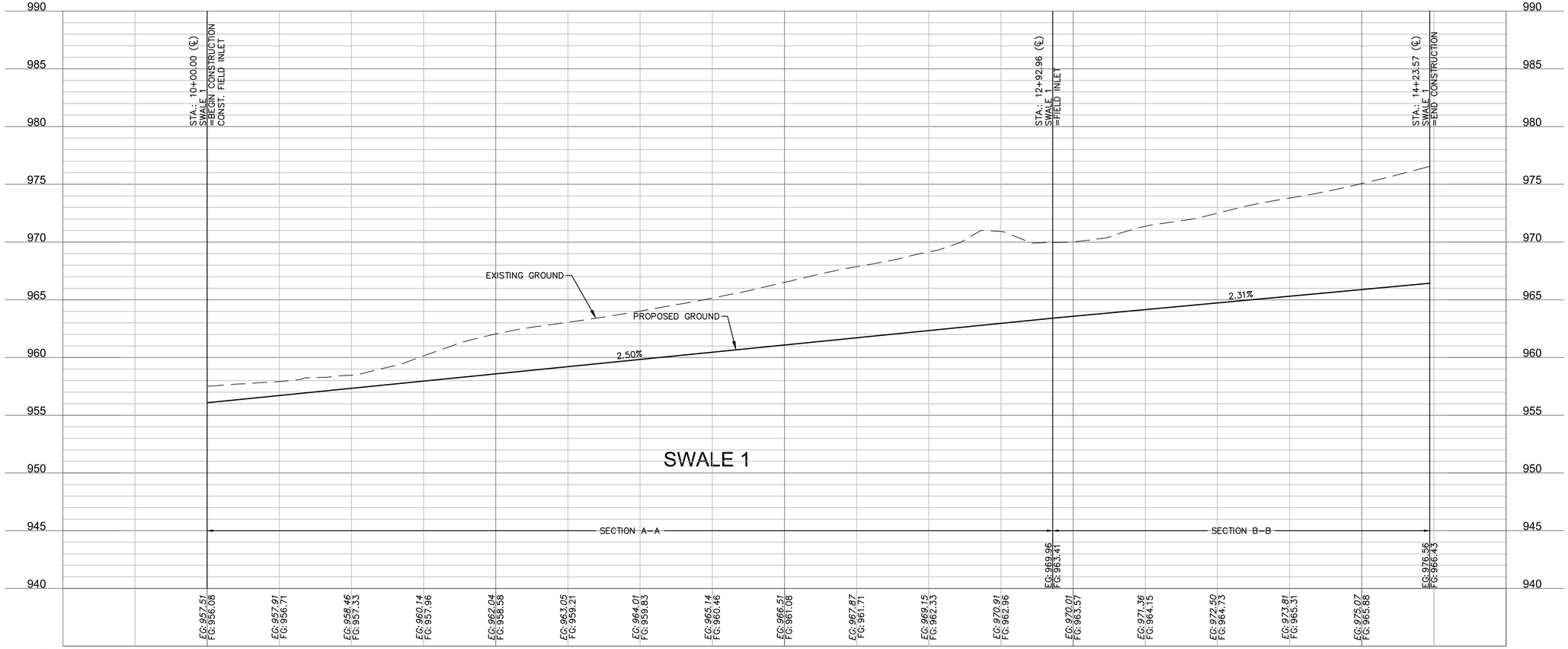
SWALE GRADING NOTES:

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 (%)	Min. 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	2.50%	1.41	3:1	3:1	5	9.28	0.41	2.55	3.63	7.59	7.46	0.62	0.525
B-B	0.03	2.50%	1.34	3:1	3:1	5	6.84	0.34	2.05	3.34	7.15	7.04	0.51	0.447





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JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

SWALE 1 PLAN & PROFILE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C105

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_SWL01_0194061.dwg USER: nheiser
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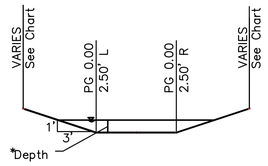
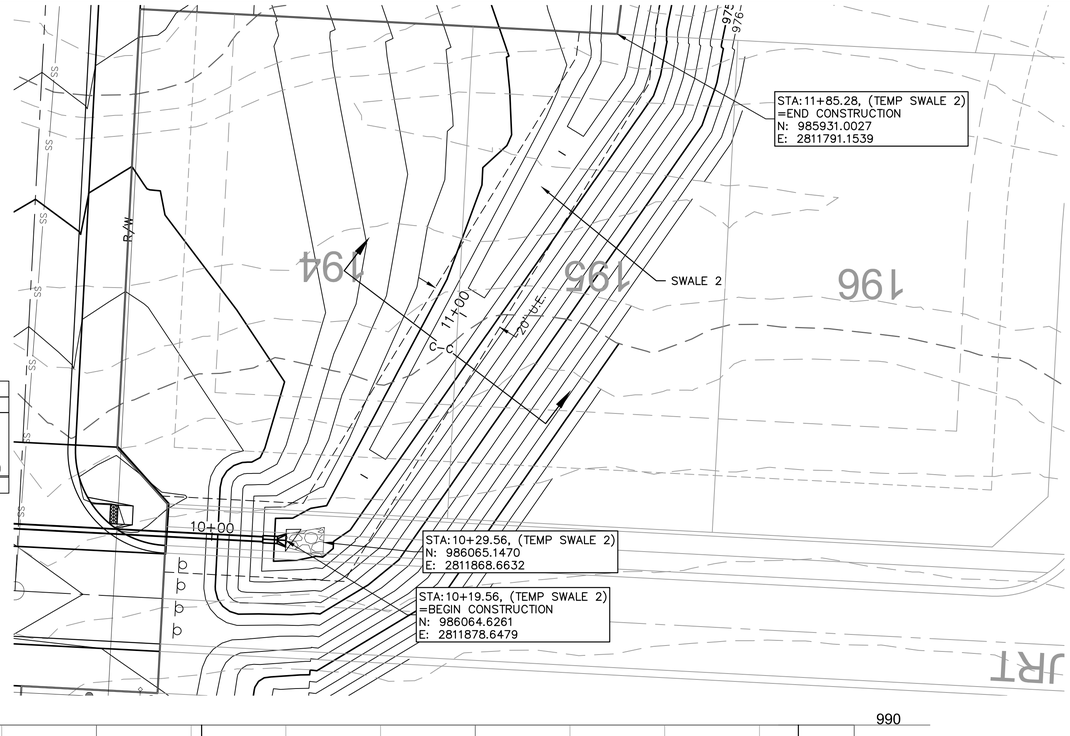
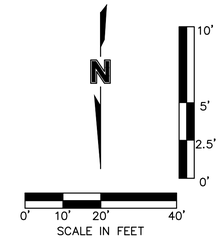


Swale Typical Section
*See table for swale depth
NTS

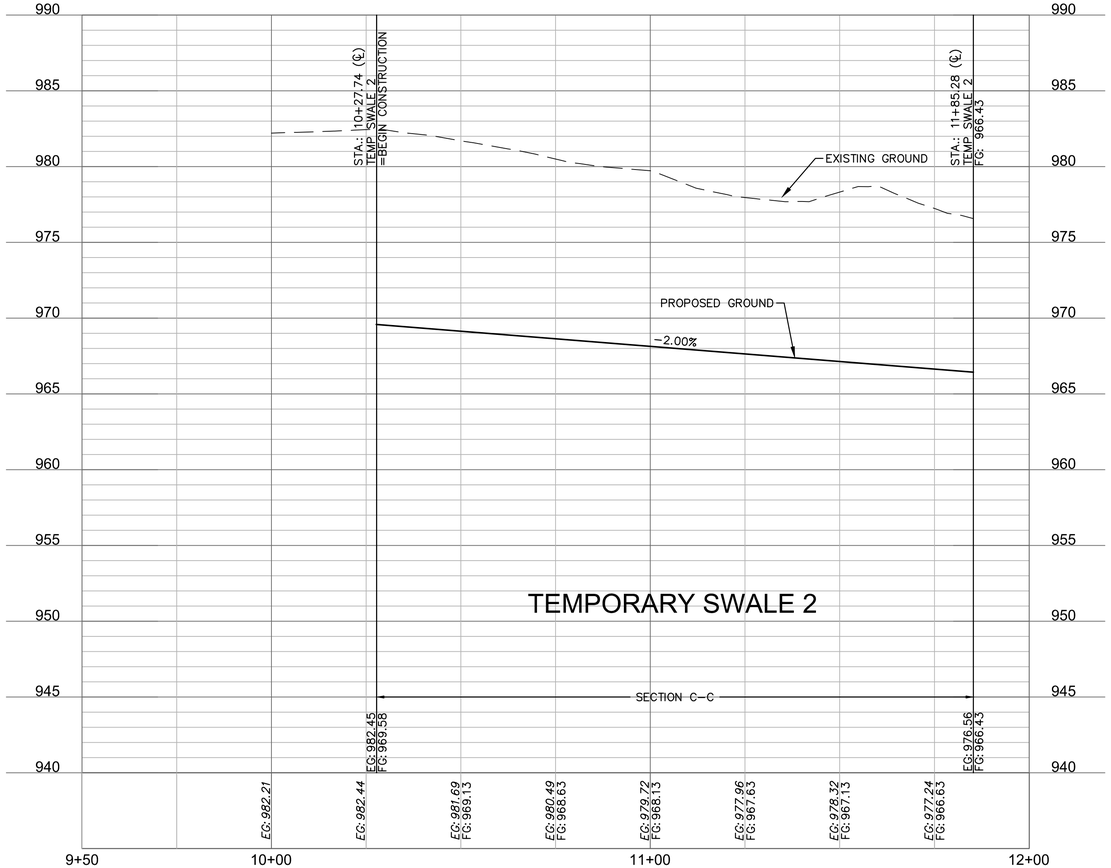
SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)														
SECTION DATA								RESULTS						
SECTION	Mannings Coefficient	Channel Slope (%)	Min. Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft^2)	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft^2)
C-C	0.03	2.00%	1.23	3:1	3:1	5	19.60	0.23	1.31	2.28	6.45	6.38	0.31	0.253





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.



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REVISIONS

SWALE 2 PLAN & PROFILE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C106

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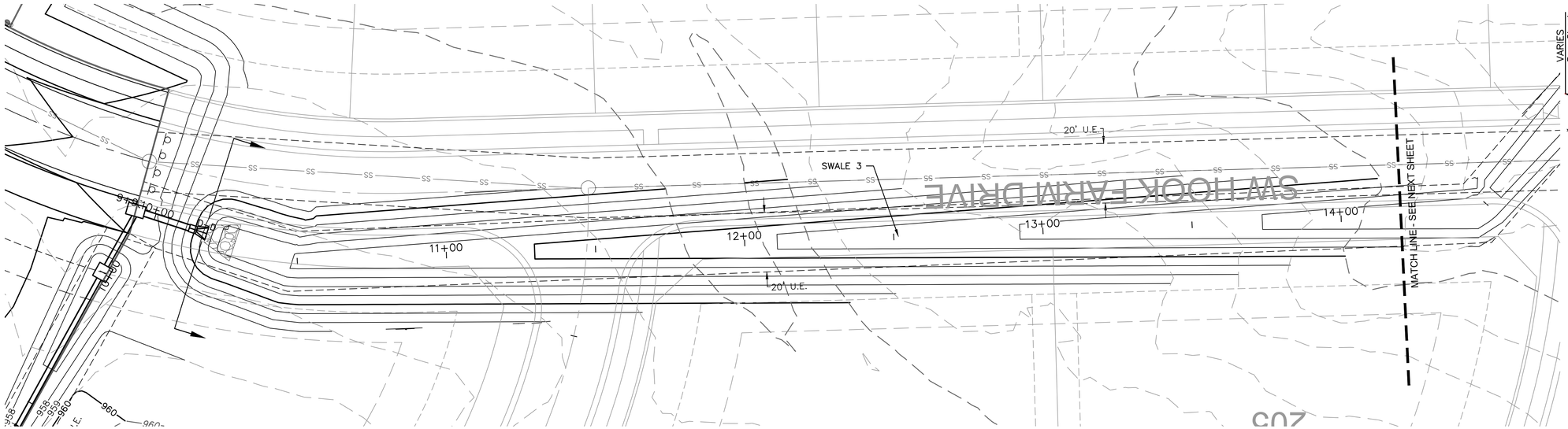
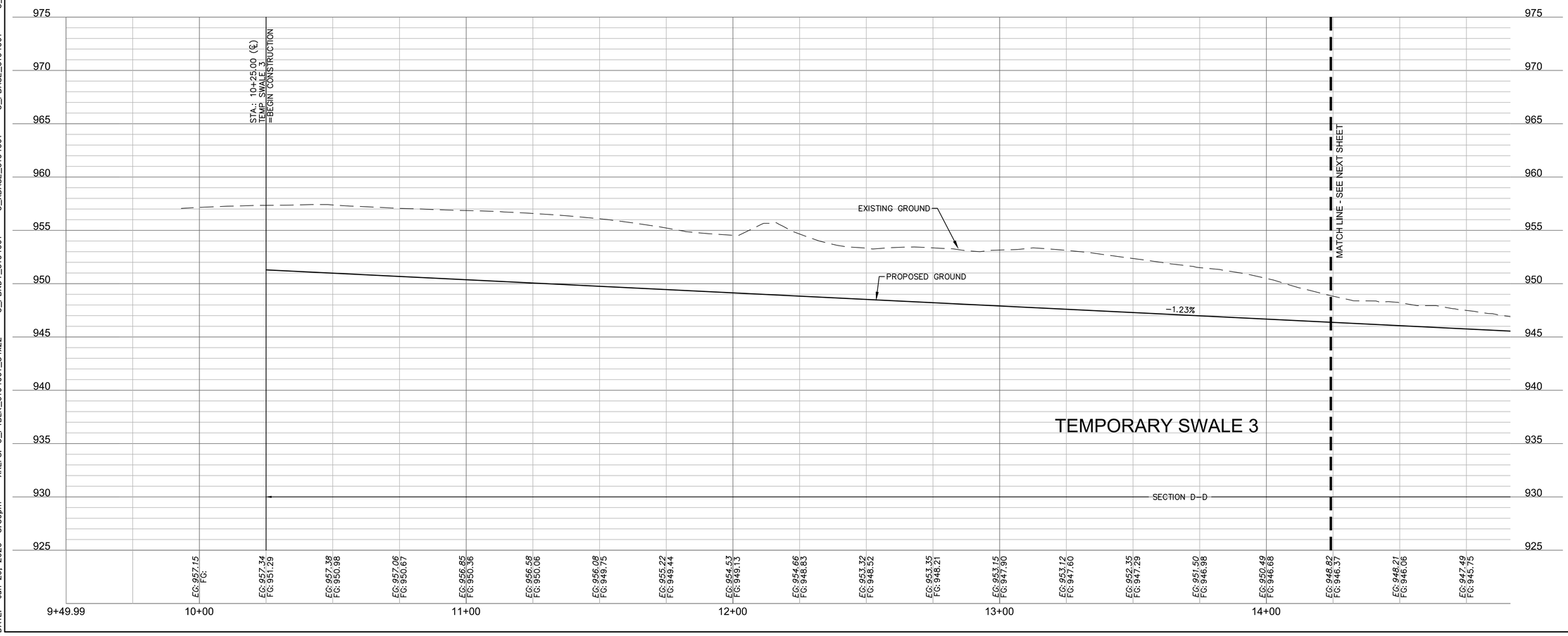


SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)														
SECTION DATA								RESULTS						
SECTION	Mannings Coefficient	Channel Slope (%)	Min. Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft^2)	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft^3)
D-D	0.03	1.23%	2.03	3:1	3:1	5	36.35	1.03	8.33	4.36	11.51	11.18	1.33	0.556

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.



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2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

SWALE 3 PLAN & PROFILE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C107

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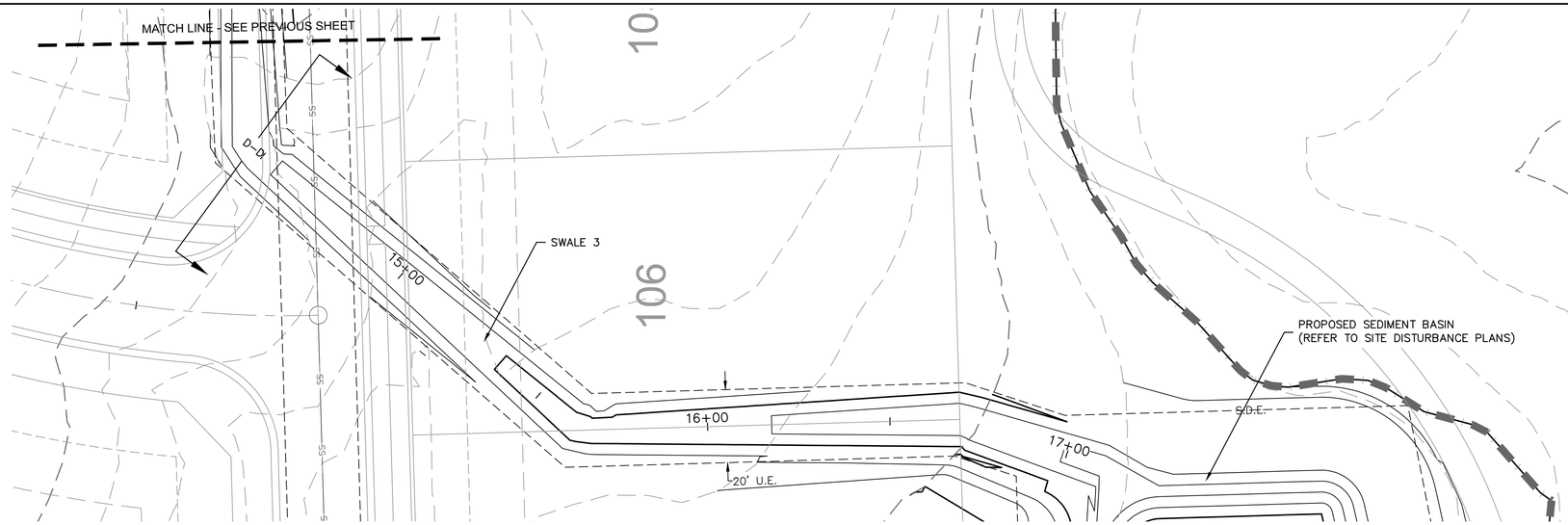
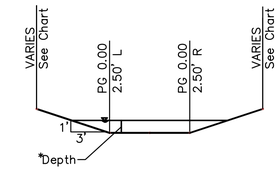
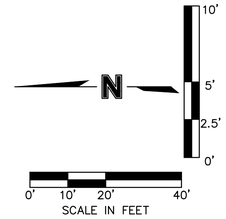




Swale Typical Section
*See table for swale depth
NTS



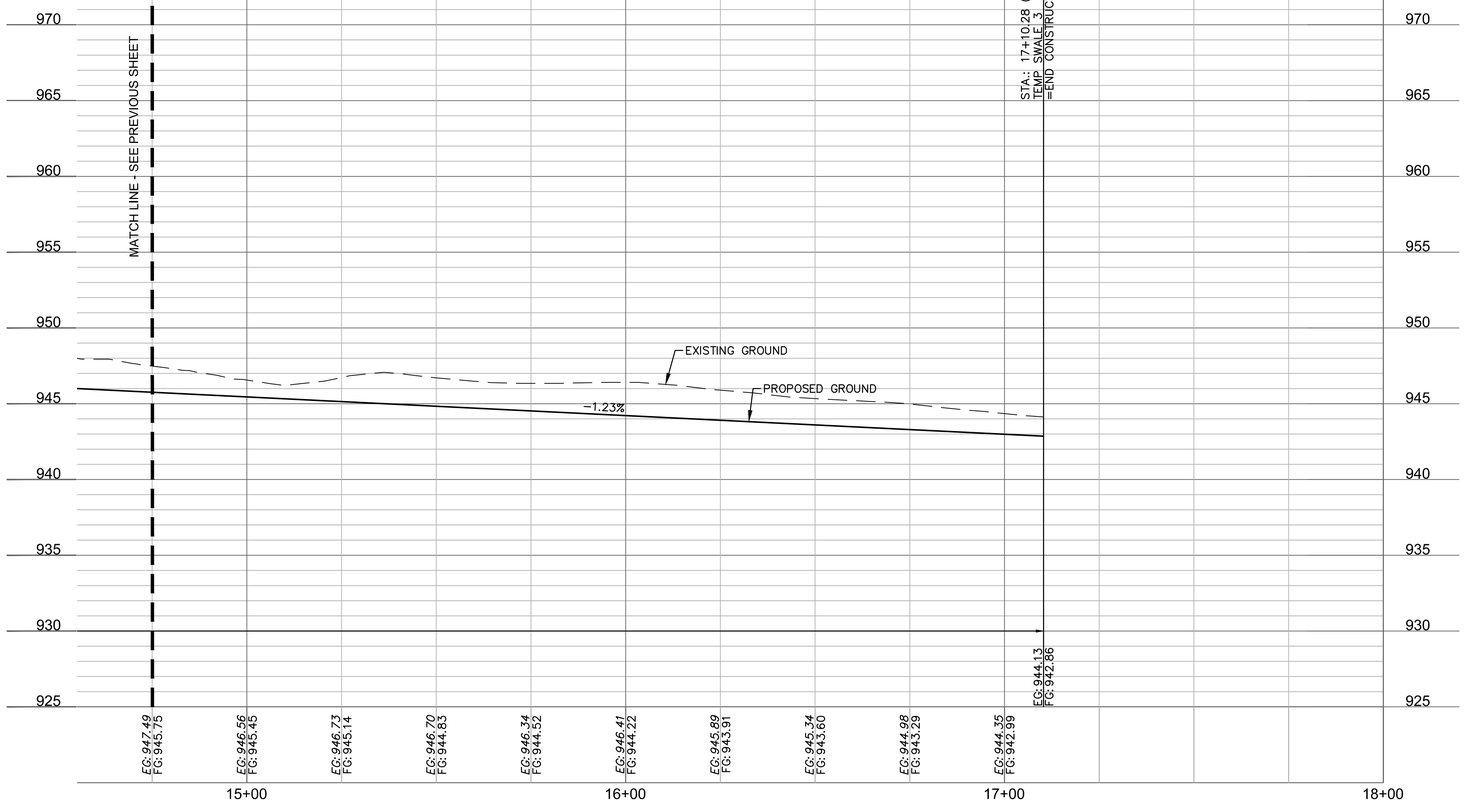
SCALE IN FEET

SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)

SECTION DATA								RESULTS						
SECTION	Mannings Coefficient	Channel Slope (%)	Min. 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)
D-D	0.03	1.23%	2.03	3:1	3:1	5	36.35	1.03	8.33	4.36	11.51	11.18	1.33	0.556

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.



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2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

SWALE 3 PLAN & PROFILE CONT'D
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C108

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SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)														
SECTION DATA								RESULTS						
SECTION	Mannings Coefficient	Channel Slope (%)	Min. 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)
E-E	0.03	2.10%	1.39	3:1	3:1	5	7.99	0.39	2.41	3.32	7.47	7.34	0.56	0.422

SWALE GRADING NOTES:

1. CONTRACTOR SHALL CONSTRUCT SWALES WITH MINIMUM SLOPE, WIDTH AND DEPTH AS SHOWN IN THE SWALE DESIGN TABLES.
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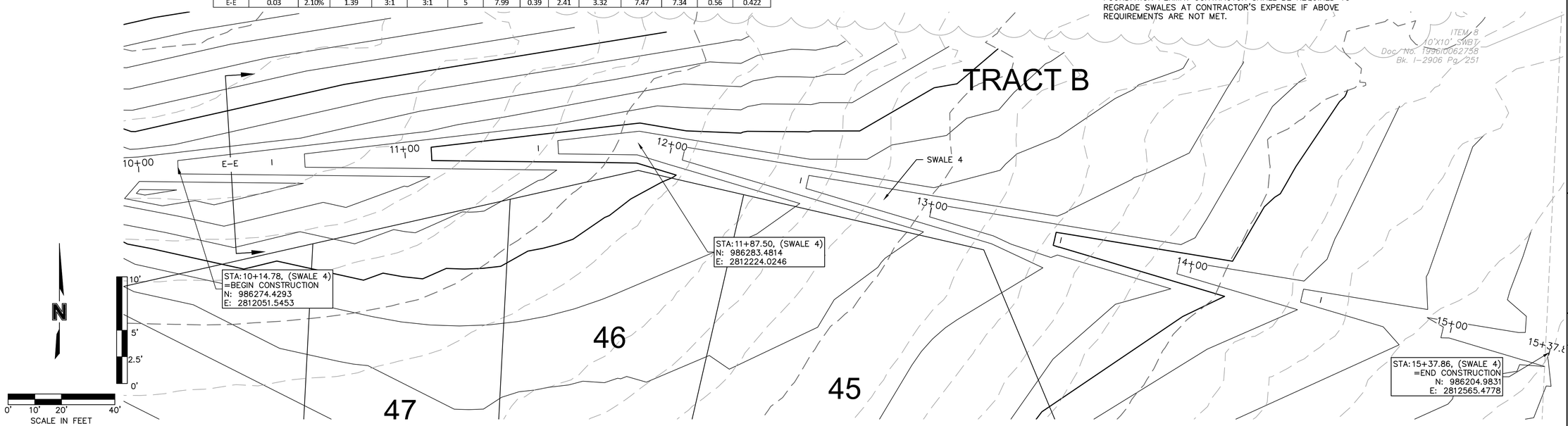

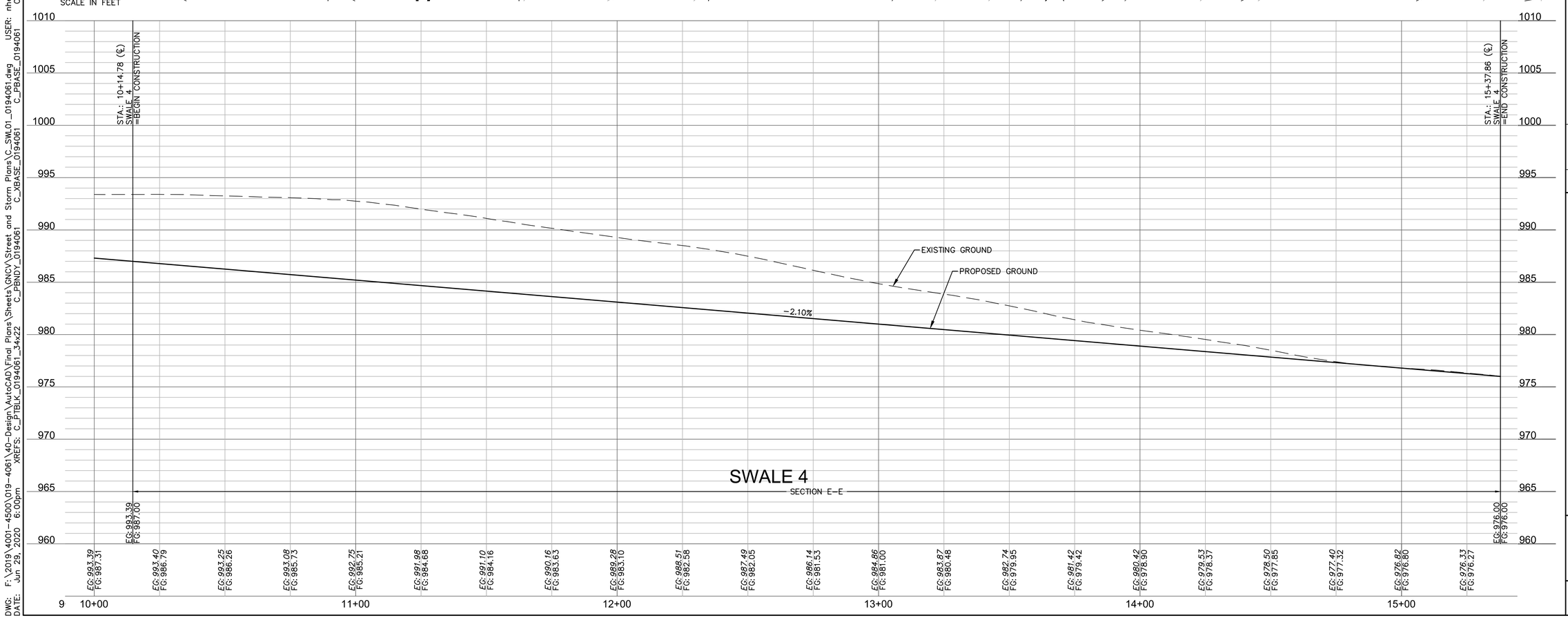

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

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1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

SWALE 4 PLAN & PROFILE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

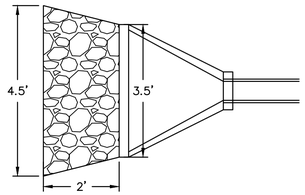
2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C109

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_SWL01_0194061.dwg USER: nheiser
DATE: Jun 29, 2020 6:00pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PSURF_0194061 C_PUTIL_0194061

Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
WQv Outlet	0.93	0.5	1	5	2	1.46	0.5
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							



02 Scale: 1"=2'
RIPRAP OUTLET PROTECTION

STORM LINE 2

STORM LINE 1

TRACT C

25

WATER QUALITY BASIN
OUTLET STRUCTURE
(SEE DETAIL, THIS SHEET)
STA: 11+75.99
N: 985170.47
E: 2812342.71

11+94.32

46' SPILLWAY
ELEV = 952.50

INSTALL 690 S.F. NORTH AMERICAN GREEN SC250 TURF REINFORCEMENT MATTING OVER SPILLWAY

11+00

9+78.29

10+00

INSTALL 6" HDPE END SECTION W/ CONCRETE TOE WALL.
INSTALL RIPRAP PER DETAILS, THIS SHEET.
STA: 10+00
N: 985120.47
E: 2812173.97

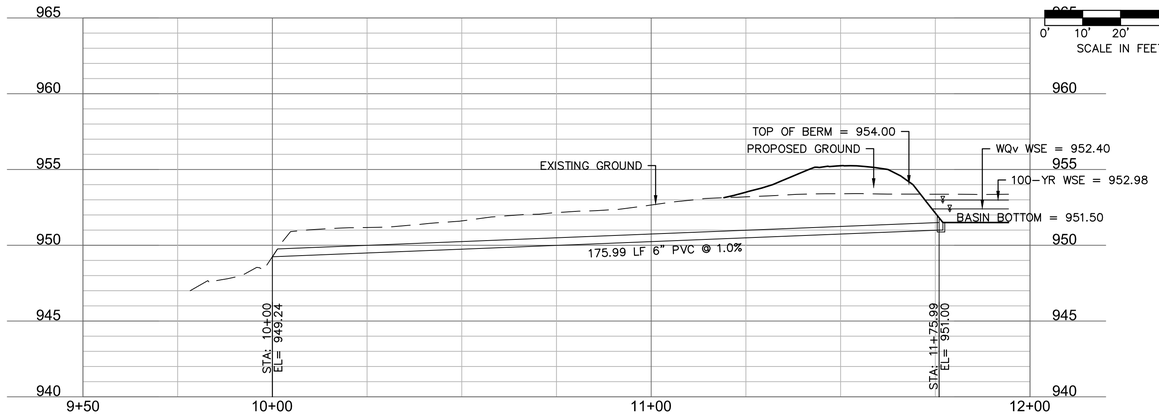
FLOODPLAIN ELEVATION = 954'

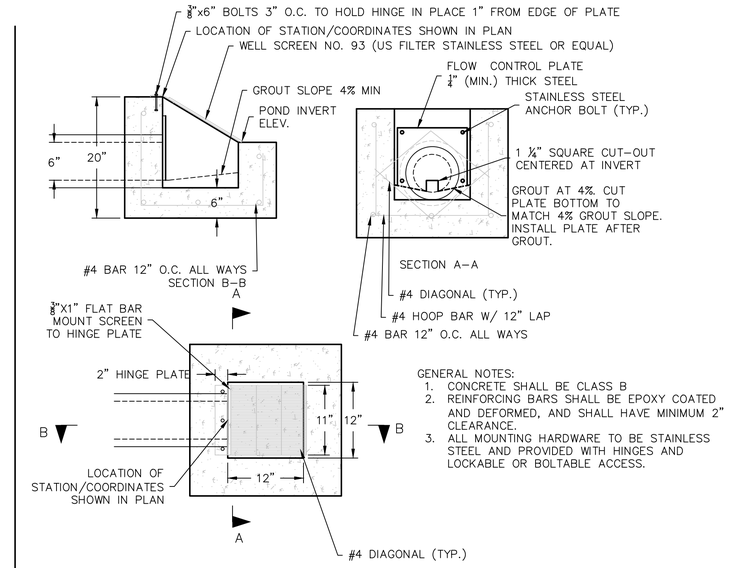
N

0' 10' 20' 40'
SCALE IN FEET

10'
5'
2.5'
0'

WATER QUALITY OUTLET (9+50 - 12+00)





GENERAL NOTES:
1. CONCRETE SHALL BE CLASS B
2. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE MINIMUM 2" CLEARANCE.
3. ALL MOUNTING HARDWARE TO BE STAINLESS STEEL AND PROVIDED WITH HINGES AND LOCKABLE OR BOLTABLE ACCESS.

01 Scale: 1"=1'
WATER QUALITY BASIN OULET STRUCTURE

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FAX 816.361.1888
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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/01/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-26 GRADING	

WATER QUALITY BASIN PLAN
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C110

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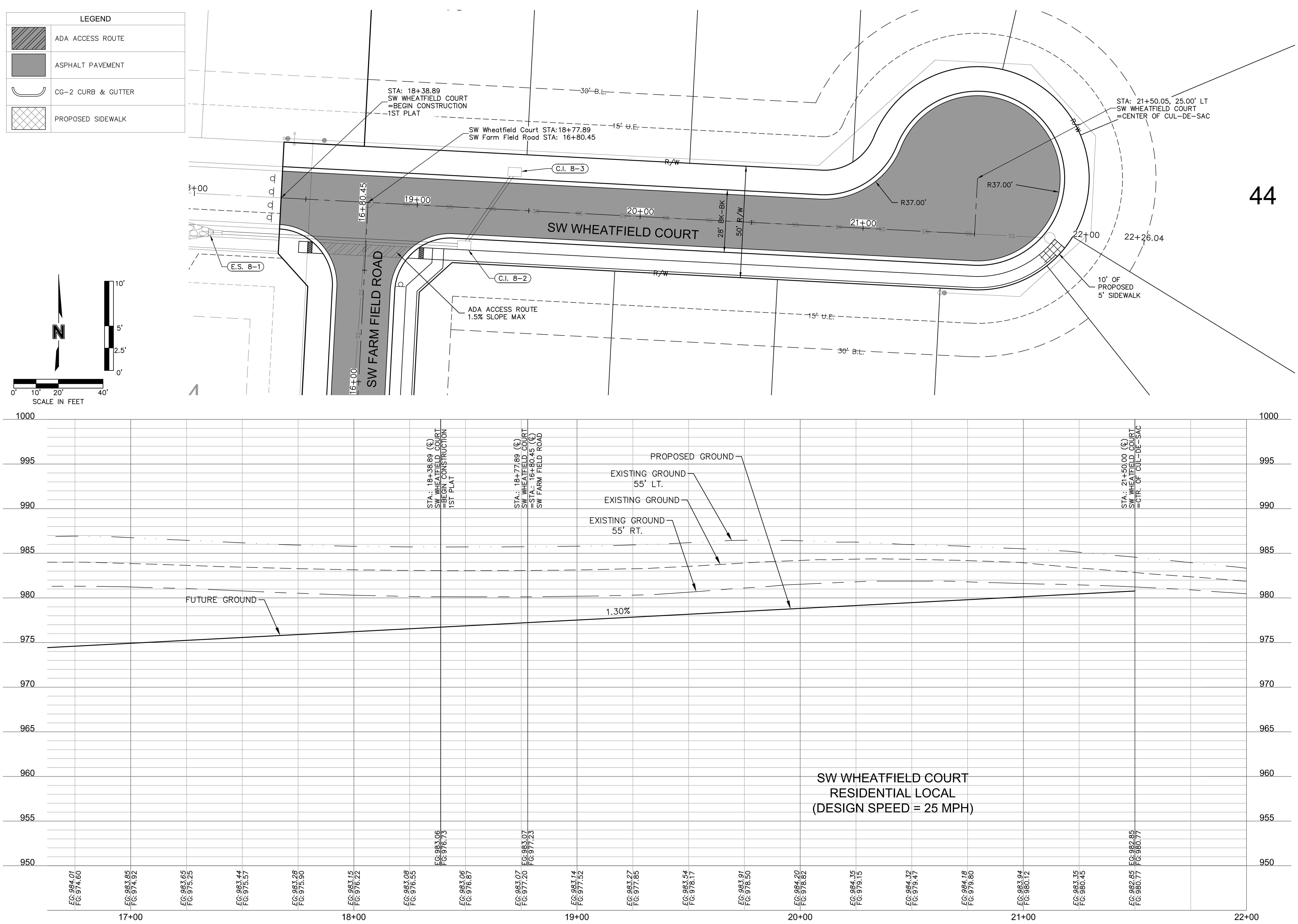

44

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6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

ROADWAY PLAN & PROFILE (SW WHEATFIELD COURT)

STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C111

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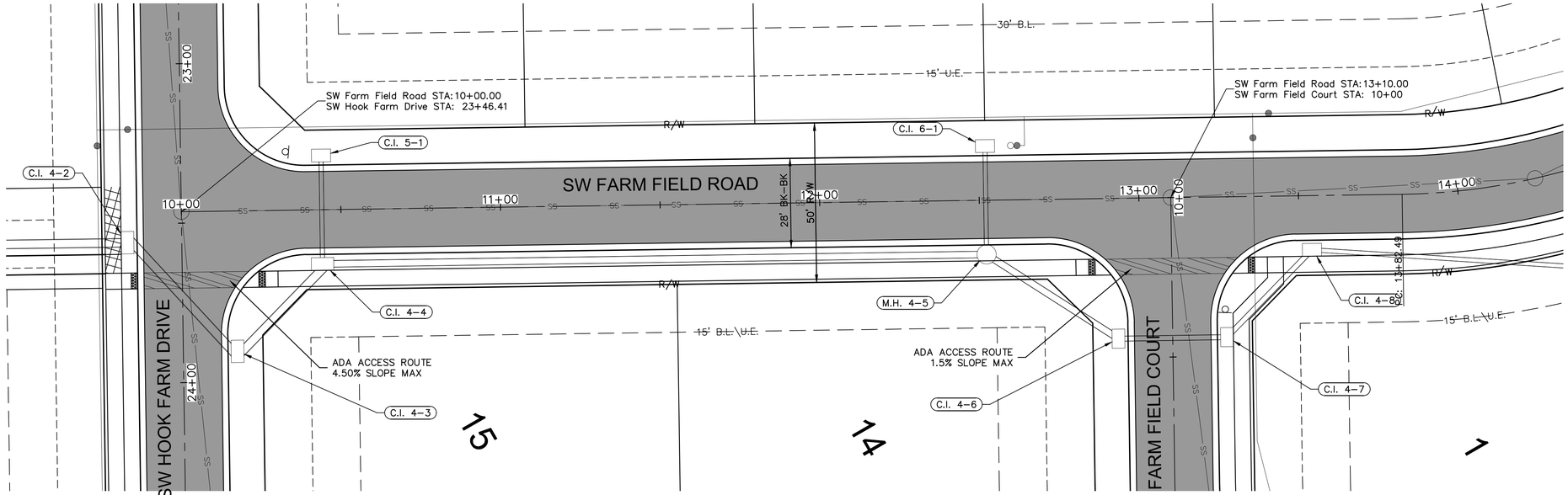
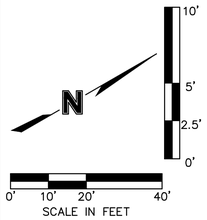
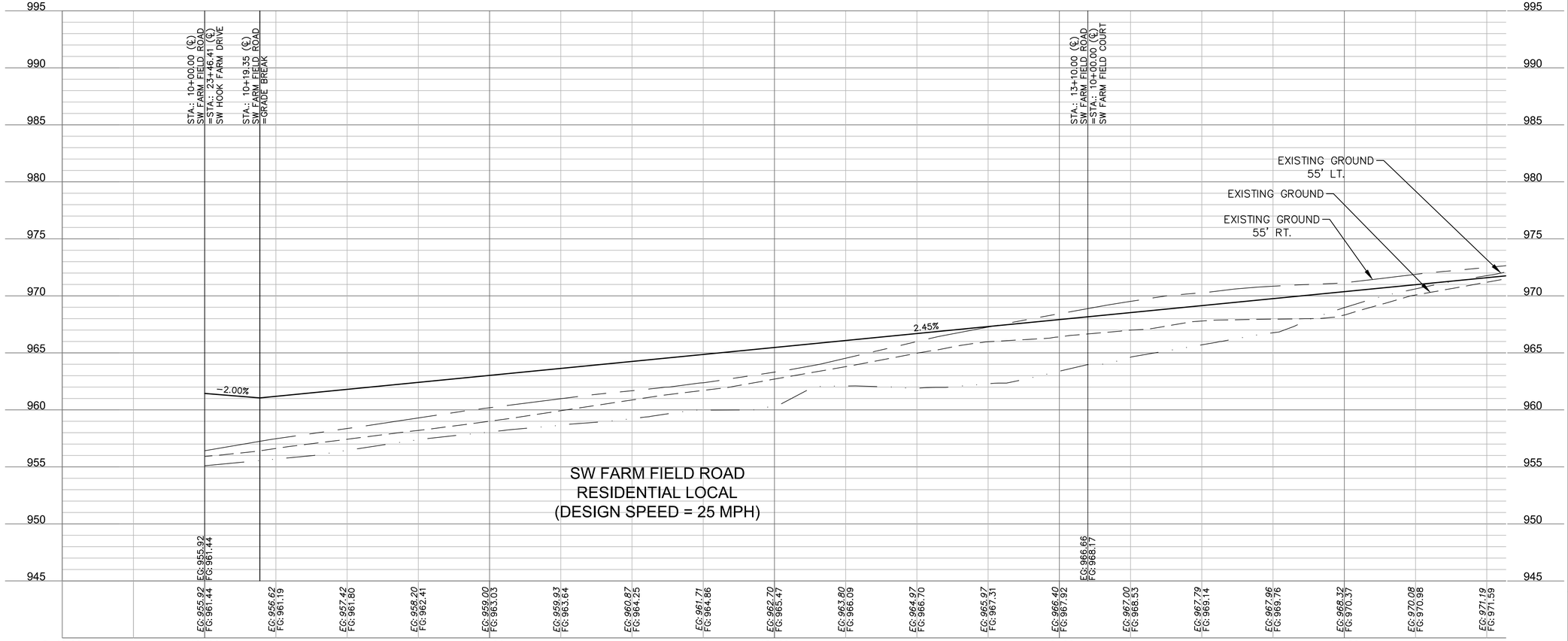
LEGEND	
	ADA ACCESS ROUTE
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER







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4	10/19/2020	REVISED PER CITY COMMENTS	
5	11/11/2020	REVISED DTL 15 & GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

ROADWAY PLAN & PROFILE (SW FARM FIELD ROAD)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

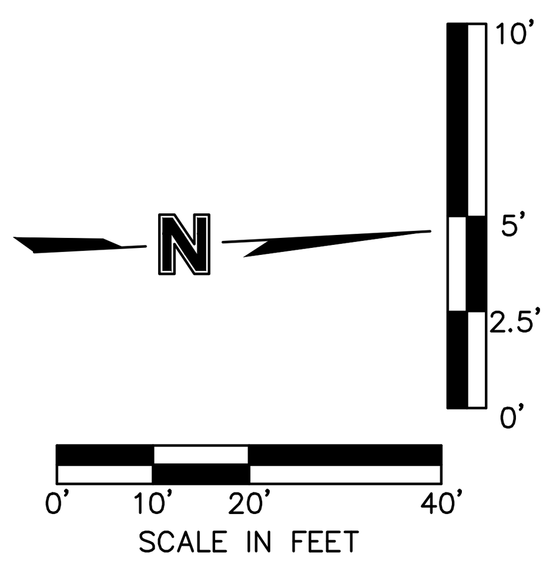
2020

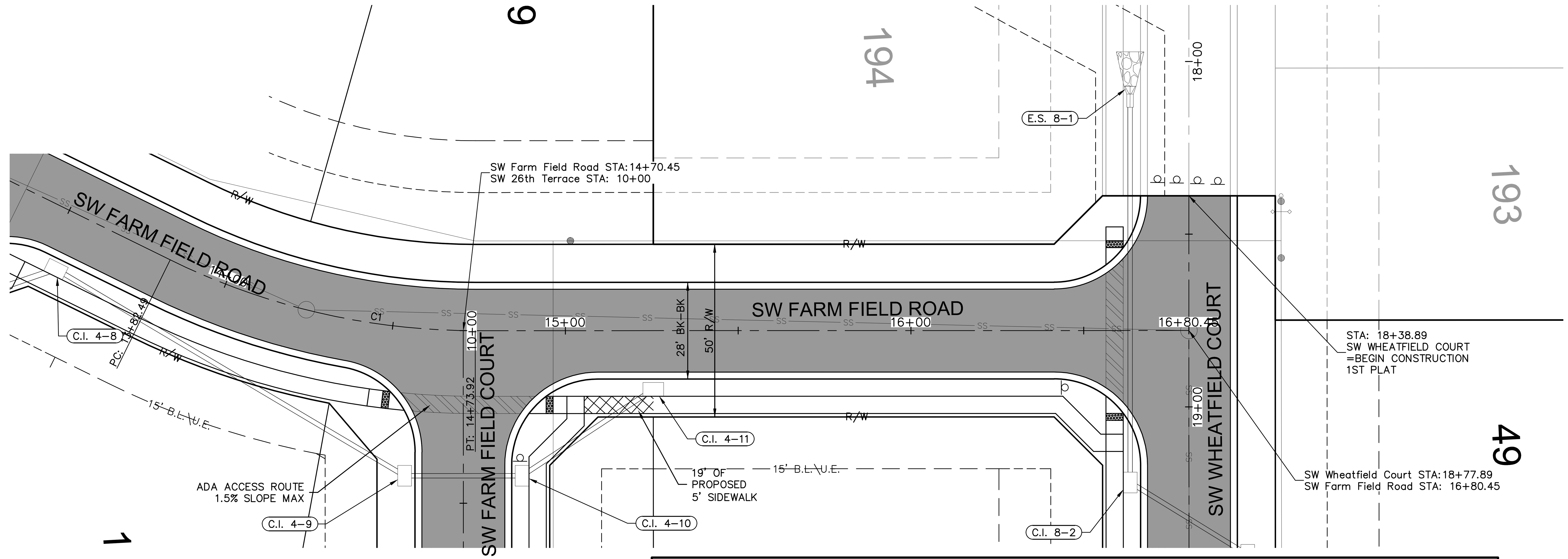
drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C112

LEGEND

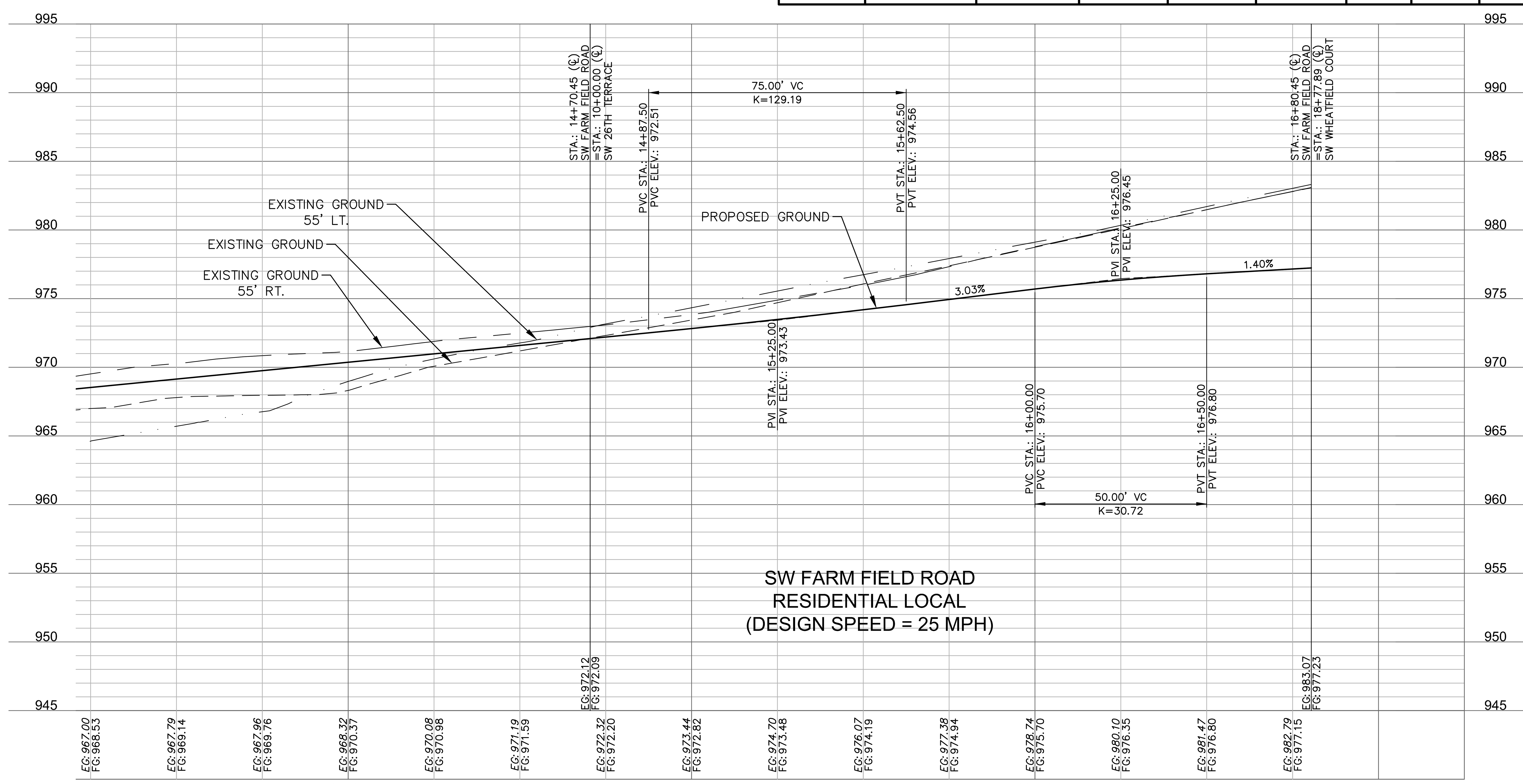
(hatched)	ADA ACCESS ROUTE
(shaded)	ASPHALT PAVEMENT
(curb symbol)	CG-2 CURB & GUTTER





ALIGNMENT CURVES

CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	TANGENT	P.I. STATION (BACK)
C1	13+82.49 14+73.92	N: 985784.58 E: 2811914.27	N: 985871.67 E: 2811939.38	200.00	91.43	026°11'37"	46.53	14+27.39



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DATE: Mar 30, 2021 1:44pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_FBASE_0194061 C_PSURF_0194061 C_PUTIL_0194061 C_PPATT_0194061 C_PSTRM_0194061

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

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4	10/01/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

ROADWAY PLAN & PROFILE (SW FARM FIELD ROAD)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C113

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_RPP01_0194061.dwg USER: nheiser
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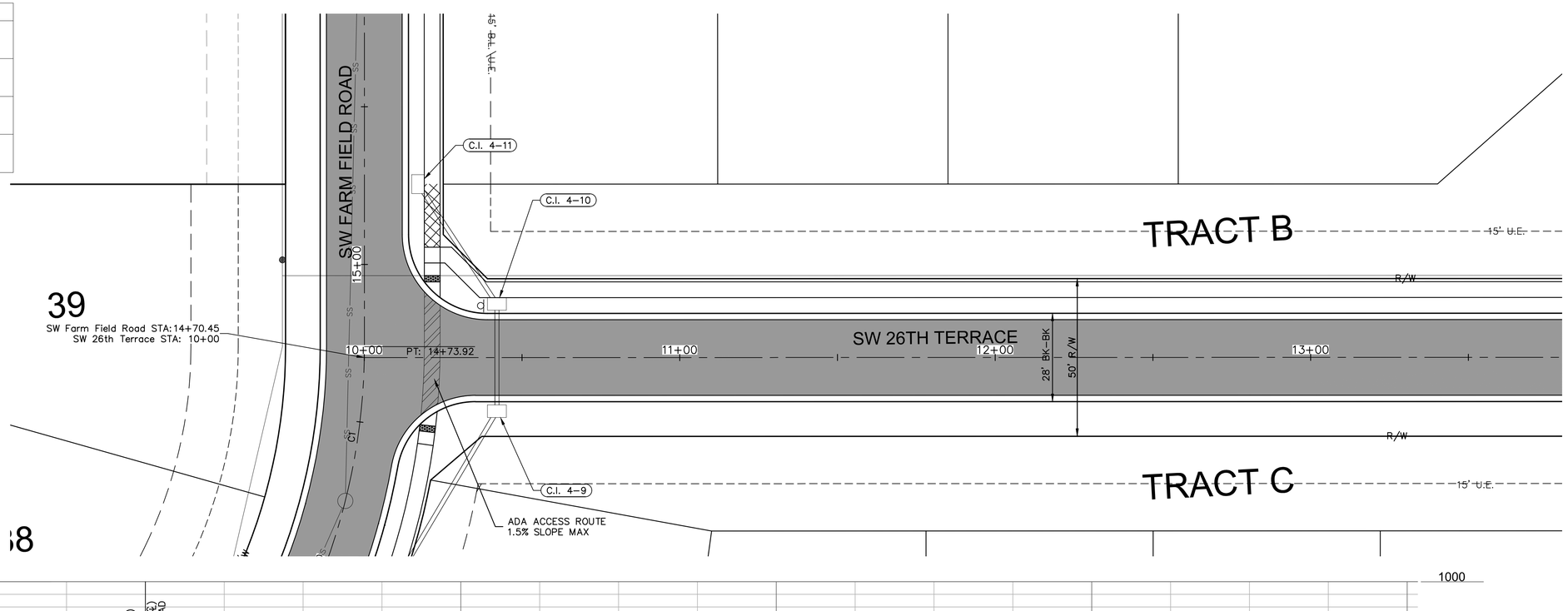
C_PSTRM_0194061 C_PPATT_0194061 C_PUTIL_0194061 C_PSURF_0194061 C_PBASE_0194061

LEGEND	
	ADA ACCESS ROUTE
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER
	PROPOSED SIDEWALK



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1	06/15/2020	REVISED PER CITY COMMENTS	
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3	09/10/2020	REMOVED PIPE INSULATION	
4	10/19/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED DUE TO 2ND GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

ROADWAY PLAN & PROFILE (SW 26TH TERRACE)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

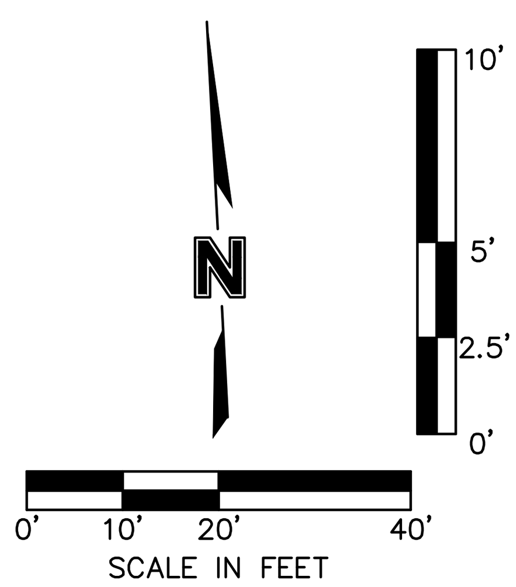
LEE'S SUMMIT, MO

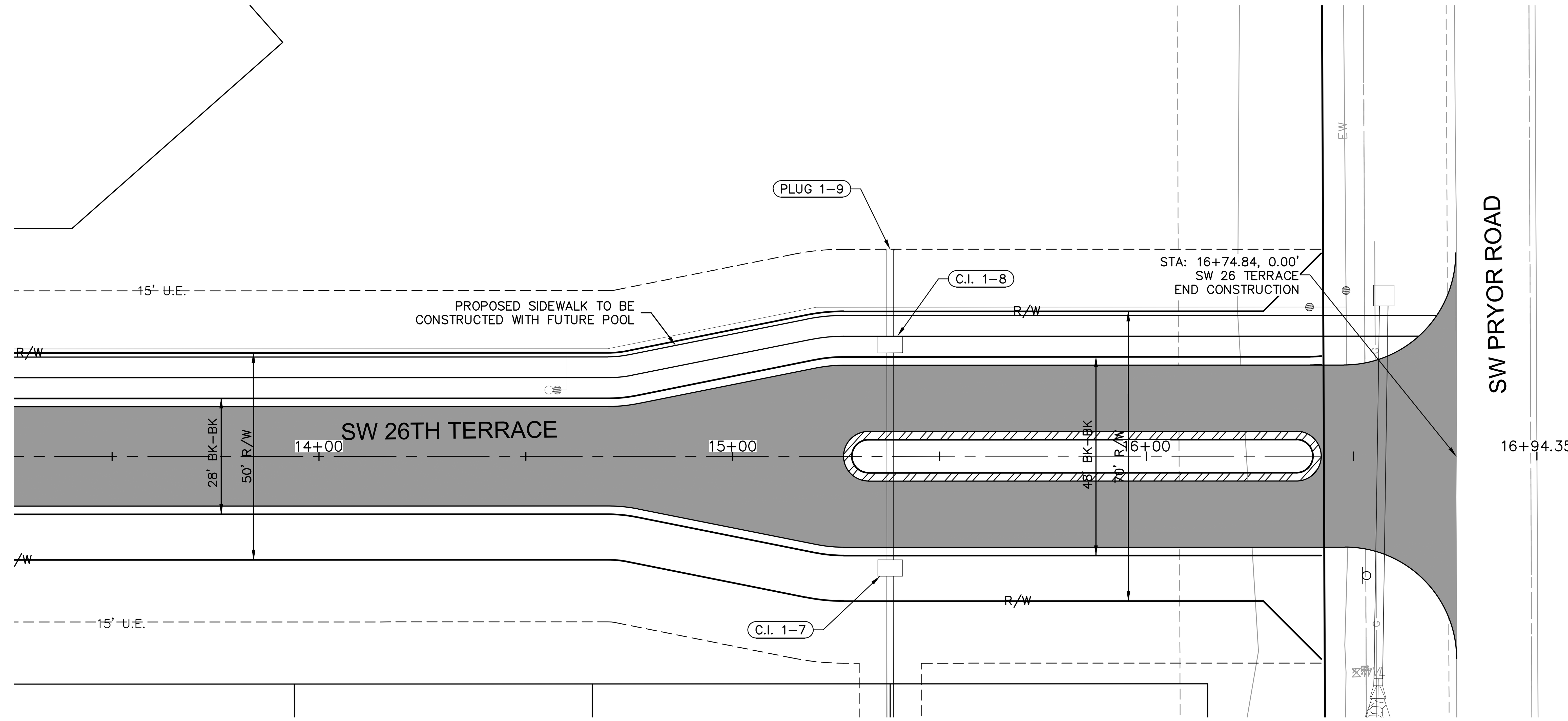
2020

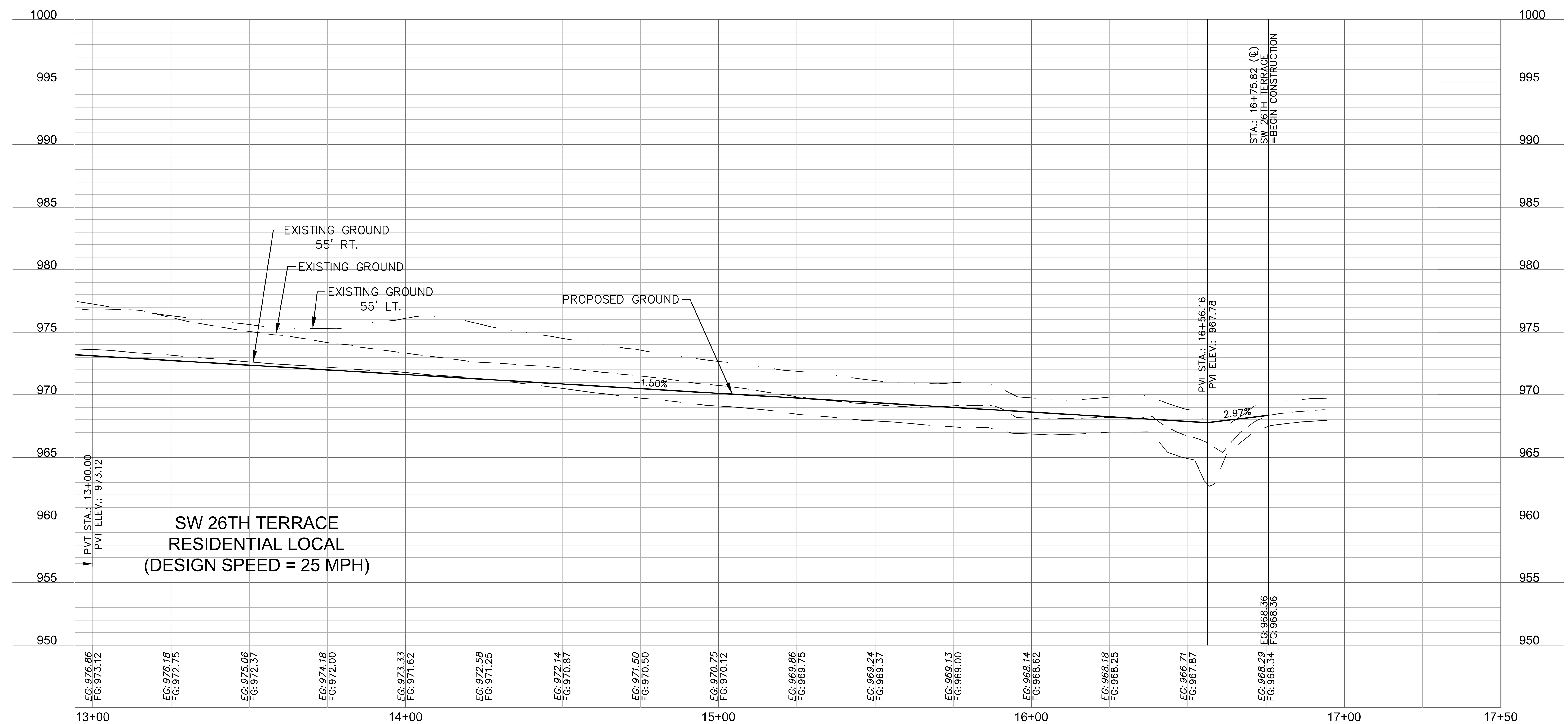
drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C114

LEGEND	
	ADA ACCESS ROUTE
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER
	PROPOSED SIDEWALK
	CG-1 CURB & GUTTER







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3/3/21

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6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

ROADWAY PLAN & PROFILE (SW 26TH TERRACE)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

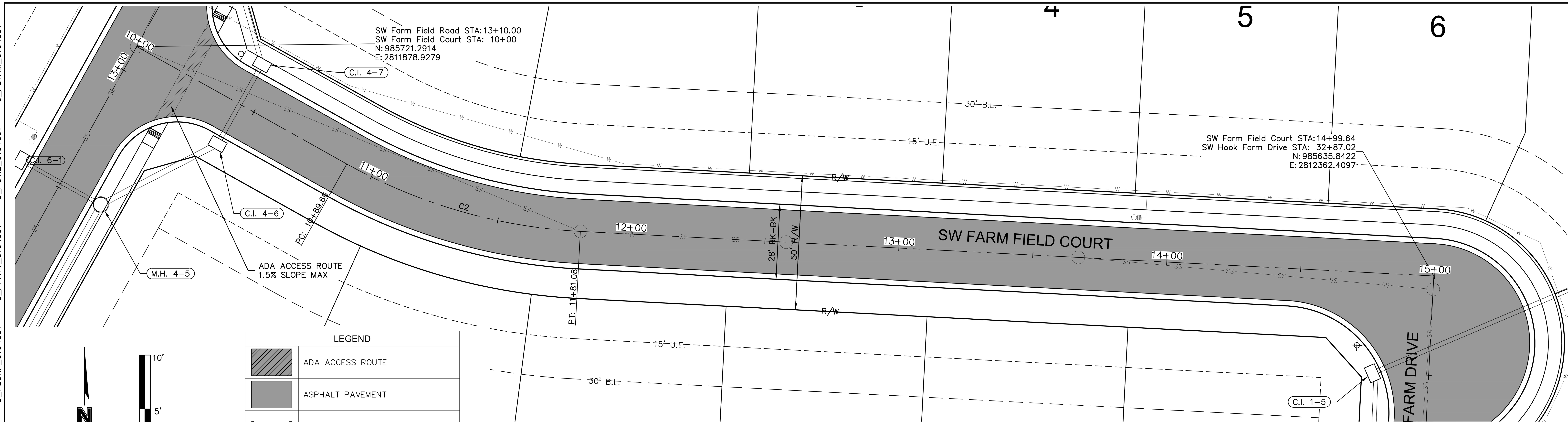
LEE'S SUMMIT, MO

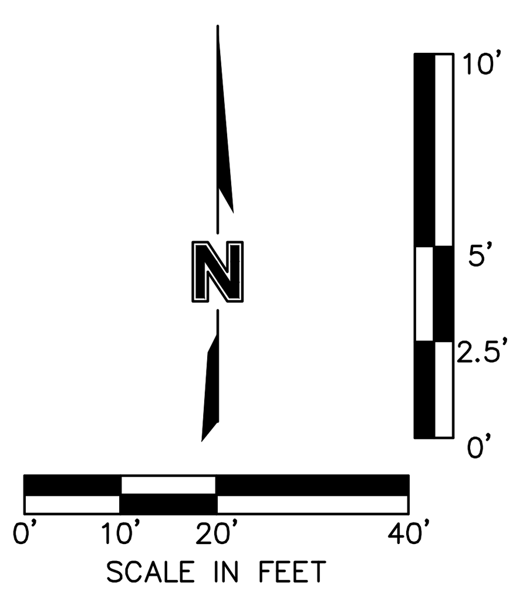
2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C115

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_RPP01_0194061.dwg USER: nheiser
DATE: Mar 30, 2021 1:45pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_FBASE_0194061 C_PSURF_0194061 C_PUTIL_0194061 C_PPATT_0194061 C_PSTRM_0194061

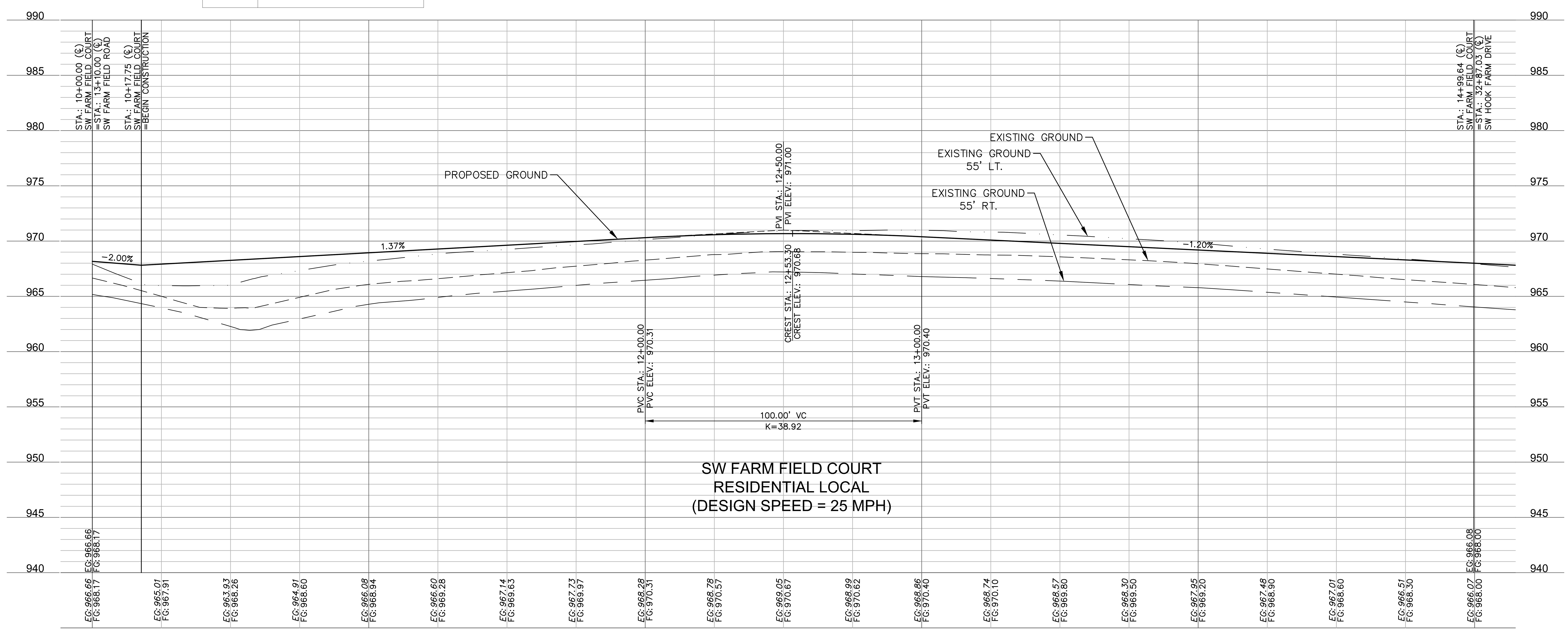




LEGEND	
[hatched]	ADA ACCESS ROUTE
[shaded]	ASPHALT PAVEMENT
[symbol]	CG-2 CURB & GUTTER
[cross-hatched]	PROPOSED SIDEWALK
[symbol]	CG-1 CURB & GUTTER

ALIGNMENT CURVES

CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	TANGENT	P.I. STATION (BACK)
C2	10+89.66 11+81.08	N: 985677.58 E: 2811957.21	N: 985652.47 E: 2812044.29	200.00	91.42	026°11'22"	46.52	11+34.56



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STATE OF MISSOURI
JULIE ELAINE SELLERS
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ROADWAY PLAN & PROFILE (SW WHEATFIELD COURT)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C116

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_RPP02_0194061.dwg USER: nheiser
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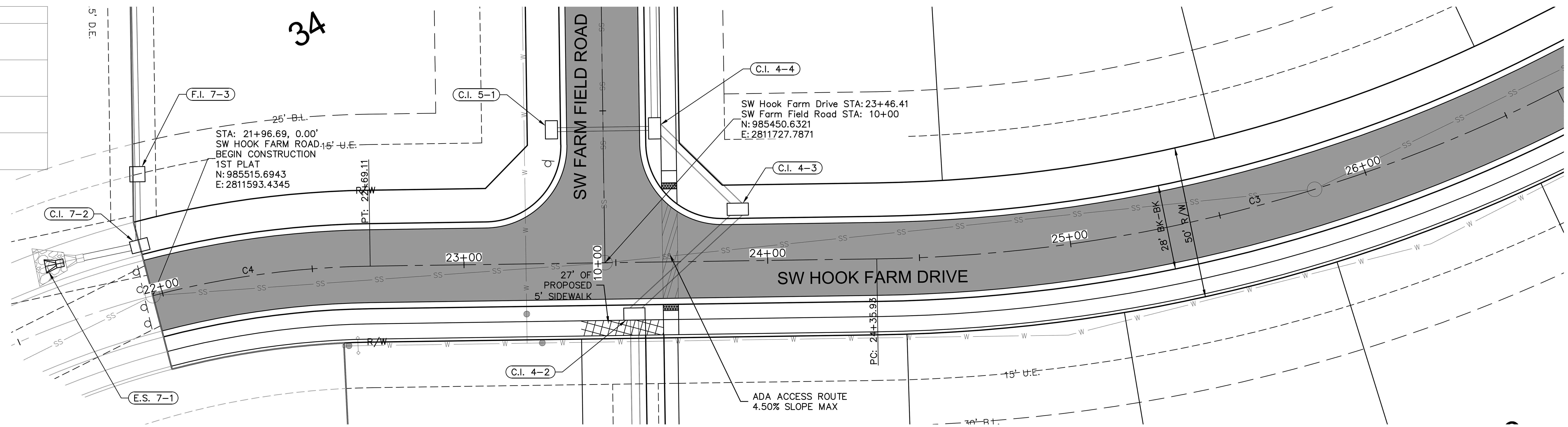
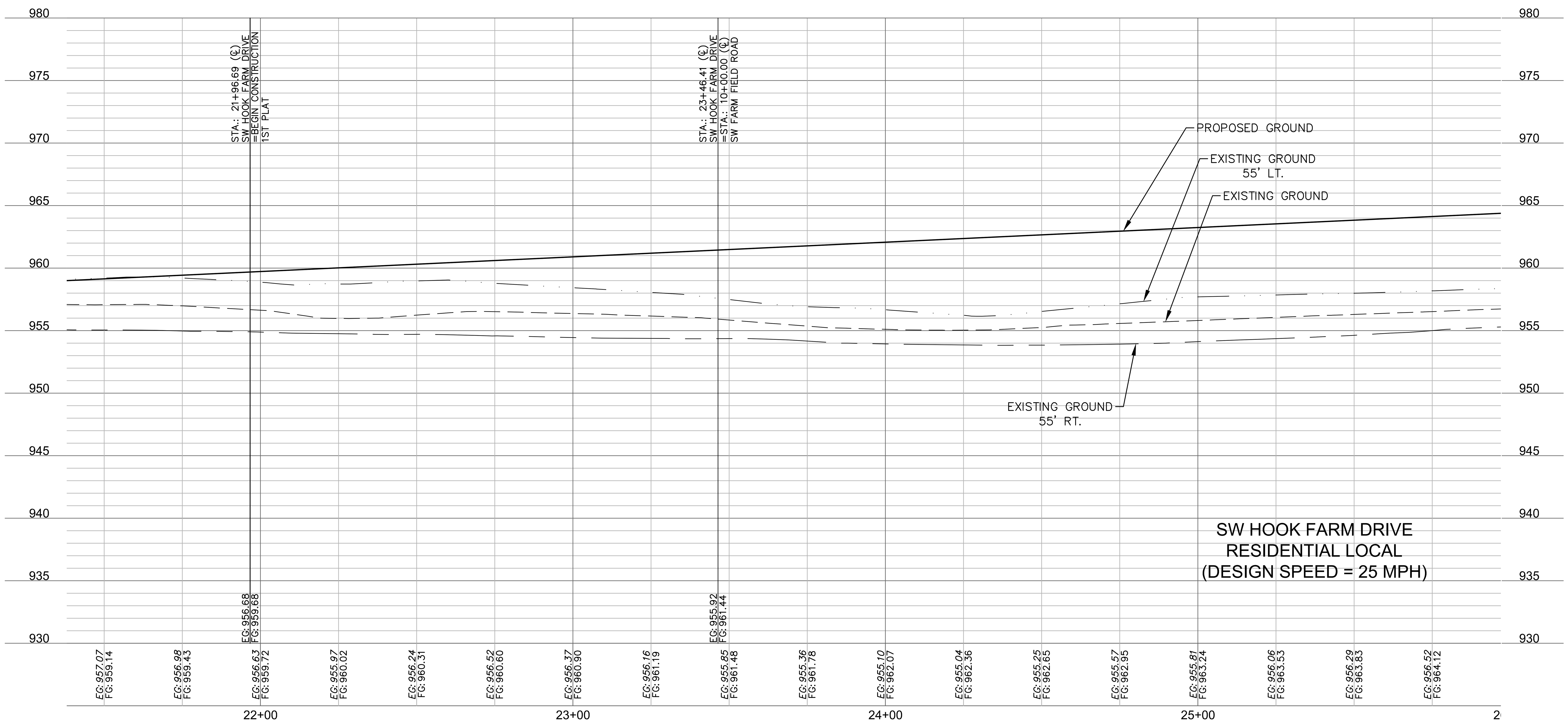
LEGEND

(hatched)	ADA ACCESS ROUTE
(shaded)	ASPHALT PAVEMENT
(curb symbol)	CG-2 CURB & GUTTER
(crosshatched)	PROPOSED SIDEWALK



ALIGNMENT CURVES								
CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	TANGENT	P.I. STATION (BACK)
C3	24+35.93 26+68.94	N: 985406.99 E: 2811805.95	N: 985342.96 E: 2812027.88	510.00	233.00	026°10'37"	118.57	25+50.37
C4	21+07.71 22+69.11	N: 985526.27 E: 2811505.41	N: 985488.32 E: 2811660.29	300.00	161.40	030°49'31"	82.71	21+86.40



SW HOOK FARM DRIVE
RESIDENTIAL LOCAL
(DESIGN SPEED = 25 MPH)

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3/3/21

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7	03/12/2021	REVISED ADA RAMPS	

ROADWAY PLAN & PROFILE (SW HOOK FARM DRIVE)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

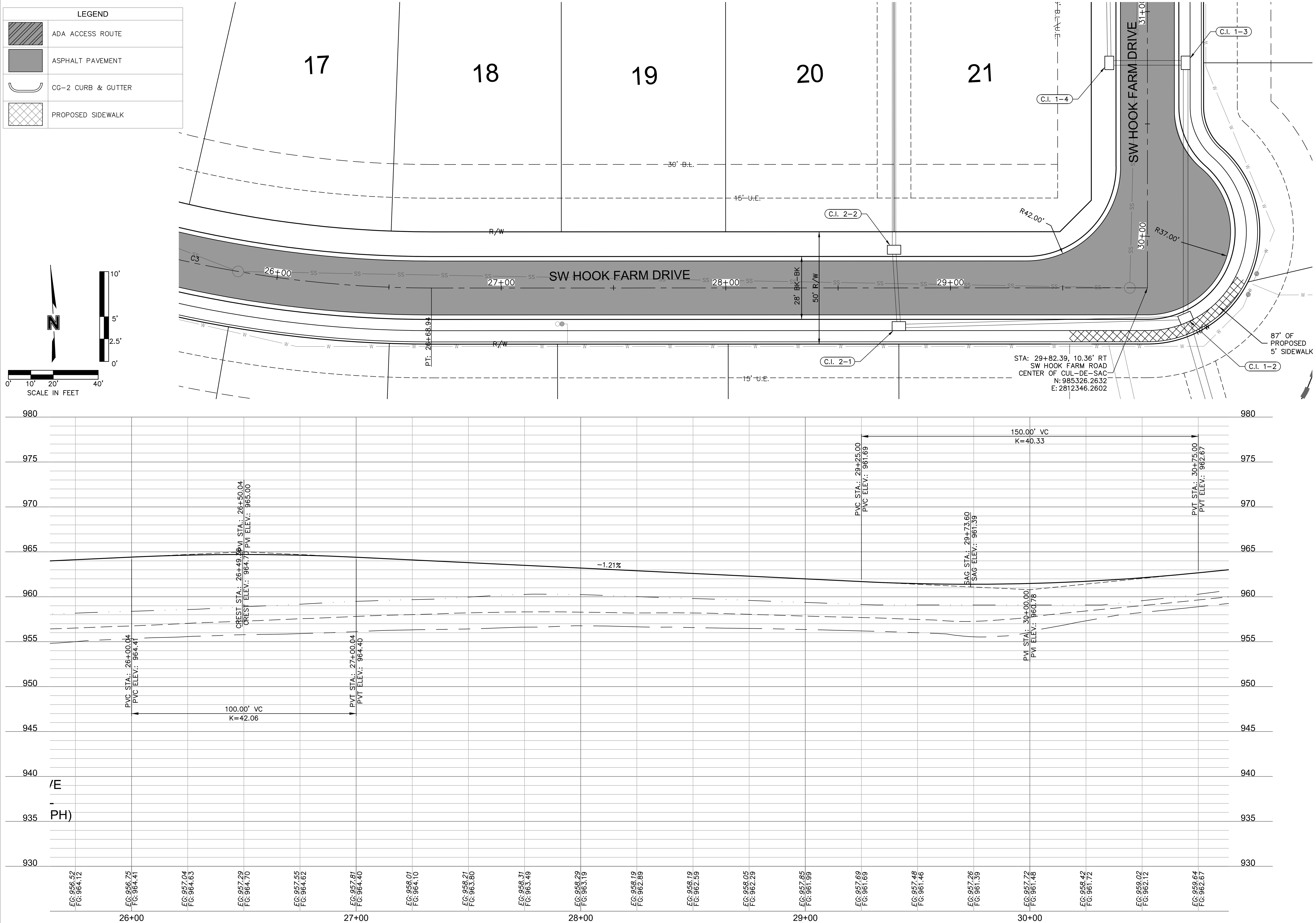
LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C117

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_RPP02_0194061.dwg USER: nheiser
DATE: Mar 30, 2021 1:45pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_FBASE_0194061 C_PSURF_0194061 C_PPATT_0194061 C_PUTIL_0194061 C_PSTRM_0194061



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5	11/18/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

ROADWAY PLAN & PROFILE (SW HOOK FARM DRIVE)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
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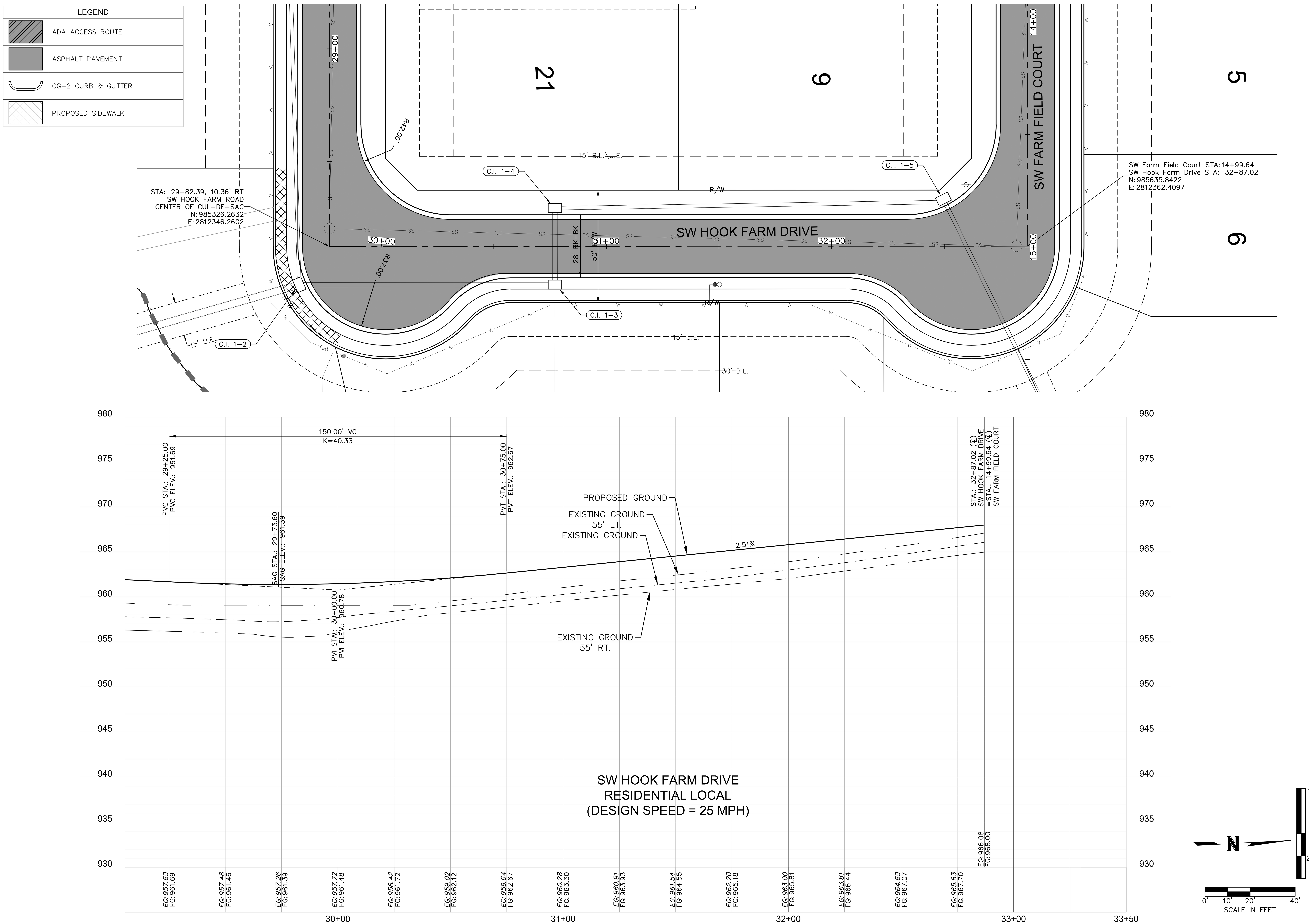
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C118



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STATE OF MISSOURI — JULIE ELAINE SELLERS — NUMBER PE-2017000367 — PROFESSIONAL ENGINEER — 3/3/21

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6	02/17/2021	REVISED ADA RAMPS	
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REVISIONS

ROADWAY PLAN & PROFILE (SW HOOK FARM DRIVE)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

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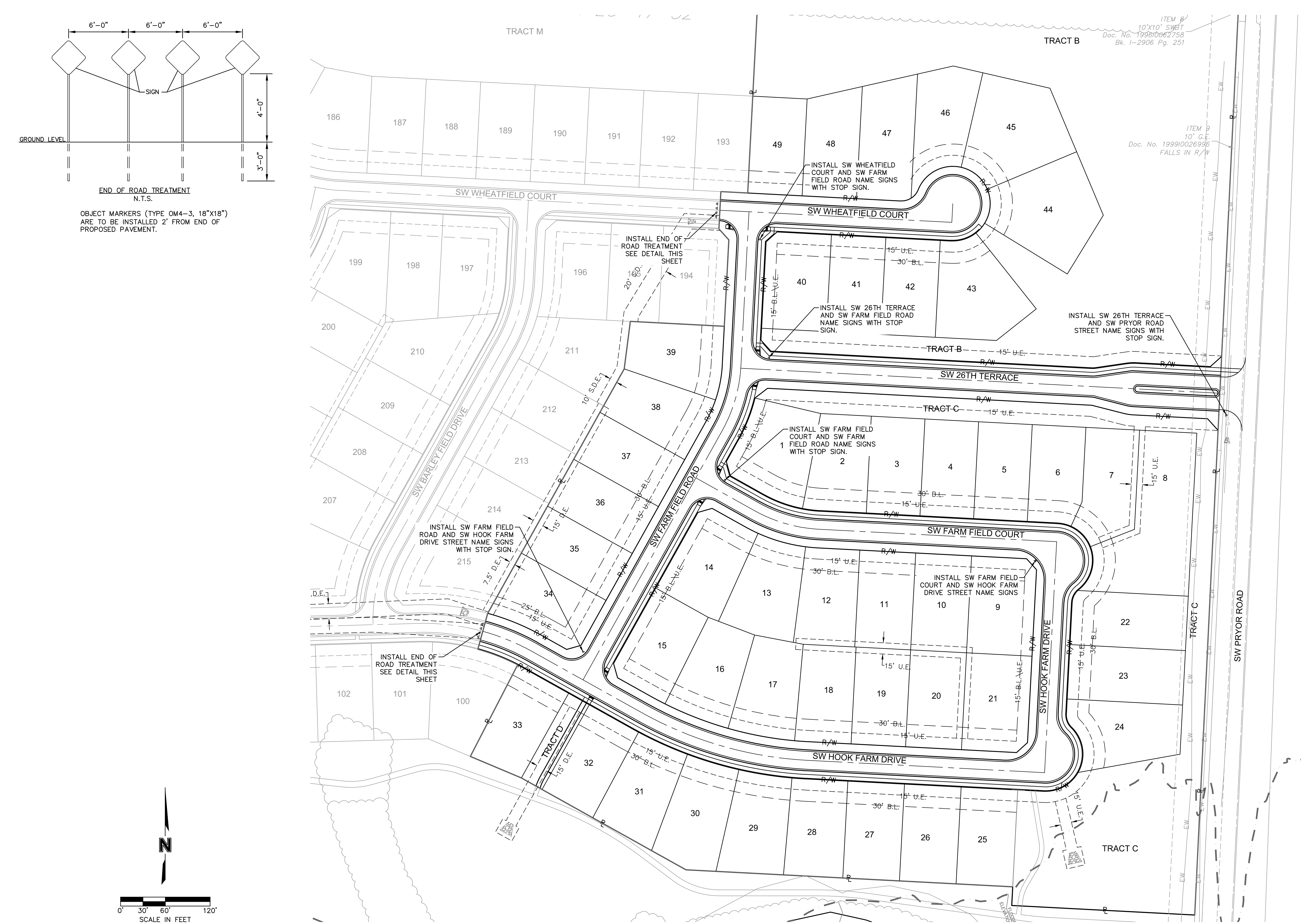
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C119

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_RPP02_0194061.dwg USER: nheiser
DATE: Mar 30, 2021 1:46pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_FBASE_0194061 C_PSURF_0194061 C_PPATT_0194061 C_PUTIL_0194061 C_PSTRM_0194061



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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	
3	08/10/2020	REMOVED PIPE INSULATION	
4	10/01/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

2020

TRAFFIC CONTROL PLAN
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C120

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_TCP01_0194061.dwg USER: nheiser
DATE: Mar 12, 2021 11:03am XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_FBASE_0194061

SW Wheatfield Court STA:18+77.89
SW Farm Field Road STA: 16+80.45
EL= 977.23

SW WHEATFIELD COURT

16+80.45

19+00

TC-976.80
N: 986065.97
E: 2811910.46

PV-976.71
2' CURB TRANSITION (TYP.)
PV-976.74
SW-976.84
TC-977.03
SW-977.08
5'
1.50%
6'
4.00%
5'
0.49%
1.29%
PV-976.84
SW-976.94
PV-976.87
SW-977.16
SW-976.92
TC-977.18

CURVE DATA
R=25.00'
Δ=090°00'00"
L=39.27'
T=25.00

TC-976.74
N: 986039.70
E: 2811934.13

SW FARM FIELD ROAD

1.19%

TC-977.81
N: 986061.91
E: 2811988.36

PV-977.18
TC-977.49
2' CURB TRANSITION (TYP.)
PV-977.01
SW-977.04
SW-977.49
SW-977.56
6'
5'
1.42%
1.00%
5'
7.50%
1.50%
1.00%
5'
PV-976.90
PV-976.84
SW-976.93
TC-977.15
SW-977.09
SW-977.54
SW-977.61

CURVE DATA
R=25.00'
Δ=090°00'00"
L=39.27'
T=25.00

TC-976.74
N: 986038.24
E: 2811962.09

N

0' 2.5' 5' 10'
SCALE IN FEET

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_INT01_0194061.dwg USER: nheiser
DATE: Mar 30, 2021 1:46pm XREFS: C_PTBLK_0194061_34x22 C_PBND1_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PUTIL_0194061

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REVISIONS

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1	06/15/2020	REVISED PER CITY COMMENTS	
2	08/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/19/2020	REVISED PER CITY COMMENTS	
5	11/16/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

SW WHEATFIELD COURT & SW FARM FIELD ROAD
STREET AND STORM SEWER PLANS

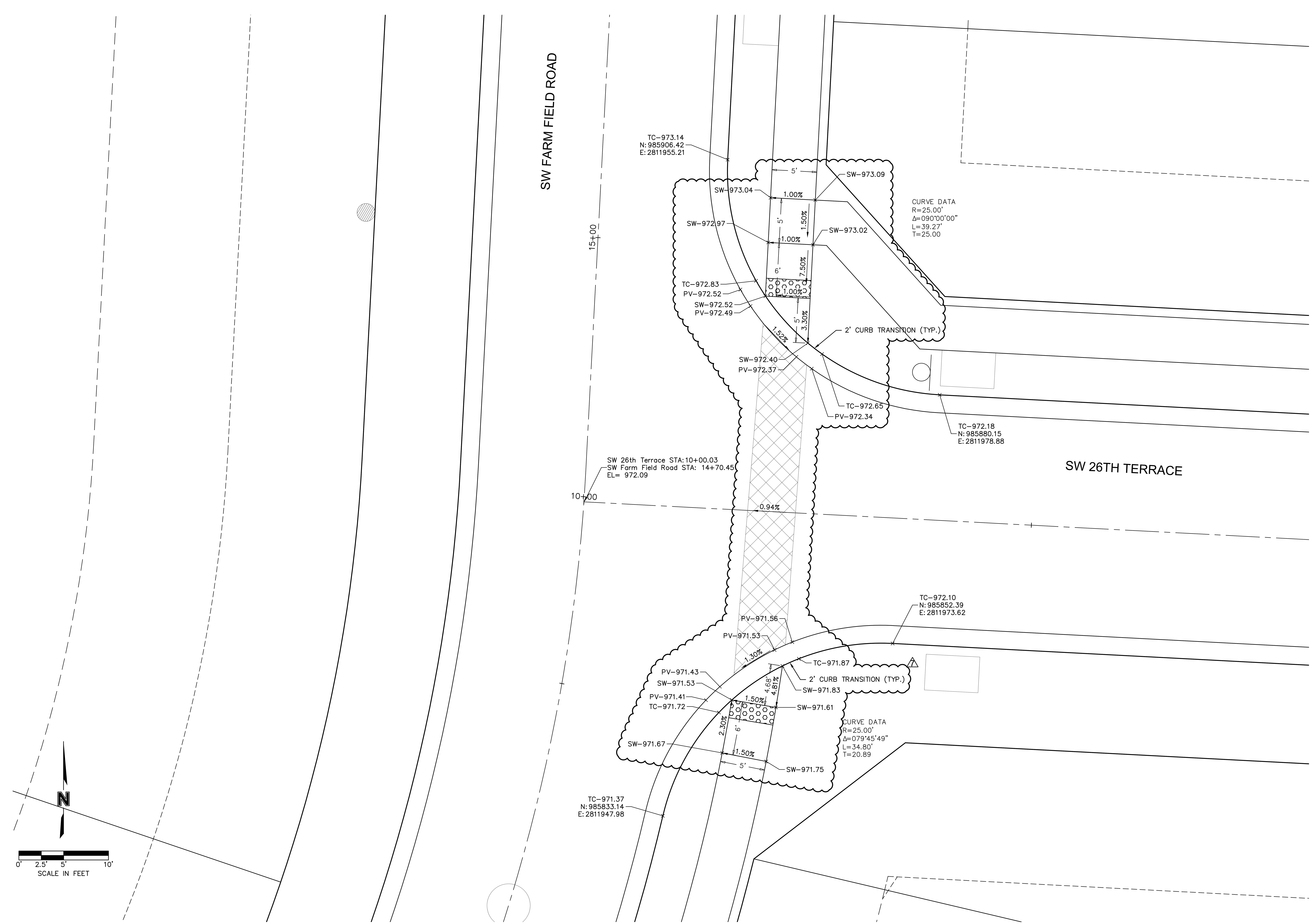
HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C121



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DATE: Mar 30, 2021 1:46pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_FBASE_0194061 C_PUTIL_0194061

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1	06/15/2020	REVISED PER CITY COMMENTS	
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3	09/10/2020	REMOVED PIPE INSULATION	
4	10/01/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

SW FARM FIELD ROAD & SW 26TH TERRACE
STREET AND STORM SEWER PLANS

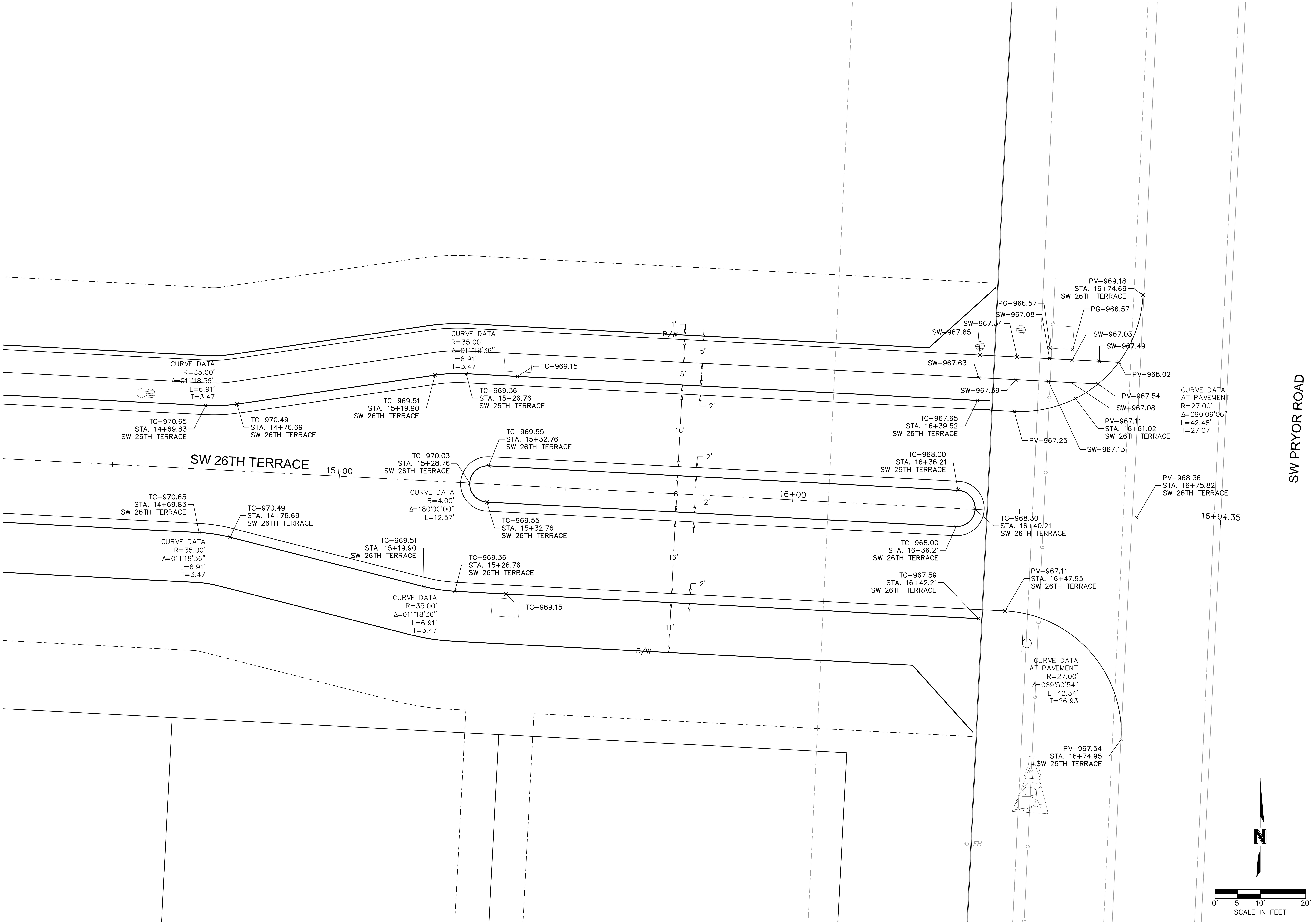
HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C122



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2	06/25/2020	REVISED PER CITY COMMENTS	
3	08/10/2020	REMOVED PIPE INSULATION	
4	10/01/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-29 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

SW 26TH TERRACE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

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checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C123

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_INT01_0194061.dwg USER: nheiser
DATE: Mar 30, 2021 1:46pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PUTIL_0194061

SW FARM FIELD ROAD

SW Farm Field Court STA:10+00.00
SW Farm Field Road STA: 13+10
EL= 968.17

13+00

10+00

TC-967.28
N: 985680.41
E: 2811872.14

PV-967.34
TC-967.66
2' CURB TRANSITION (TYP.)
PV-967.37
SW-967.47
SW-967.59
6'
5'
1.50%
2.00%
1.50%
0.49%
1.27%
PV-967.47
PV-967.50
SW-967.67
SW-967.55
SW-967.57
TC-967.81

CURVE DATA
R=25.00'
Δ=090°00'00"
L=39.27'
T=25.00

TC-968.18
N: 985690.05
E: 2811906.15

0.77%

TC-969.19
N: 985748.52
E: 2811910.17

TC-968.75
PV-968.44
2' CURB TRANSITION (TYP.)
PV-968.39
SW-968.42
SW-968.87
SW-968.95
1.32%
1.00%
7.50%
1.50%
1.00%
5'
6'
5'
5'
SW-969.00
SW-968.92
PV-968.29
PV-968.27
SW-968.32
TC-968.56
SW-968.47

CURVE DATA
R=25.00'
Δ=090°00'00"
L=39.27'
T=25.00

TC-968.18
N: 985714.50
E: 2811919.80

SW FARM FIELD COURT

N

0' 2.5' 5' 10'
SCALE IN FEET

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1	06/15/2020	REVISED PER CITY COMMENTS	
2	09/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/12/2020	REVISED PER CITY COMMENTS	
5	11/19/2020	REVISED TO 2.5% GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

SW FARM FIELD ROAD & SW FARM FIELD COURT
STREET AND STORM SEWER PLANS

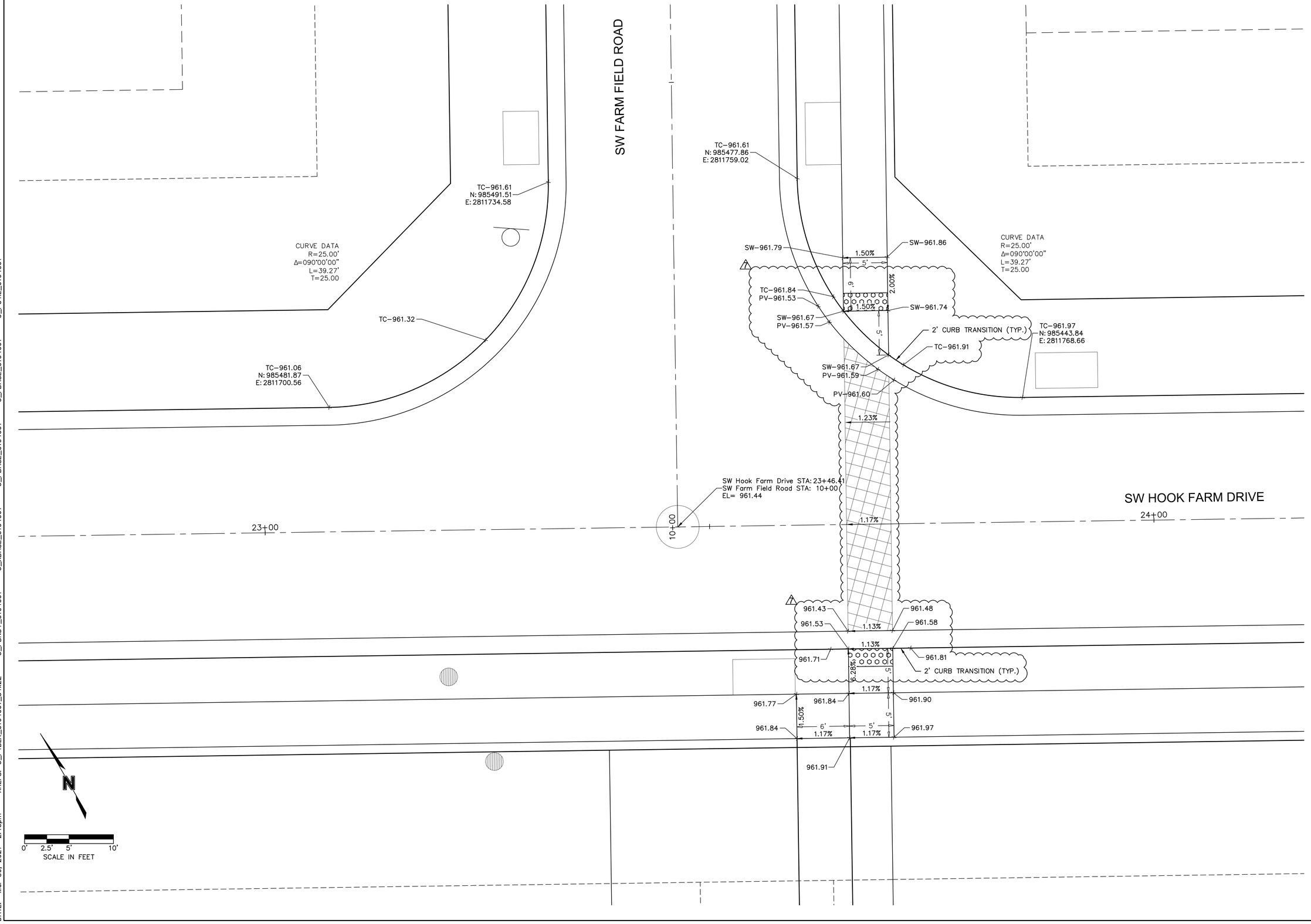
HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C124



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DATE: Mar 30, 2021 2:15pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PUTIL_0194061

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1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/16/2020	REVISED PER CITY COMMENTS	
5	11/18/2020	REVISED LOTS 25-30 GRADING	
6	02/17/2021	REVISED ADA RAMPS	
7	03/12/2021	REVISED ADA RAMPS	

REVISIONS

SW FARM FIELD ROAD & SW HOOK FARM DRIVE
STREET AND STORM SEWER PLANS

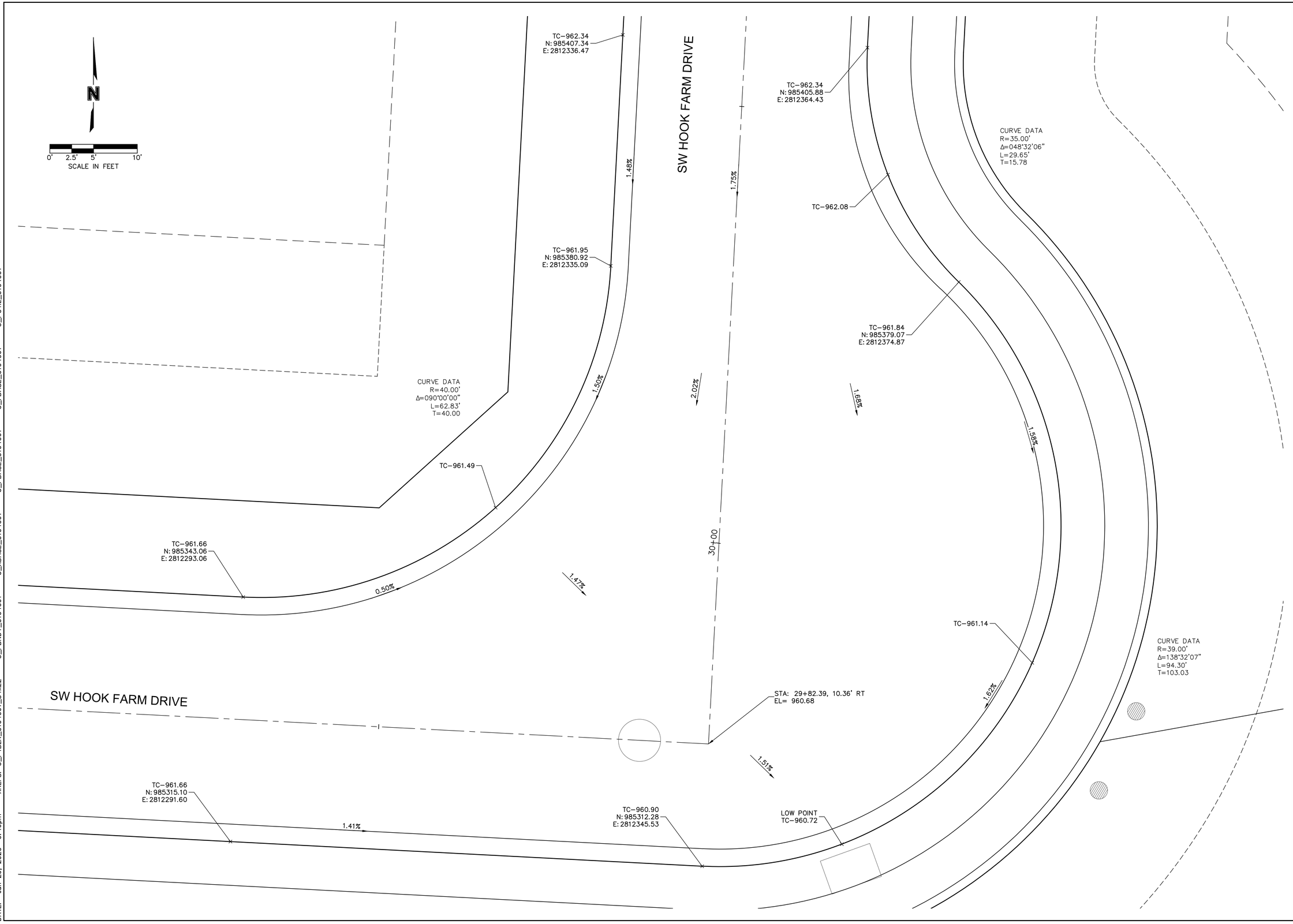
HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C125



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NUMBER PE-2017000367
3/3/21
STATE OF MISSOURI
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/29/2020	REVISED PER CITY COMMENTS	

REVISIONS

SW HOOK FARM DRIVE & SW HOOK FARM DRIVE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C126

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_INT02_0194061.dwg USER: nheiser
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TC–968.72
N: 985652.64
E: 2812309.21

TC–967.90
N: 985649.82
E: 2812363.14

SW Hook Farm Drive STA: 32+87.03
SW Farm Field Court STA: 14+99.64
EL= 967.41

SW FARM FIELD COURT

32+87.03

14+00

CURVE DATA
R=39.00'
Δ=138°32'06"
L=94.30'
T=103.03

TC–967.21

TC–968.72
N: 985624.67
E: 2812307.75

TC–967.77

CURVE DATA
R=40.00'
Δ=090°00'00"
L=62.83'
T=40.00

TC–967.36

TC–966.81
N: 985582.64
E: 2812345.62

TC–966.05
N: 985556.23
E: 2812344.24

SW HOOK FARM DRIVE

TC–966.53
N: 985580.35
E: 2812385.37

TC–966.29

CURVE DATA
R=35.00'
Δ=048°32'06"
L=29.65'
T=15.78

TC–966.05
N: 985554.77
E: 2812372.20

N

0' 2.5' 5' 10'
SCALE IN FEET

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JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

SW FARM FIELD COURT & SW HOOK FARM DRIVE
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C127

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_INT02_0194061.dwg USER: nheiser
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TC–981.30

CURVE DATA
R=39.00'
Δ=251°04'31"
L=170.90'
T=54.60

R=44'

TC–980.62
N: 986103.26
E: 2812187.05

HIGH POINT
TC–981.93
N: 986103.80
E: 2812259.19

CURVE DATA
R=35.00'
Δ=071°04'31"
L=43.42'
T=25.00

TC–980.28

STA: 21+50.05, 25.00' LT
EL= 980.78

TC–979.93
N: 986081.37
E: 2812152.75

SW WHEAT FIELD COURT

TC–981.45

PV–980.61

21+00

22+00

TC–979.93
N: 986053.41
E: 2812151.29

TC–980.84
N: 986049.76
E: 2812221.20

N

0' 2.5' 5' 10'
SCALE IN FEET

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REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

SW WHEAT FIELD COURT CUL-DE-SAC
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

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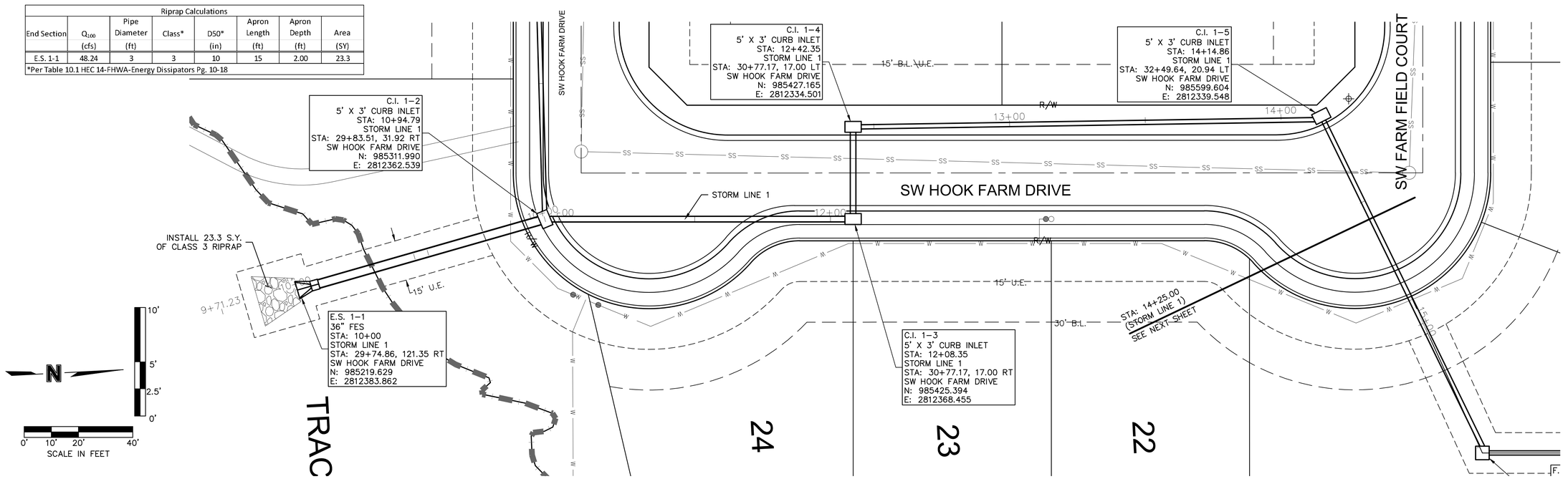
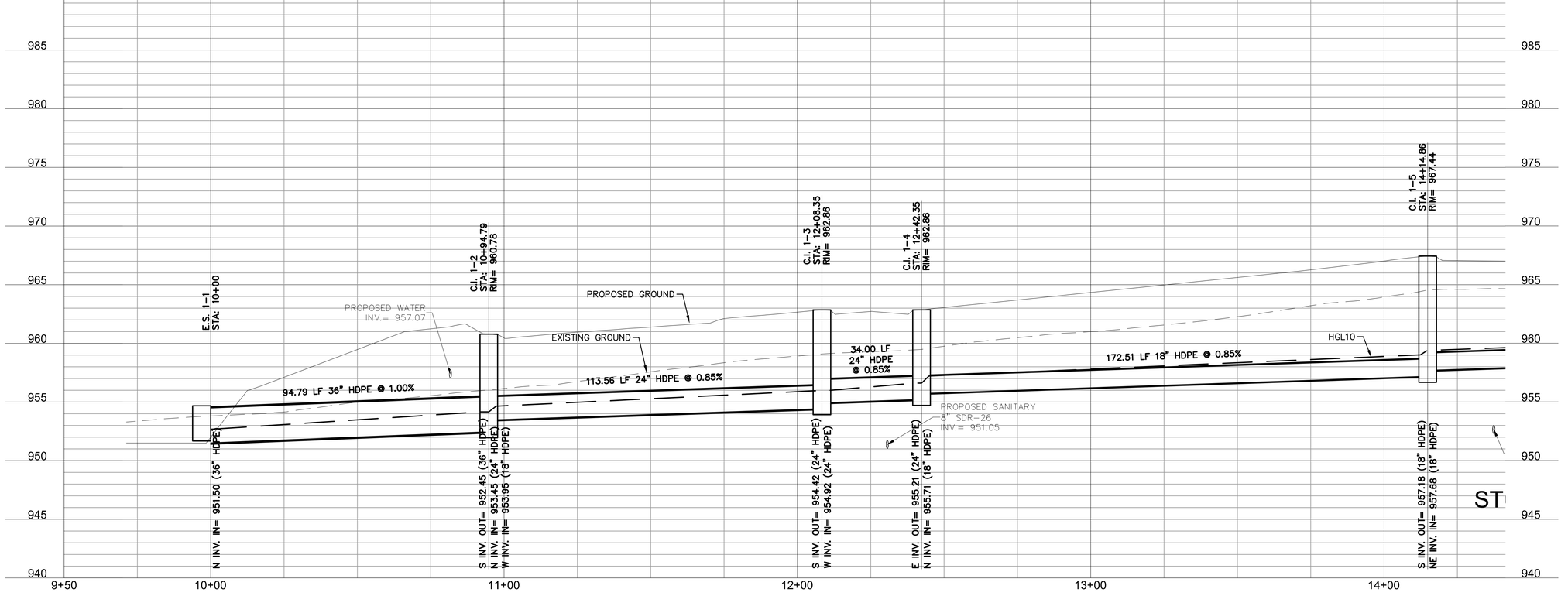
drawing no.:
date: 04/20/2020

SHEET
C128

Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 1-1	48.24	3	3	10	15	2.00	23.3

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





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1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/29/2020	REVISED PER CITY COMMENTS	

REVISIONS

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

HOOK FARMS
FIRST PLAT

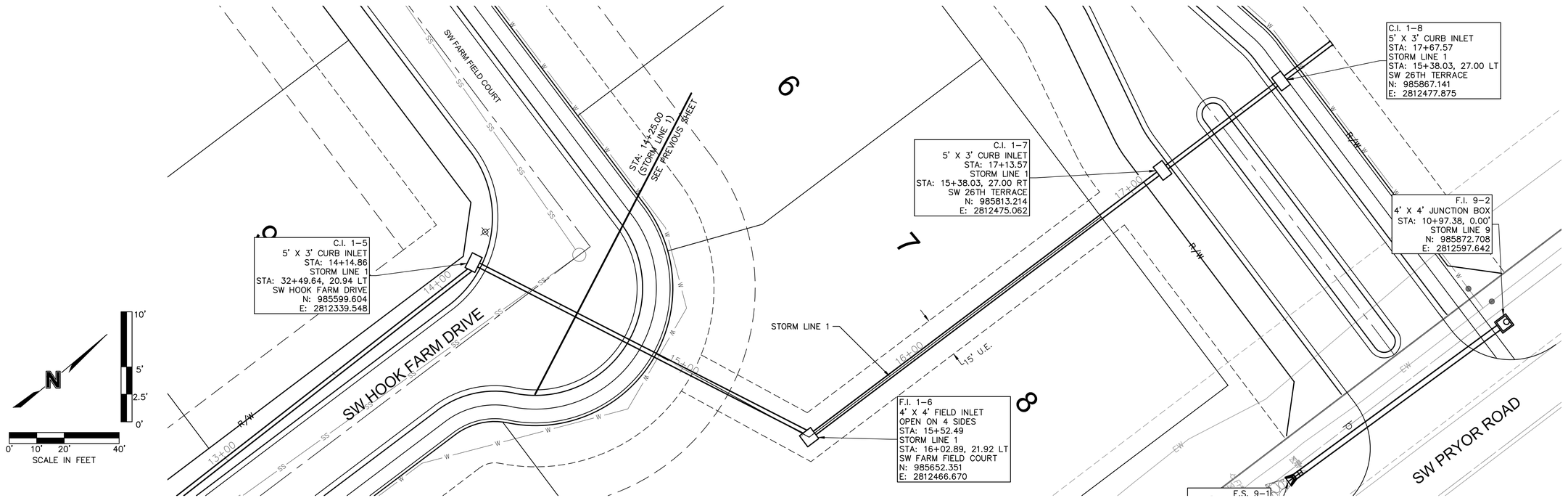
2020

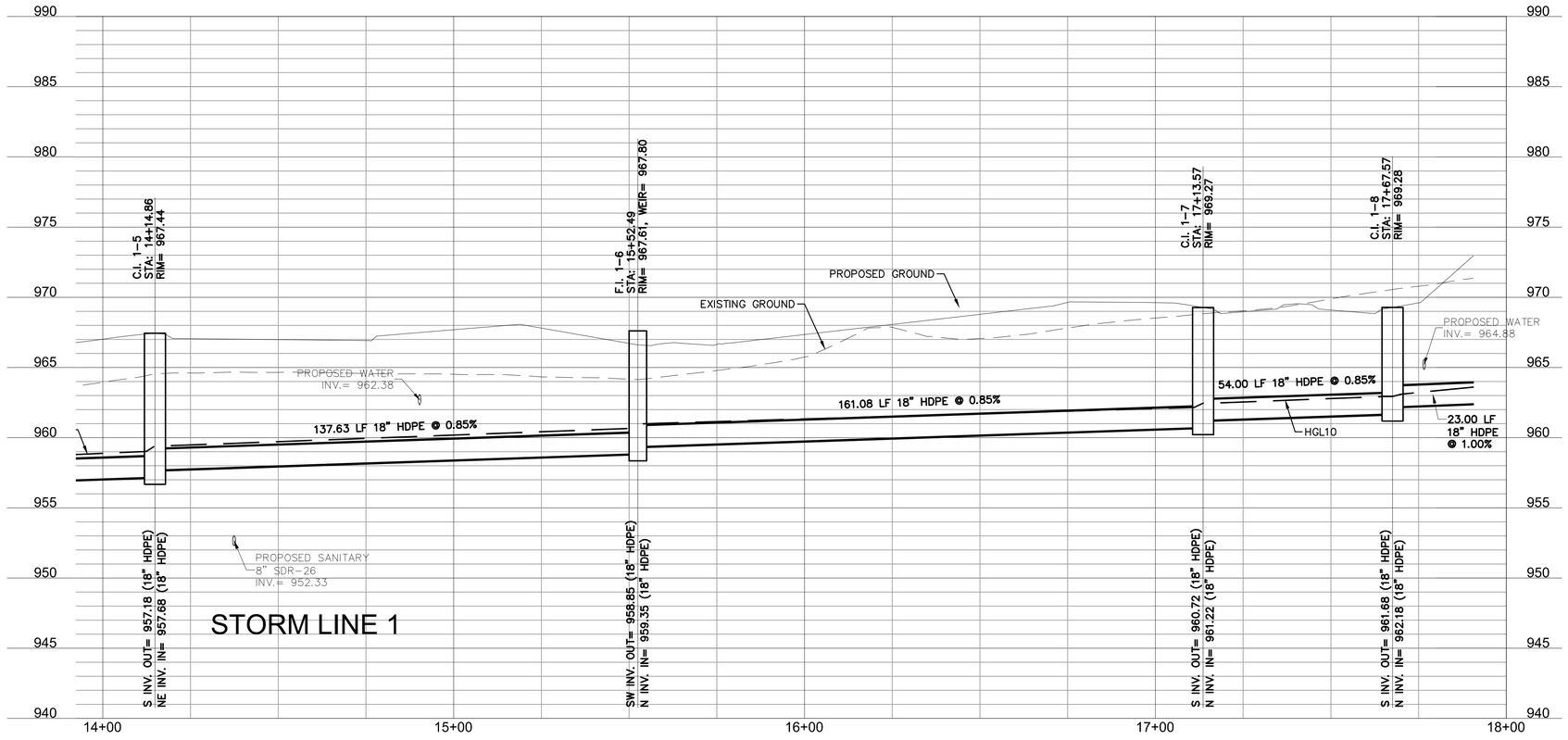
LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C129

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM01_0194061.dwg USER: nheiser
DATE: Jun 30, 2020 7:14am XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PSTRM_0194061 C_PSURF_0194061 C_PUTIL_0194061





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DATE: Jun 30, 2020 7:14am XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PSTRM_0194061 C_PSURF_0194061 C_PUTIL_0194061

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PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/29/2020	REVISED PER CITY COMMENTS	

REVISIONS

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

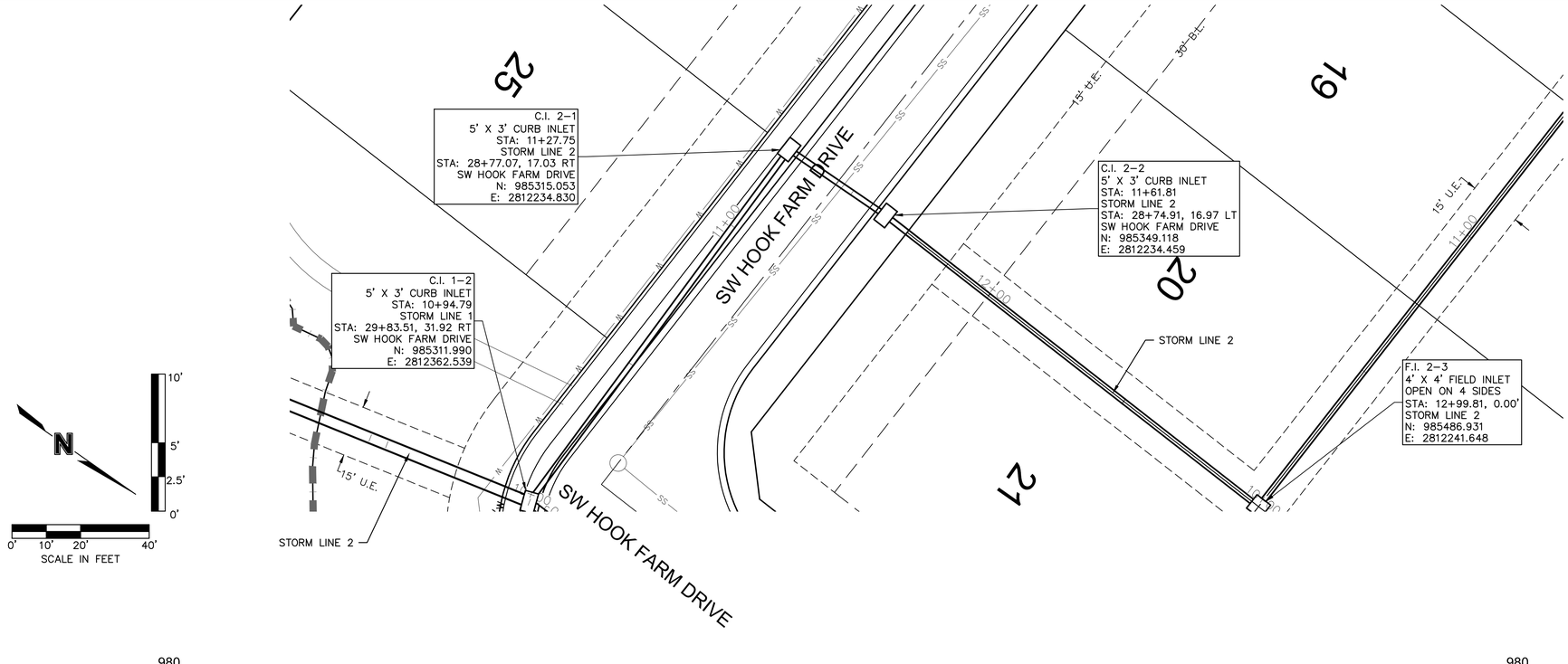
HOOK FARMS
FIRST PLAT

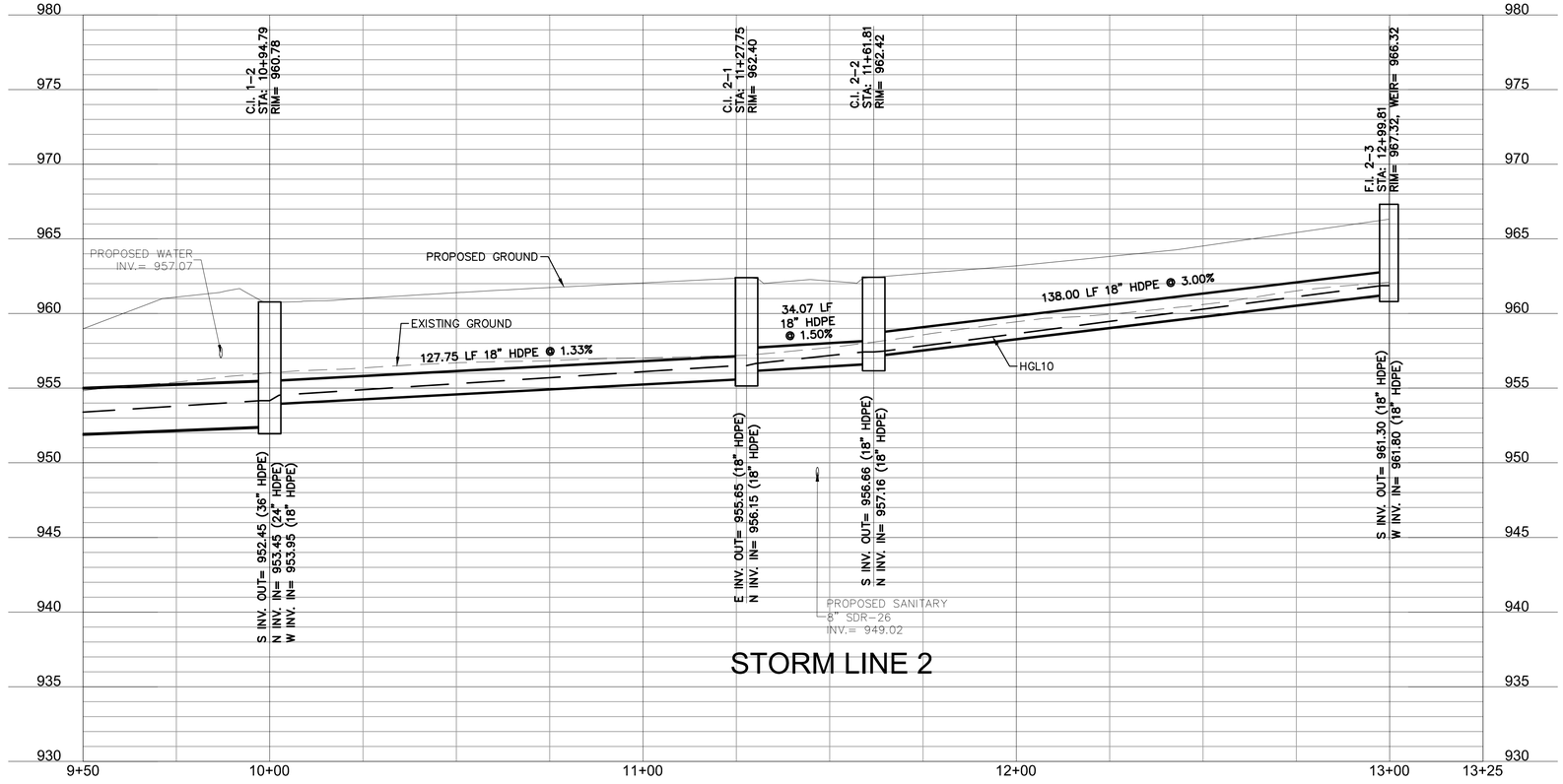
2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C130





STORM LINE 2

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	09/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

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

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C131

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM01_0194061.dwg USER: nheiser
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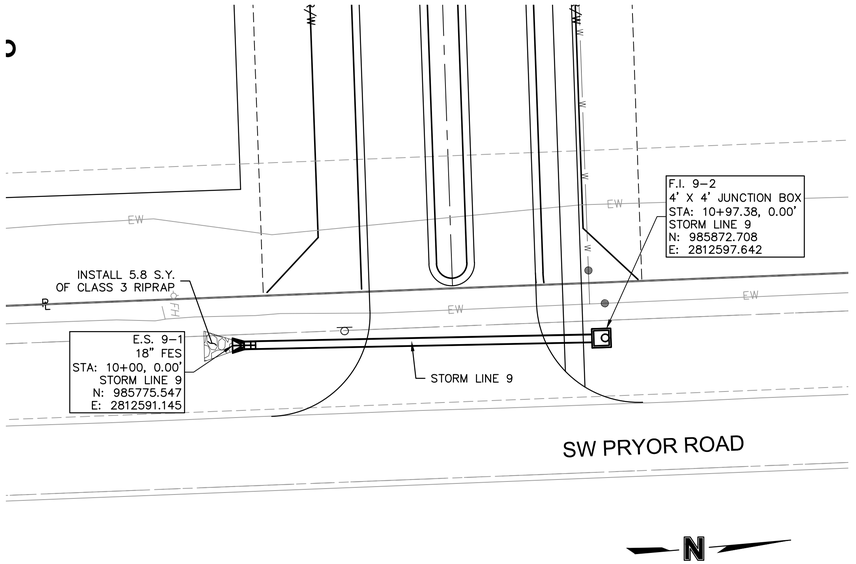
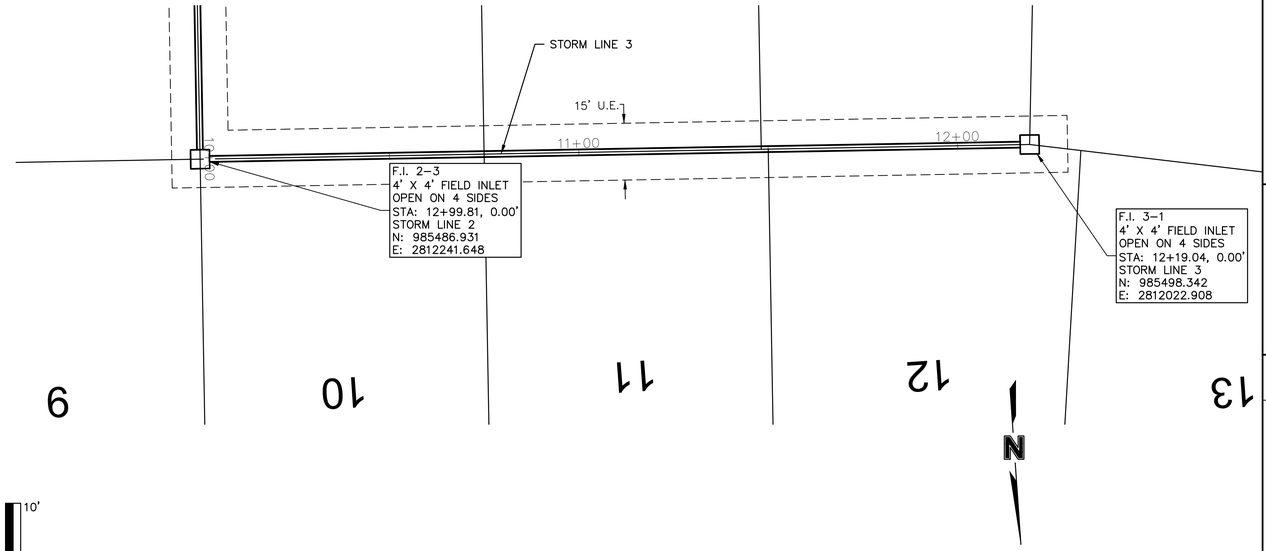
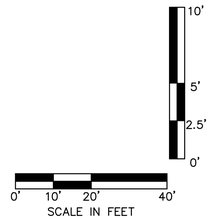
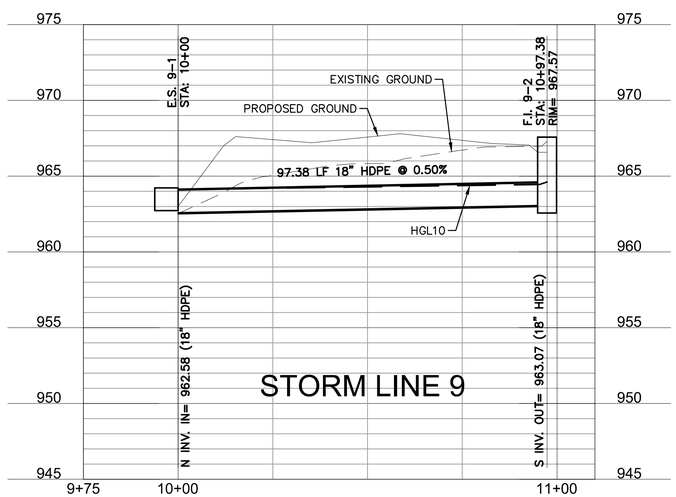
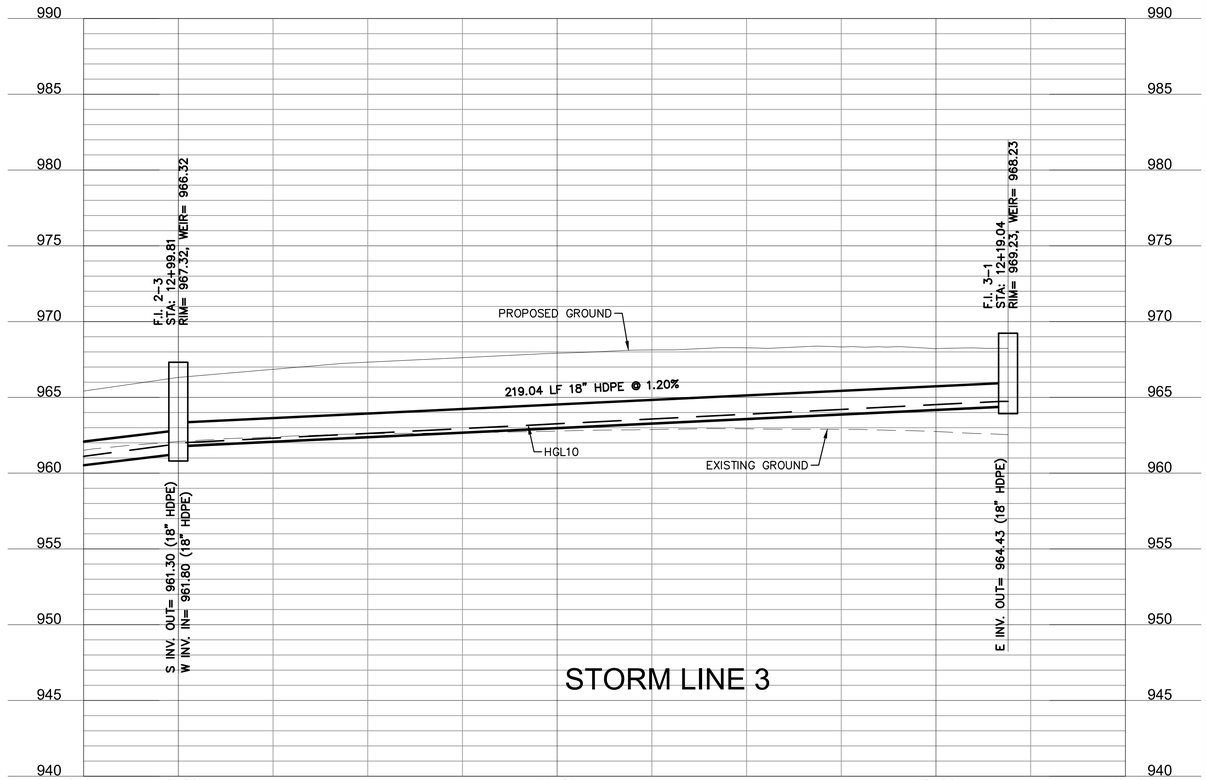




Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 9-1	14.93	1.5	3	10	7.5	2.00	5.8
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							







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1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

STORM SEWER PLAN & PROFILE (LINE 3 & 9)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C132

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM01_0194061.dwg USER: nheiser
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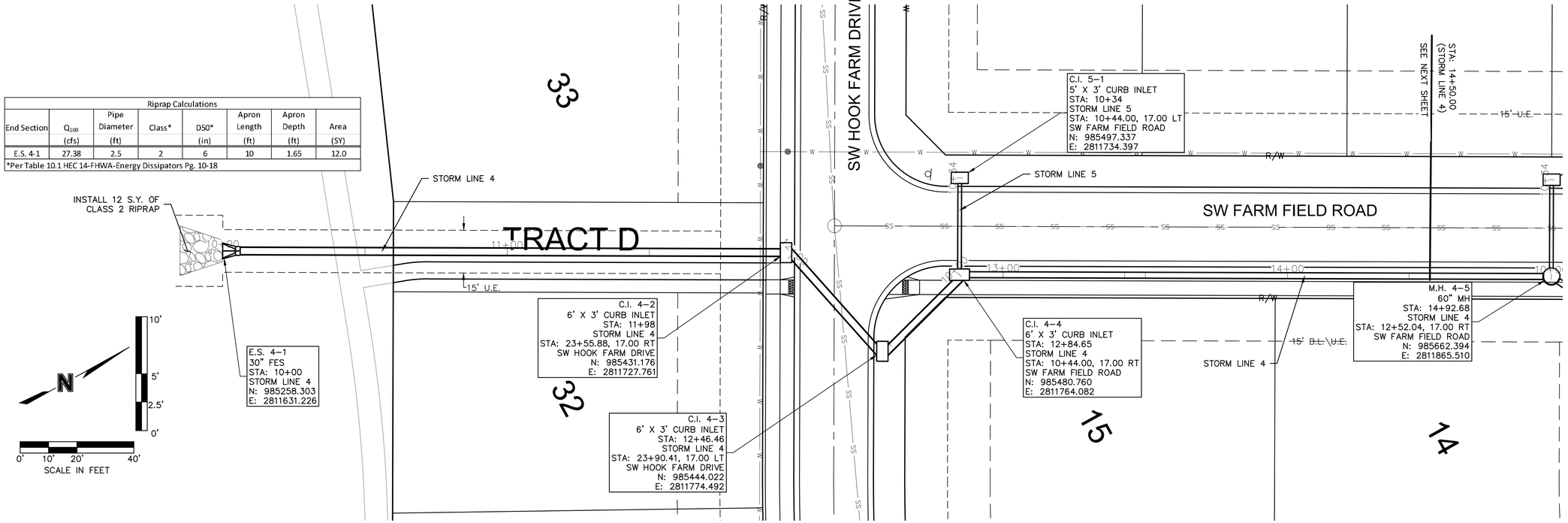
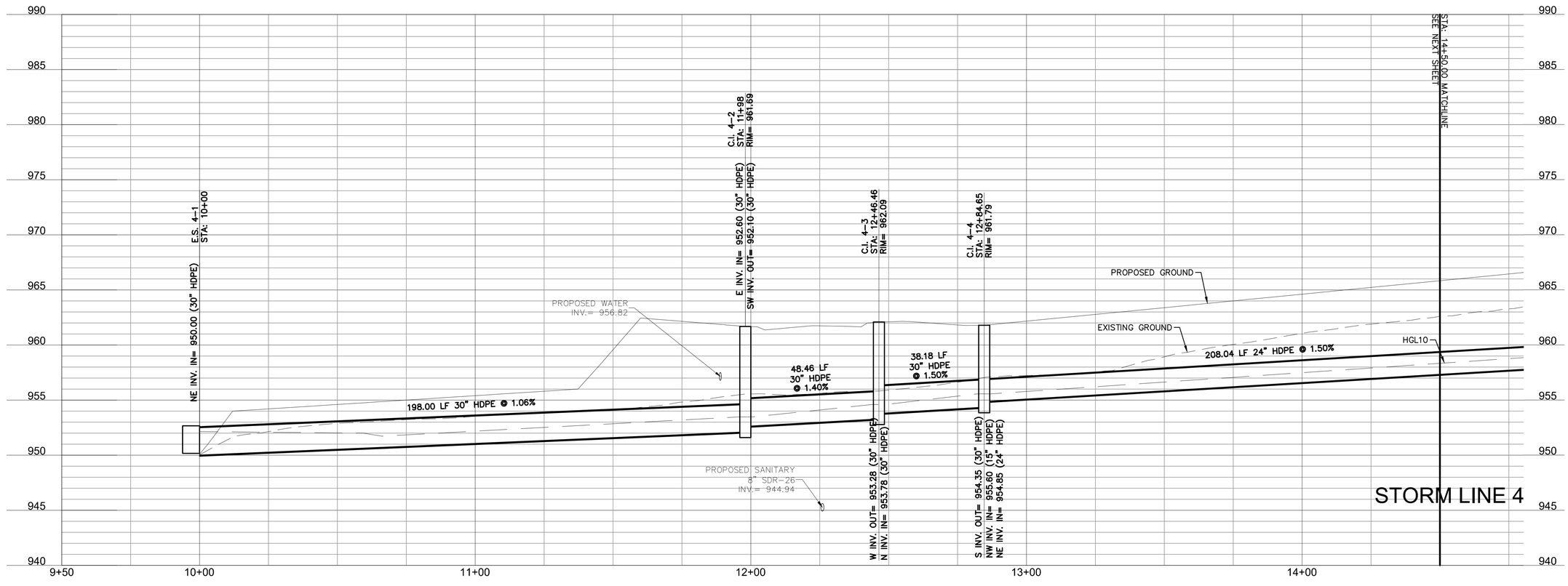
Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 4-1	27.38	2.5	2	6	10	1.65	12.0
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							





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REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

STORM SEWER PLAN & PROFILE (LINE 4)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

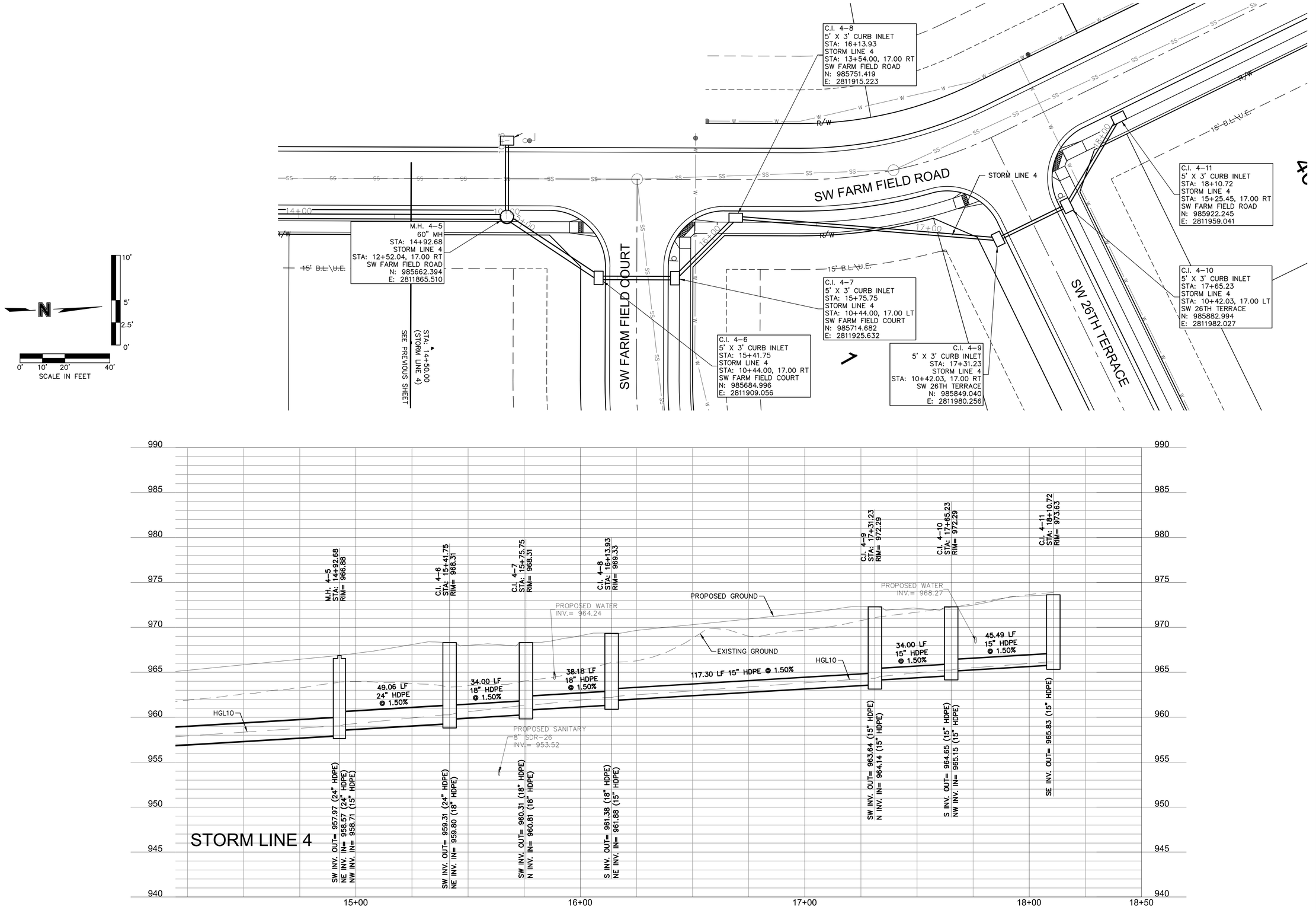
2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C133

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM02_0194061.dwg USER: nheiser
DATE: Jun 29, 2020 6:53pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061
C_PUTIL_0194061 C_PSURF_0194061 C_PSTRM_0194061 C_FBASE_0194061



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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/29/2020	REVISED PER CITY COMMENTS	

REVISIONS

STORM SEWER PLAN & PROFILE (LINE 4 CONT'D)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C134

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM02_0194061.dwg USER: nheiser
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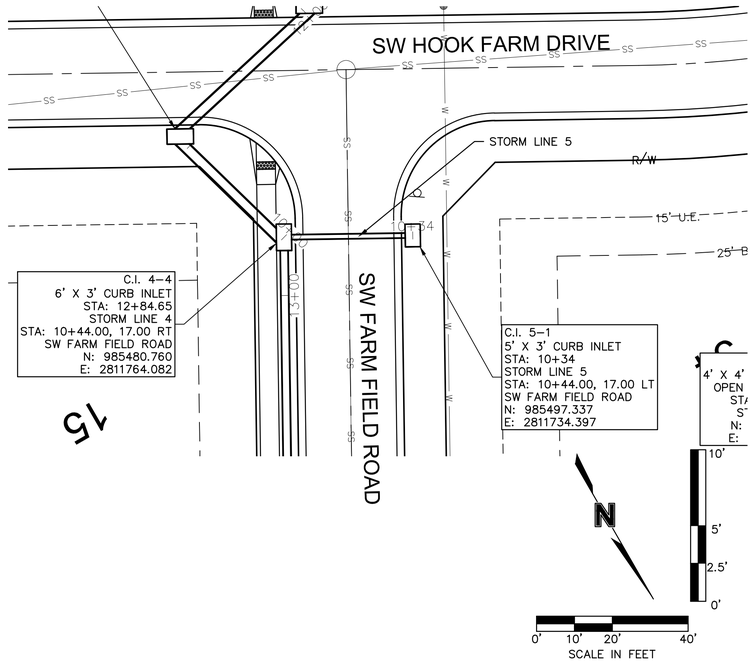
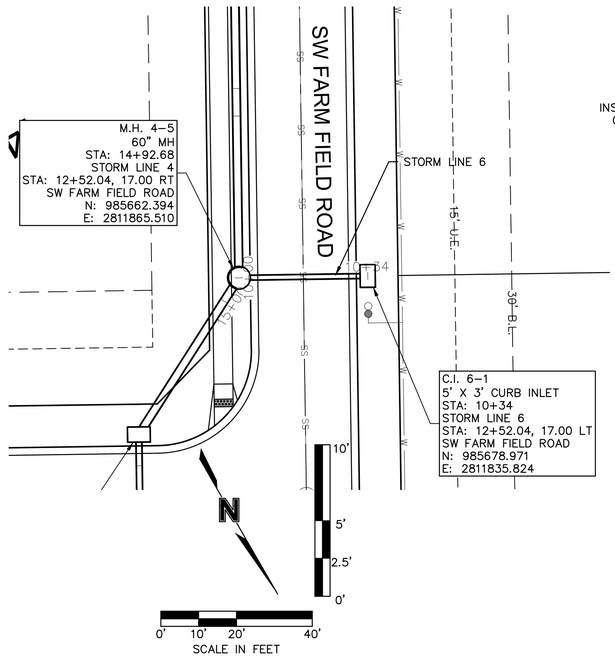
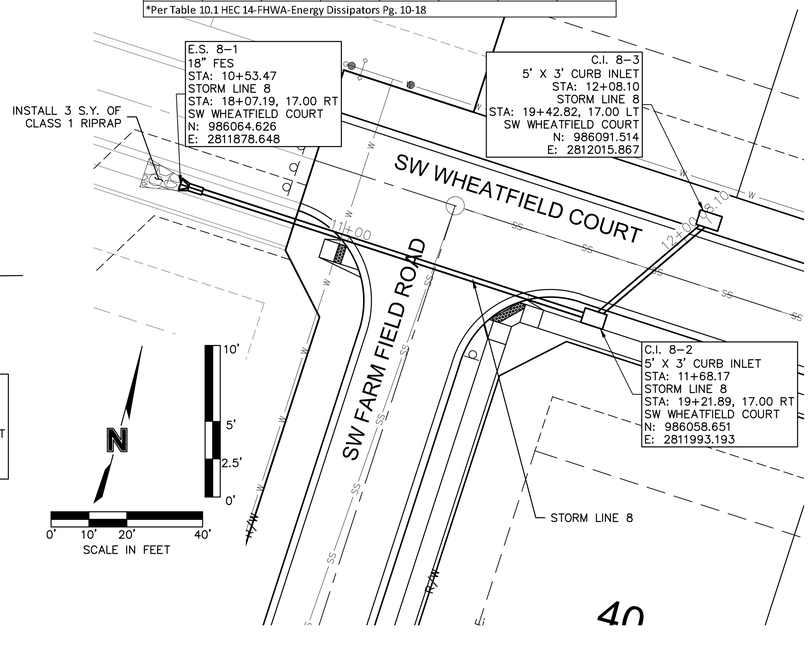
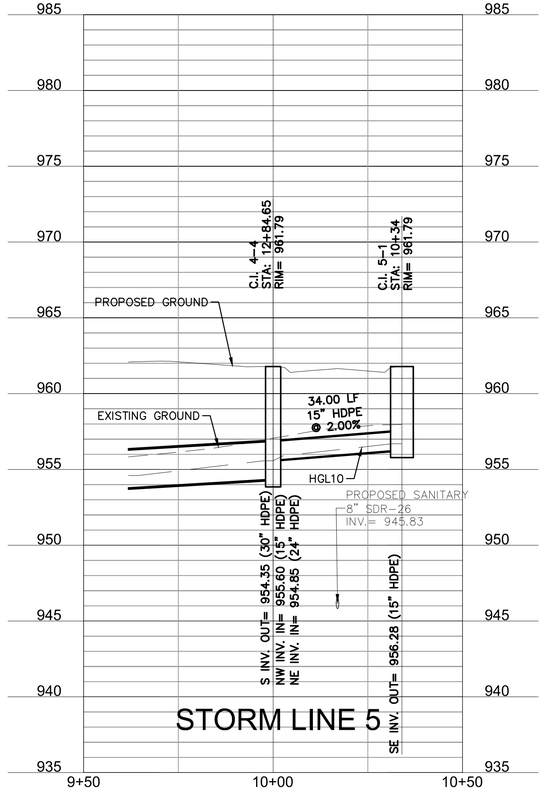
DATE: Jun 29, 2020 6:53pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061
C_PUTIL_0194061 C_PSURF_0194061 C_PSTRM_0194061 C_FBASE_0194061

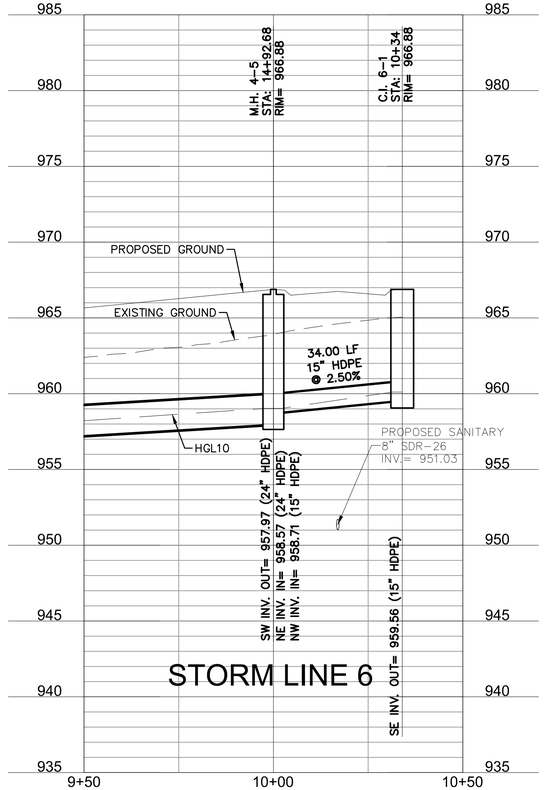


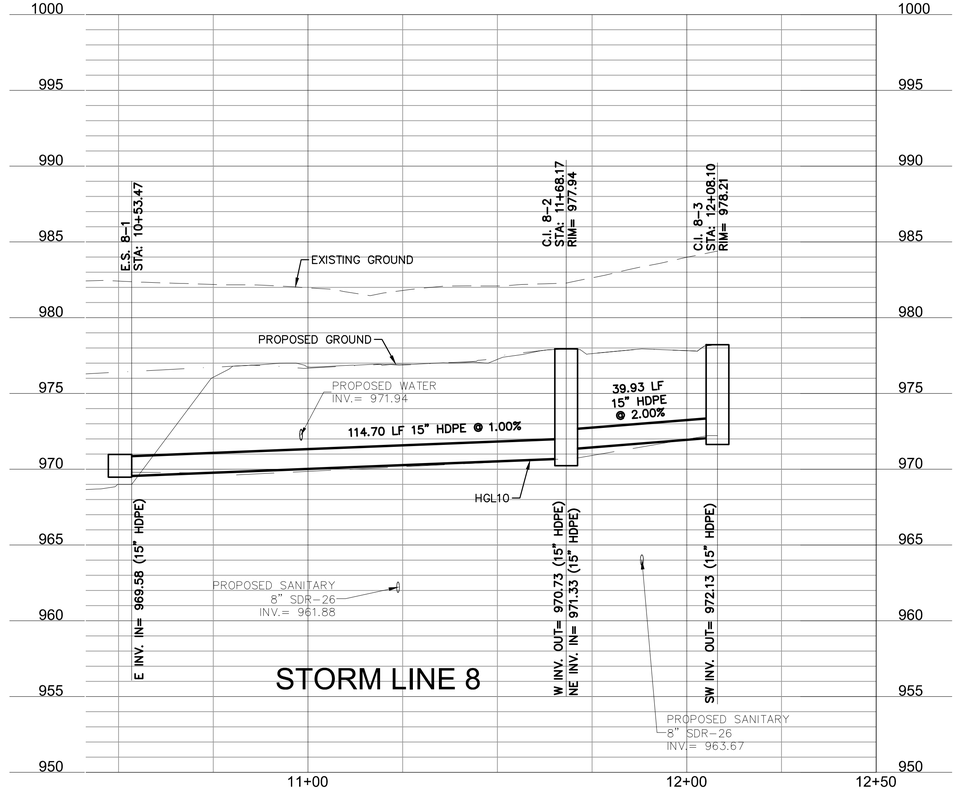


Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 8-1	5.56	1.25	1	5	5	1.46	3.0
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							









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JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

STORM SEWER PLAN & PROFILE (LINES 5, 6, & 8)
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

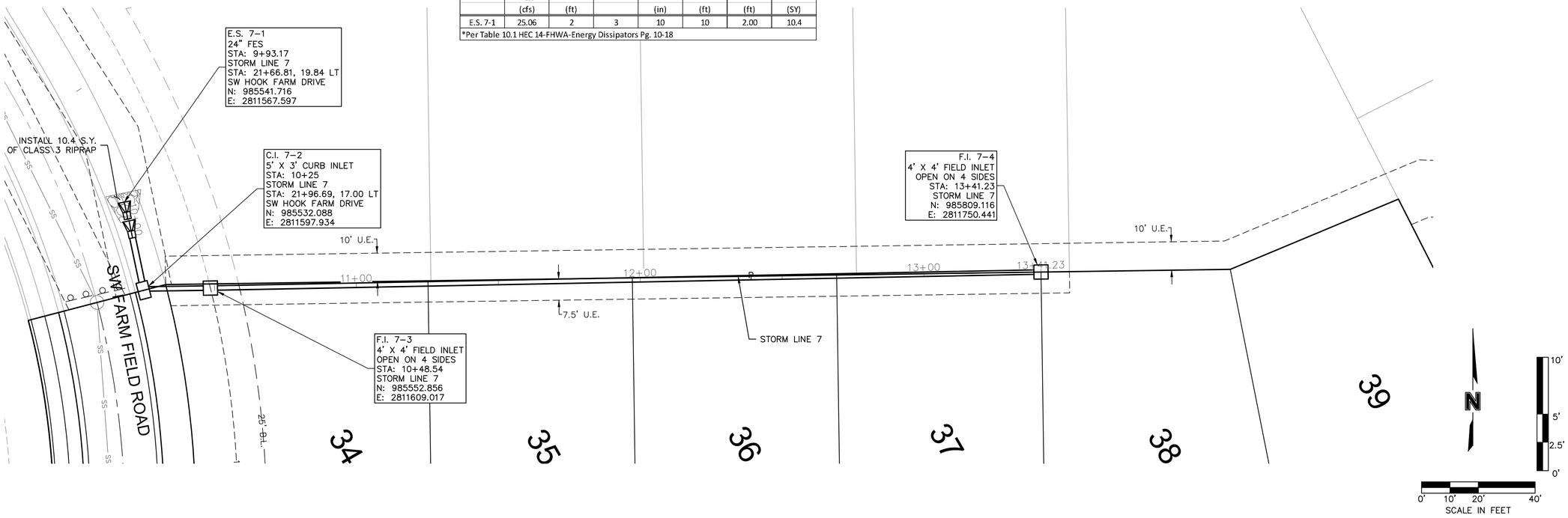
2020

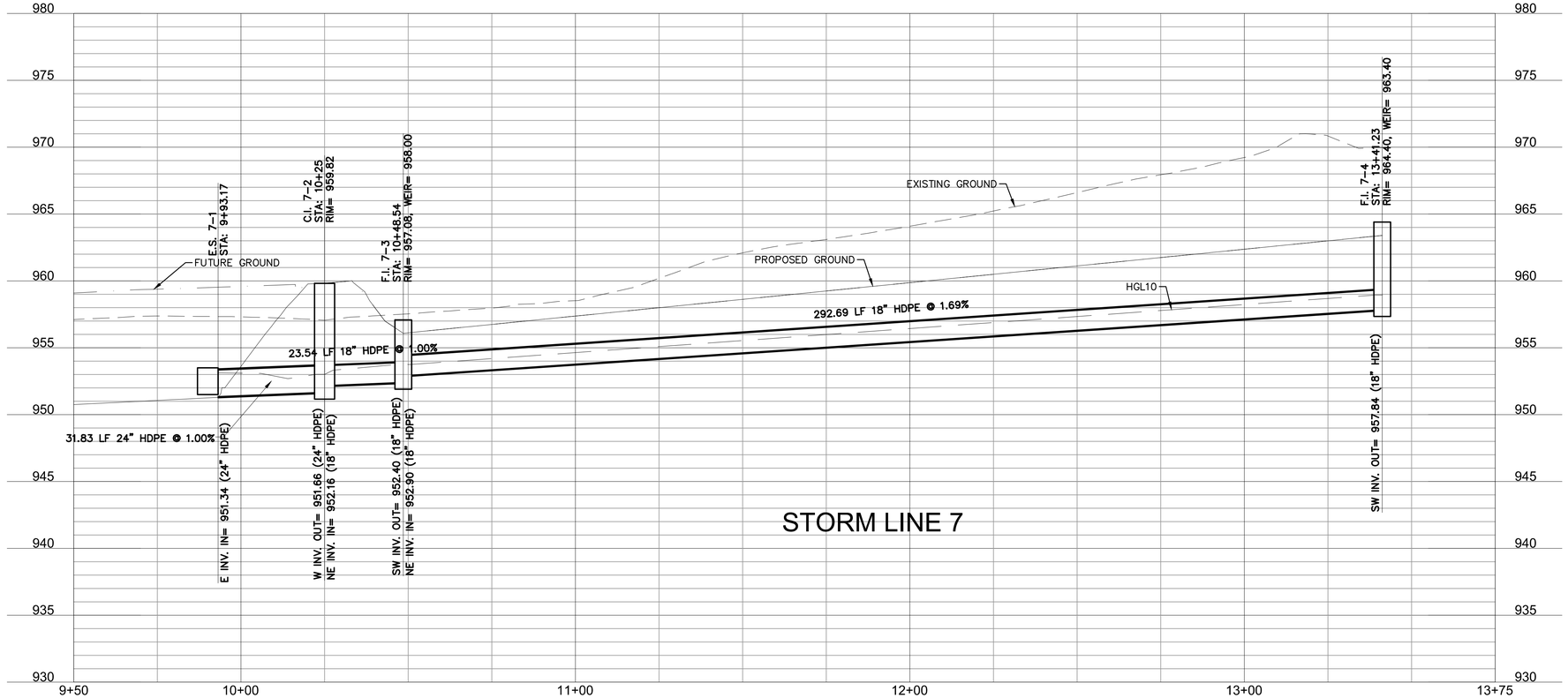
LEE'S SUMMIT, MO

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C135

Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 7-1	25.06	2	3	10	10	2.00	10.4
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							





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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

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

HOOK FARMS
FIRST PLAT

2020

LEE'S SUMMIT, MO

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C136

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM02_0194061.dwg USER: nheiser
DATE: Jun 29, 2020 6:53pm XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061
C_PSTRM_0194061 C_PSURF_0194061 C_PUTIL_0194061

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

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 C105–C109 FOR SWALE GRADING DETAILS.

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

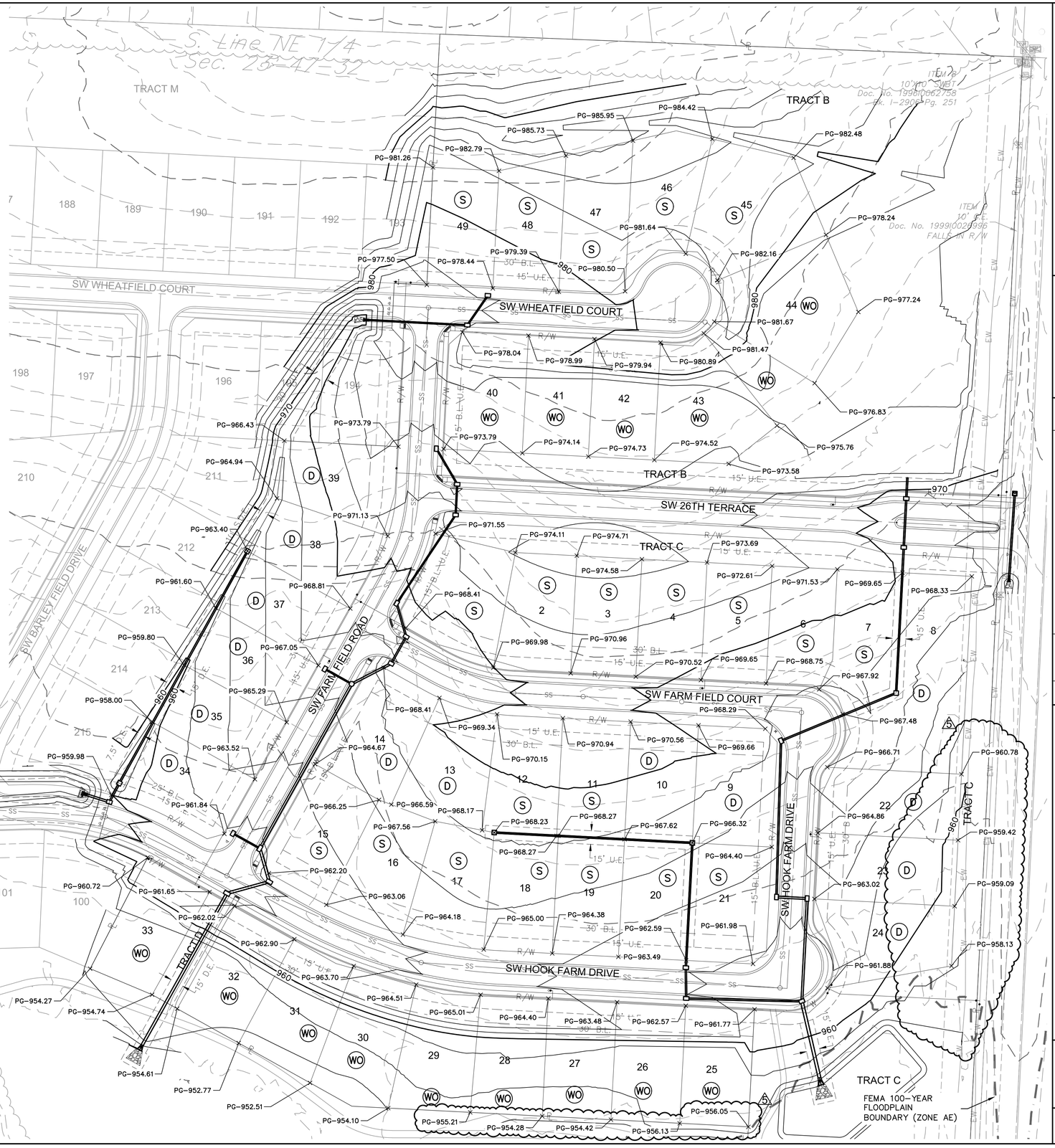
7. NO BUILDING PERMITS WILL BE ISSUED UNTIL AN AS–GRADED MASTER DRAINAGE PLAN HAS BEEN SUBMITTED TO THE CITY AND APPROVED BY THE CITY.

BASEMENT TYPES

- (S) STANDARD
- (D) DAYLIGHT
- (WO) WALK–OUT

N

0' 30' 60' 120'
SCALE IN FEET



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JULIE ELAINE SELLERS
NUMBER PE-2017000367
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PROFESSIONAL ENGINEER

REVISIONS			
REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	
3	09/10/2020	REMOVED PIPE INSULATION	
4	10/07/2020	REVISED PER CITY COMMENTS	
5	11/19/2020	REVISED LOTS 25-29 GRADING	

MASTER DRAINAGE PLAN
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C137

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM03_0194061.dwg USER: nheiser
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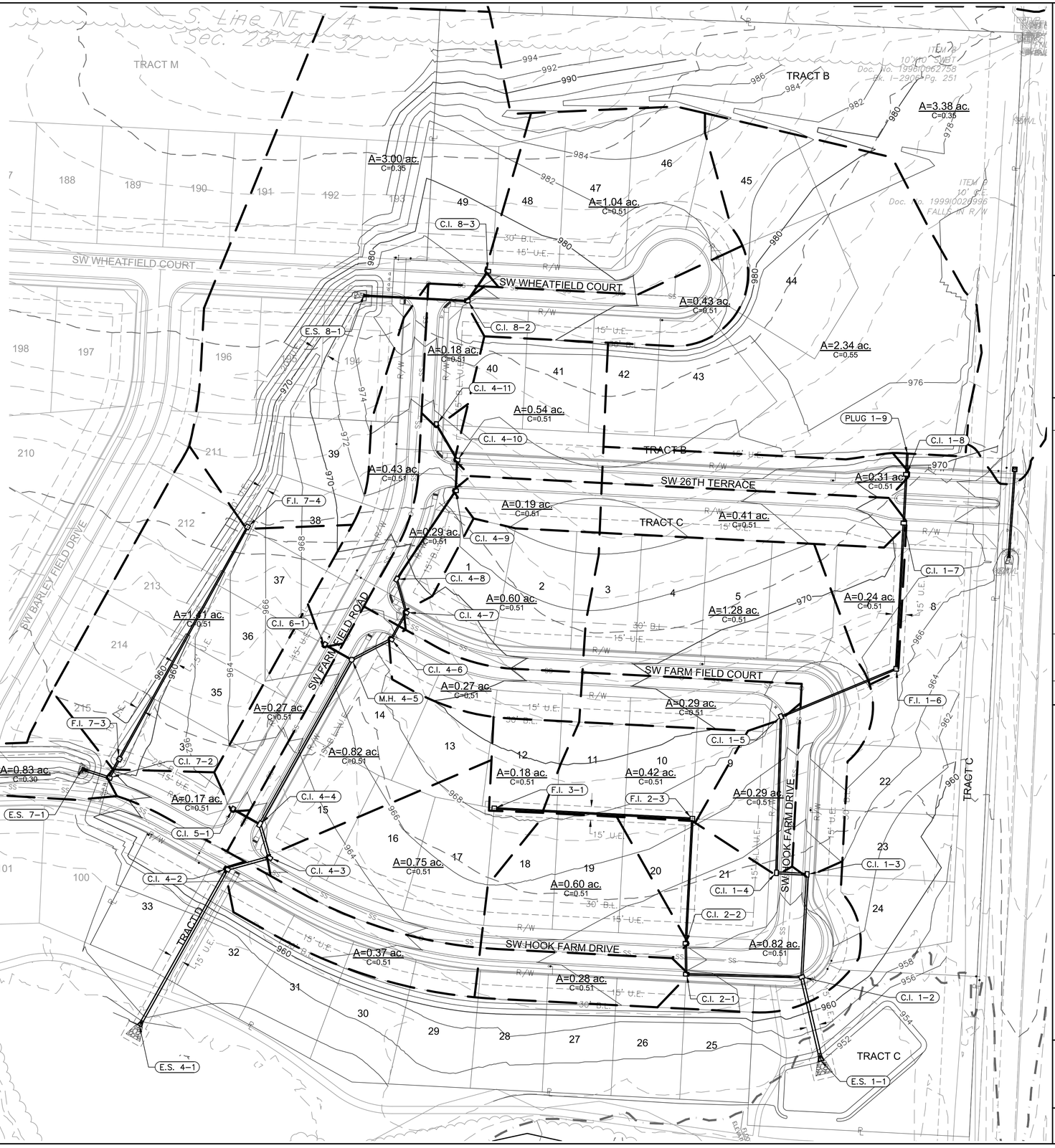
LEGEND	
100	FINISHED INDEX CONTOURS
100	FINISHED INTERMEDIATE CONTOURS
— —	RIDGE LINE
A	DRAINAGE AREA
C	RUNOFF COEFFICIENT
C.I. 0–0	STORM STRUCTURE NUMBER

N

0' 30' 60' 120'
SCALE IN FEET



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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

DRAINAGE PLAN
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

2020

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C138

DWG: F:\2019\4001-4500\019-4061\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street and Storm Plans\C_STM04_0194061.dwg USER: nheiser
DATE: Jun 30, 2020 7:14am XREFS: C_PTBLK_0194061_34x22 C_PBNDY_0194061 C_XBASE_0194061 C_PBASE_0194061 C_PUTIL_0194061 C_PSTRM_0194061

Inlet Design Table

10 Year Return Frequency

Inlet ID	Inlet Location	Peak Flow (cfs)	Upstream Bypass (cfs)	Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
C.I. 1-2(L)	SAG	0.60	...	...	...	...	...	...	...	...	0.16	8.12	...
C.I. 1-2(R)	SAG	1.43	...	...	...	...	...	...	...	...	0.14	6.86	...
C.I. 1-2	SAG	3.08	1.89	4.97	0.80	19.40	15.52	4.97	0.00	100.00%	...	...	...
C.I. 1-3	GRADE	4.80	0.00	4.80	1.00	3.01	3.01	3.01	1.79	62.65%	0.21	10.54	...
C.I. 1-4	GRADE	1.09	0.11	1.19	1.00	1.06	1.06	1.06	0.13	89.12%	0.13	6.26	...
C.I. 1-5	GRADE	1.09	0.00	1.09	1.00	0.98	0.98	0.98	0.11	90.13%	0.12	6.04	...
F.I. 1-6	SAG	0.90	0.00	0.90	0.80	18.67	14.93	0.90	0.00	100.00%	...	...	0.07
C.I. 1-7	GRADE	1.54	0.00	1.54	1.00	1.49	1.49	1.49	0.04	97.14%	0.14	6.54	...
C.I. 1-8	GRADE	1.16	0.00	1.16	1.00	1.15	1.15	1.15	0.01	98.84%	0.13	5.89	...
PLUG 1-9	SAG	9.46	...	...	...	...	...	...	...	...	...	...	...
C.I. 2-1	GRADE	1.05	0.00	1.05	1.00	0.95	0.95	0.95	0.10	90.49%	0.12	5.96	...
C.I. 2-2	GRADE	2.25	0.00	2.25	1.00	1.80	1.80	1.80	0.45	79.97%	0.16	7.94	...
F.I. 2-3	SAG	1.58	0.00	1.58	0.80	18.67	14.93	1.58	0.00	100.00%	...	...	0.10
F.I. 3-1	SAG	0.68	0.00	0.68	0.80	18.67	14.93	0.68	0.00	100.00%	...	...	0.05
C.I. 4-2	GRADE	1.39	0.00	1.39	1.00	1.24	1.24	1.24	0.15	89.36%	0.13	6.62	...
C.I. 4-3	GRADE	2.81	0.00	2.81	1.00	2.20	2.20	2.20	0.61	78.28%	0.17	8.63	...
C.I. 4-4(L)	SAG	2.51	...	...	...	...	...	...	...	...	0.17	8.27	...
C.I. 4-4(R)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 4-4	SAG	3.08	0.09	3.17	0.80	23.28	18.63	3.17	0.00	100.00%	...	...	...
C.I. 4-6	GRADE	1.01	0.00	1.01	1.00	0.92	0.92	0.92	0.09	90.84%	0.12	5.88	...
C.I. 4-7	GRADE	2.25	0.00	2.25	1.00	1.80	1.80	1.80	0.45	79.97%	0.16	7.94	...
C.I. 4-8(L)	SAG	0.64	...	...	...	...	...	...	...	...	0.12	6.05	...
C.I. 4-8(R)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 4-8	SAG	1.09	0.45	1.54	0.80	19.40	15.52	1.54	0.00	100.00%	...	...	...
C.I. 4-9	GRADE	0.71	0.00	0.71	1.00	0.67	0.67	0.67	0.04	93.77%	0.10	5.16	...
C.I. 4-10	GRADE	2.03	0.00	2.03	1.00	1.66	1.66	1.66	0.37	81.81%	0.15	7.63	...
C.I. 4-11	GRADE	0.68	0.00	0.68	1.00	0.64	0.64	0.64	0.04	94.15%	0.10	5.05	...
C.I. 5-1	GRADE	1.01	0.34	1.35	1.00	1.18	1.18	1.18	0.17	87.71%	0.13	6.55	...
C.I. 6-1	GRADE	1.76	0.17	1.93	1.00	1.59	1.59	1.59	0.34	82.61%	0.15	7.49	...
C.I. 7-2	GRADE	0.64	0.61	1.25	1.00	1.11	1.11	1.11	0.14	88.63%	0.13	6.36	...
F.I. 7-3	SAG	5.29	0.00	5.29	0.80	18.67	14.93	5.29	0.00	100.00%	...	...	0.22
F.I. 7-4	SAG	7.72	0.00	7.72	0.80	18.67	14.93	7.72	0.00	100.00%	...	...	0.28
C.I. 8-2	GRADE	1.35	0.00	1.35	1.00	1.18	1.18	1.18	0.17	87.69%	0.13	6.55	...
C.I. 8-3	GRADE	4.16	0.00	4.16	1.00	2.77	2.77	2.77	1.40	66.43%	0.20	9.99	...
F.I. 9-1	SAG	8.70	0.00	8.70	0.80	18.67	14.93	8.70	0.00	100.00%	...	...	0.30

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.

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(L)	0.16	0.51	5.00	7.35	1.00	0.60
C.I. 1-2(R)	0.38	0.51	5.00	7.35	1.00	1.43
C.I. 1-2(B)	0.28	0.51	5.00	7.35	1.00	1.05
C.I. 1-2	0.82	0.51	5.00	7.35	1.00	3.08
C.I. 1-3	1.28	0.51	5.00	7.35	1.00	4.80
C.I. 1-4	0.29	0.51	5.00	7.35	1.00	1.09
C.I. 1-5	0.29	0.51	5.00	7.35	1.00	1.09
F.I. 1-6	0.24	0.51	5.00	7.35	1.00	0.90
C.I. 1-7	0.41	0.51	5.00	7.35	1.00	1.54
C.I. 1-8	0.31	0.51	5.00	7.35	1.00	1.16
PLUG 1-9	2.34	0.55	5.00	7.35	1.00	9.46
C.I. 2-1	0.28	0.51	5.00	7.35	1.00	1.05
C.I. 2-2	0.60	0.51	5.00	7.35	1.00	2.25
F.I. 2-3	0.42	0.51	5.00	7.35	1.00	1.58
F.I. 3-1	0.18	0.51	5.00	7.35	1.00	0.68
C.I. 4-2	0.37	0.51	5.00	7.35	1.00	1.39
C.I. 4-3	0.75	0.51	5.00	7.35	1.00	2.81
C.I. 4-4(L)	0.67	0.51	5.00	7.35	1.00	2.51
C.I. 4-4(R)	0.00	0.51	5.00	7.35	1.00	0.00
C.I. 4-4(B)	0.15	0.51	5.00	7.35	1.00	0.56
C.I. 4-4	0.82	0.51	5.00	7.35	1.00	3.08
C.I. 4-6	0.27	0.51	5.00	7.35	1.00	1.01
C.I. 4-7	0.60	0.51	5.00	7.35	1.00	2.25
C.I. 4-8(L)	0.17	0.51	5.00	7.35	1.00	0.64
C.I. 4-8(R)	0.00	0.51	5.00	7.35	1.00	0.00
C.I. 4-8(B)	0.12	0.51	5.00	7.35	1.00	0.45
C.I. 4-8	0.29	0.51	5.00	7.35	1.00	1.09
C.I. 4-9	0.19	0.51	5.00	7.35	1.00	0.71
C.I. 4-10	0.54	0.51	5.00	7.35	1.00	2.03
C.I. 4-11	0.18	0.51	5.00	7.35	1.00	0.68
C.I. 5-1	0.27	0.51	5.00	7.35	1.00	1.01
C.I. 6-1	0.47	0.51	5.00	7.35	1.00	1.76
C.I. 7-2	0.17	0.51	5.00	7.35	1.00	0.64
F.I. 7-3	1.41	0.51	5.00	7.35	1.00	5.29
F.I. 7-4	3.00	0.35	5.00	7.35	1.00	7.72
C.I. 8-2	0.36	0.51	5.00	7.35	1.00	1.35
C.I. 8-3	1.11	0.51	5.00	7.35	1.00	4.16
F.I. 9-1	3.38	0.35	5.00	7.35	1.00	8.70

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)
C.I. 8-2	E.S. 8-1	114.701	969.58	970.73	1.00	15	0.01	3.95	5.74	8.41	0.60	971.53	977.94
C.I. 8-3	C.I. 8-2	39.926	971.33	972.13	2.00	15	0.01	2.77	6.02	11.88	0.41	972.80	978.21
C.I. 4-2	E.S. 4-1	198.000	952.10	950.00	1.06	30	0.01	16.51	4.84	54.91	2.14	953.47 j	961.69
C.I. 4-3	C.I. 4-2	48.464	953.28	952.60	1.40	30	0.01	15.30	7.93	63.16	0.87	954.60	962.09
C.I. 4-4	C.I. 4-3	38.184	954.35	953.78	1.49	30	0.01	13.17	7.48	65.14	0.82	955.57	961.79
M.H. 4-5	C.I. 4-4	208.035	957.97	954.79	1.53	24	0.01	8.82	6.51	36.35	0.78	959.03	966.88
C.I. 4-6	M.H. 4-5	49.062	959.31	958.57	1.51	24	0.01	7.23	6.93	36.11	0.61	960.26	968.31
C.I. 4-7	C.I. 4-6	34.000	960.31	959.80	1.50	18	0.01	6.31	7.01	16.72	0.64	961.28	968.31
C.I. 4-8	C.I. 4-7	38.184	961.38	960.81	1.49	18	0.01	4.51	6.31	16.68	0.53	962.19	969.18
C.I. 4-9	C.I. 4-8	117.300	963.64	961.88	1.50	15	0.01	2.97	5.75	10.28	0.46	964.33	972.29
C.I. 4-10	C.I. 4-9	34.000	964.65	964.14	1.50	15	0.01	2.30	5.32	10.28	0.40	965.26	972.29
C.I. 4-11	C.I. 4-10	45.486	965.83	965.15	1.49	15	0.01	0.64	3.66	10.26	0.21	966.14	973.57
C.I. 1-2	E.S. 1-1	94.790	952.45	951.50	1.00	36	0.01	28.03	8.84	86.80	1.17	954.16	960.78
C.I. 1-3	C.I. 1-2	113.558	954.42	953.45	0.85	24	0.01	18.05	8.13	27.17	1.19	955.95	962.86
C.I. 1-4	C.I. 1-3	34.000	955.21	954.92	0.85	24	0.01	15.04	7.64	27.16	1.06	956.61	962.86
C.I. 1-5	C.I. 1-4	172.513	957.18	955.71	0.85	18	0.01	13.98	7.91	12.60	1.50	959.02	967.44
F.I. 1-6	C.I. 1-5	137.631	958.85	957.68	0.85	18	0.01	13.00	7.36	12.59	1.50	960.66	968.80
C.I. 1-7	F.I. 1-6	161.082	960.72	959.35	0.85	18	0.01	12.10	6.90	12.59	1.50	962.16	968.91
C.I. 1-8	C.I. 1-7	54.000	961.68	961.22	0.85	18	0.01	10.61	6.78	12.60	1.24	962.93	968.91
PLUG 1-9	C.I. 1-8	23.000	962.41	962.18	1.00	18	0.01	9.46	7.32	13.65	0.92	963.60	967.43
C.I. 2-1	C.I. 1-3	127.746	955.65	953.95	1.33	18	0.01	5.01	6.34	15.75	0.58	956.51	962.40
C.I. 2-2	C.I. 2-1	34.068	956.66	956.15	1.50	18	0.01	4.06	6.11	16.70	0.50	957.43	962.42
F.I. 2-3	C.I. 2-2	138.000	961.30	957.16	3.00	18	0.01	2.26	6.06	23.65	0.31	961.87	967.32
F.I. 3-1	F.I. 2-3	219.038	964.43	961.80	1.20	18	0.01	0.68	3.46	14.96	0.22	964.74	969.23
C.I. 6-1	M.H. 4-5	34.000	959.61	958.71	2.65	15	0.01	1.59	4.96	13.66	0.32	960.11	966.88
C.I. 7-2	E.S. 7-1	31.830	951.66	951.34	1.01	24	0.01	14.17	5.53	29.48	1.78	953.01 j	959.82
F.I. 7-3	C.I. 7-2	23.540	952.40	952.16	1.02	18	0.01	13.01	8.32	13.79	1.16	953.75	956.08
F.I. 7-4	F.I. 7-3	292.690	957.84	952.90	1.69	15	0.01	7.72	7.71	10.91	0.85	958.94	963.40
C.I. 5-1	C.I. 4-4	34.000	956.27	955.62	1.91	15	0.01	1.18	4.62	11.61	0.27	956.70	961.79
F.I. 9-1	E.S. 9-1	97.38	963.07	962.58	0.50	18	0.010	8.70	5.02	9.68	1.50	964.45	967.57

Inlet Design Table

100 Year Return Frequency

Inlet ID	Inlet Location	Peak Flow (cfs)	Upstream Bypass (cfs)	Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
C.I. 1-2(L)	SAG	1.05	...	...	...	...	...	...	...	...	0.22	11.16	...
C.I. 1-2(R)	SAG	2.50	...	...	...	...	...	...	...	...	0.17	8.62	...
C.I. 1-2	SAG	5.40	4.84	10.24	0.80	19.40	15.52	10.24	0.00	100.00%	...	...	...
C.I. 1-3	GRADE	8.42	0.00	8.42	1.00	3.89	3.89	3.89	4.53	46.18%	0.26	13.02	...
C.I. 1-4	GRADE	1.91	0.33	2.24	1.00	1.79	1.79	1.79	0.45	80.07%	0.16	7.92	...
C.I. 1-5	GRADE	1.91	0.00	1.91	1.00	1.58	1.58	1.58	0.33	82.79%	0.15	7.46	...
F.I. 1-6	SAG	1.58	0.00	1.58	0.80	18.67	14.93	1.58	0.00	100.00%	...	...	0.10
C.I. 1-7	GRADE	2.70	0.00	2.70	1.00	2.46	2.46	2.46	0.24	91.09%	0.18	8.08	...
C.I. 1-8	GRADE	2.04	0.00	2.04	1.00	1.93	1.93	1.93	0.11	94.57%	0.16	7.28	...
PLUG 1-9	SAG	16.61	...	...	...	...	...	...	...	...	...	...	...
C.I. 2-1	GRADE	1.84	0.00	1.84	1.00	1.54	1.54	1.54	0.31	83.34%	0.15	7.36	...
C.I. 2-2	GRADE	3.95	0.00	3.95	1.00	2.68	2.68	2.68	1.27	67.78%	0.20	9.80	...
F.I. 2-3	SAG	2.76	0.00	2.76	0.80	18.67	14.93	2.76	0.00	100.00%	...	...	0.14
F.I. 3-1	SAG	1.18	0.00	1.18	0.80	18.67	14.93	1.18	0.00	100.00%	...	...	0.08
C.I. 4-2	GRADE	2.43	0.00	2.43	1.00	1.97	1.97	1.97	0.46	81.03%	0.16	8.17	...
C.I. 4-3	GRADE	4.94	0.00	4.94	1.00	3.21	3.21	3.21	1.73	65.04%	0.21	10.65	...
C.I. 4-4(L)	SAG	4.41	...	...	...	...	...	...	...	...	0.20	10.21	...
C.I. 4-4(R)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 4-4	SAG	5.40	0.29	5.68	0.80	23.28	18.63	5.68	0.00	100.00%	...	...	...
C.I. 4-6	GRADE	1.78	0.00	1.78	1.00	1.49	1.49	1.49	0.29	83.91%	0.15	7.26	...
C.I. 4-7	GRADE	3.95	0.00	3.95	1.00	2.68	2.68	2.68	1.27	67.78%	0.20	9.80	...
C.I. 4-8(L)	SAG	1.12	...	...	...	...	...	...	...	...	0.16	8.18	...
C.I. 4-8(R)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 4-8	SAG	1.91	1.32	3.23	0.80	19.40	15.52	3.23	0.00	100.00%	...	...	...
C.I. 4-9	GRADE	1.25	0.00	1.25	1.00	1.11	1.11	1.11	0.14	88.61%	0.13	6.37	...
C.I. 4-10	GRADE	3.55	0.00	3.55	1.00	2.50	2.50	2.50	1.05	70.36%	0.19	9.42	...
C.I. 4-11	GRADE	1.18	0.00	1.18	1.00	1.06	1.06	1.06	0.13	89.22%	0.12	6.24	...
C.I. 5-1	GRADE	1.78	1.07	2.85	1.00	2.15	2.15	2.15	0.70	75.34%	0.17	8.67	...
C.I. 6-1	GRADE	3.09	0.50	3.59	1.00	2.52	2.52	2.52	1.07	70.12%	0.19	9.45	...
C.I. 7-2	GRADE	1.12	1.73	2.84	1.00	2.14	2.14	2.14	0.70	75.38%	0.17	8.66	...
F.I. 7-3	SAG	9.28	0.00	9.28	0.80	18.67	14.93	9.28	0.00	100.00%	...	...	0.31
F.I. 7-4	SAG	13.55	0.00	13.55	0.80	18.67	14.93	13.55	0.00	100.00%	...	...	0.40
C.I. 8-2	GRADE	2.37	0.00	2.37	1.00	1.87	1.87	1.87	0.50	79.02%	0.16	8.09	...
C.I. 8-3	GRADE	7.30	0.00	7.30	1.00	3.69	3.69	3.69	3.62	50.49%	0.25	12.34	...
F.I. 9-1	SAG	15.26	0.00	15.26	0.80	18.67	14.93	14.93	0.33	97.84%	...	...	0.44

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.

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(L)	0.16	0.51	5.00	10.32	1.25	1.05
C.I. 1-2(R)	0.38	0.51	5.00	10.32	1.25	2.50
C.I. 1-2(B)	0.28	0.51	5.00	10.32	1.25	1.84
C.I. 1-2	0.82	0.51	5.00	10.32	1.25	5.40
C.I. 1-3	1.28	0.51	5.00	10.32	1.25	8.42
C.I. 1-4	0.29	0.51	5.00	10.32	1.25	1.91
C.I. 1-5	0.29	0.51	5.00	10.32	1.25	1.91
F.I. 1-6	0.24	0.51	5.00	10.32	1.25	1.58
C.I. 1-7	0.41	0.51	5.00	10.32	1.25	2.70
C.I. 1-8	0.31	0.51	5.00	10.32	1.25	2.04
PLUG 1-9	2.34	0.55	5.00	10.32	1.25	16.61
C.I. 2-1	0.28	0.51	5.00	10.32	1.25	1.84
C.I. 2-2	0.60	0.51	5.00	10.32	1.25	3.95
F.I. 2-3	0.42	0.51	5.00	10.32	1.25	2.76
F.I. 3-1	0.18	0.51	5.00	10.32	1.25	1.18
C.I. 4-2	0.37	0.51	5.00	10.32	1.25	2.43
C.I. 4-3	0.75	0.51	5.00	10.32	1.25	4.94
C.I. 4-4(L)	0.67	0.51	5.00	10.32	1.25	4.41
C.I. 4-4(R)	0.00	0.51	5.00	10.32	1.25	0.00
C.I. 4-4(B)	0.15	0.51	5.00	10.32	1.25	0.99
C.I. 4-4	0.82	0.51	5.00	10.32	1.25	5.40
C.I. 4-6	0.27	0.51	5.00	10.32	1.25	1.78
C.I. 4-7	0.60	0.51	5.00	10.32	1.25	3.95
C.I. 4-8(L)	0.17	0.51	5.00	10.32	1.25	1.12
C.I. 4-8(R)	0.00	0.51	5.00	10.32	1.25	0.00
C.I. 4-8(B)	0.12	0.51	5.00	10.32	1.25	0.79
C.I. 4-8	0.29	0.51	5.00	10.32	1.25	1.91
C.I. 4-9	0.19	0.51	5.00	10.32	1.25	1.25
C.I. 4-10	0.54	0.51	5.00	10.32	1.25	3.55
C.I. 4-11	0.18	0.51	5.00	10.32	1.25	1.18
C.I. 5-1	0.27	0.51	5.00	10.32	1.25	1.78
C.I. 6-1	0.47	0.51	5.00	10.32	1.25	3.09
C.I. 7-2	0.17	0.51	5.00	10.32	1.25	1.12
F.I. 7-3	1.41	0.51	5.00	10.32	1.25	9.28
F.I. 7-4	3.00	0.35	5.00	10.32	1.25	13.55
C.I. 8-2	0.36	0.51	5.00	10.32	1.25	2.37
C.I. 8-3	1.11	0.51	5.00	10.32	1.25	7.30
F.I. 9-1	3.38	0.35	5.00	10.32	1.25	15.26

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)
C.I. 8-2	E.S. 8-1	114.701	969.58	970.73	1.00	15	0.01	5.56	6.42	8.41	0.74	970.32	977.94
C.I. 8-3	C.I. 8-2	39.926	971.33	972.13	2.00	15	0.01	3.69	6.58	11.88	0.48	971.81	978.21
C.I. 4-2	E.S. 4-1	198.000	952.10	950.00	1.06	30	0.01	27.38	6.72	54.91	2.14	953.88 j	961.69
C.I. 4-3	C.I. 4-2	48.464	953.28	952.60	1.40	30	0.01	25.47	8.56	63.16	1.28	955.00	962.09
C.I. 4-4	C.I. 4-3	38.184	954.35	953.78	1.49	30	0.01	22.42	8.07	65.14	1.22	955.96	961.79
M.H. 4-5	C.I. 4-4	208.035	957.97	954.79	1.53	24	0.01	14.59	6.99	36.35	1.17	959.35	966.88
C.I. 4-6	M.H. 4-5	49.062	959.31	958.57	1.51	24	0.01	12.07	8.10	36.11	0.80	960.56	968.31
C.I. 4-7	C.I. 4-6	34.000	960.31	959.80	1.50	18	0.01	10.58	8.37	16.72	0.87	961.56	968.31
C.I. 4-8	C.I. 4-7	38.184	961.38	960.81	1.49	18	0.01	7.90	7.36	16.68	0.75	962.47	969.18
C.I. 4-9	C.I. 4-8	117.300	963.64	961.88	1.50	15	0.01	4.67	6.63	10.28	0.59	964.52	972.29
C.I. 4-10	C.I. 4-9	34.000	964.65	964.14	1.50	15	0.01	3.56	6.08	10.28	0.51	965.41	972.29
C.I. 4-11	C.I. 4-10	45.486	965.83	965.15	1.49	15	0.01	1.06	4.24	10.26	0.27	966.23	973.57
C.I. 1-2	E.S. 1-1	94.790	952.45	951.50	1.00	36	0.01	48.24	10.52	86.80	1.60	954.71	960.78
C.I. 1-3	C.I. 1-2	113.558	954.42	953.45	0.85	24	0.01	29.84	9.50	27.17	2.00	956.62	962.86
C.I. 1-4	C.I. 1-3	34.000	955.21	954.92	0.85	24	0.01	25.95	8.26	27.16	2.00	957.45	962.86
C.I. 1-5	C.I. 1-4	172.513	957.18	955.71	0.85	18	0.01	24.16	13.67	12.60	1.50	963.28	967.44
F.I. 1-6	C.I. 1-5	137.631	958.85	957.68	0.85	18	0.01	22.58	12.78	12.59	1.50	968.21	968.80
C.I. 1-7	F.I. 1-6	161.082	960.72	959.35	0.85	18	0.01	21.00	11.88	12.59	1.50	973.04	968.91
C.I. 1-8	C.I. 1-7	54.000	961.68	961.22	0.85	18	0.01	18.54	10.49	12.60	1.50	974.91	968.91
PLUG 1-9	C.I. 1-8	23.000	962.41	962.18	1.00	18	0.01	16.61	9.40	13.65	1.50	975.94	967.43
C.I. 2-1	C.I. 1-3	127.746	955.65	953.95	1.33	18	0.01	8.16	7.42	15.75	0.77	956.76	962.40
C.I. 2-2	C.I. 2-1	34.068	956.66	956.15	1.50	18	0.01	6.62	7.11	16.70	0.66	957.65	962.42
F.I. 2-3	C.I. 2-2	138.000	961.30	957.16	3.00	18	0.01	3.94	6.08	23.65	0.49	962.06	967.32
F.I. 3-1	F.I. 2-3	219.038	964.43	961.80	1.20	18	0.01	1.18	4.05	14.96	0.29	964.84	969.23
C.I. 6-1	M.H. 4-5	34.000	959.61	958.71	2.65	15	0.01	2.52	4.02	13.66	0.64	960.25	966.88
C.I. 7-2	E.S. 7-1	31.830	951.66	951.34	1.01	24	0.01	25.06	8.52	29.48	1.78	953.42 j	959.82
F.I. 7-3	C.I. 7-2	23.540	952.40	952.16	1.02	18	0.01	22.83	12.92	13.79	1.50	954.32	956.08
F.I. 7-4	F.I. 7-3	292.690	957.84	952.90	1.69	15	0.01	13.55	11.04	10.91	1.25	962.99	963.40
C.I. 5-1	C.I. 4-4	34.000	956.27	955.62	1.91	15	0.01	2.15	5.52	11.61	0.36	956.85	961.79
F.I. 9-1	E.S. 9-1	97.38	963.07	962.58	0.50	18	0.010	14.93	8.49	9.68	1.45	965.15	967.57

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DATE: Jun 29, 2020 6:54pm XREFS: C_PTBLK_0194061_34x22

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JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/3/21

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

REVISIONS

DRAINAGE TABLES
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

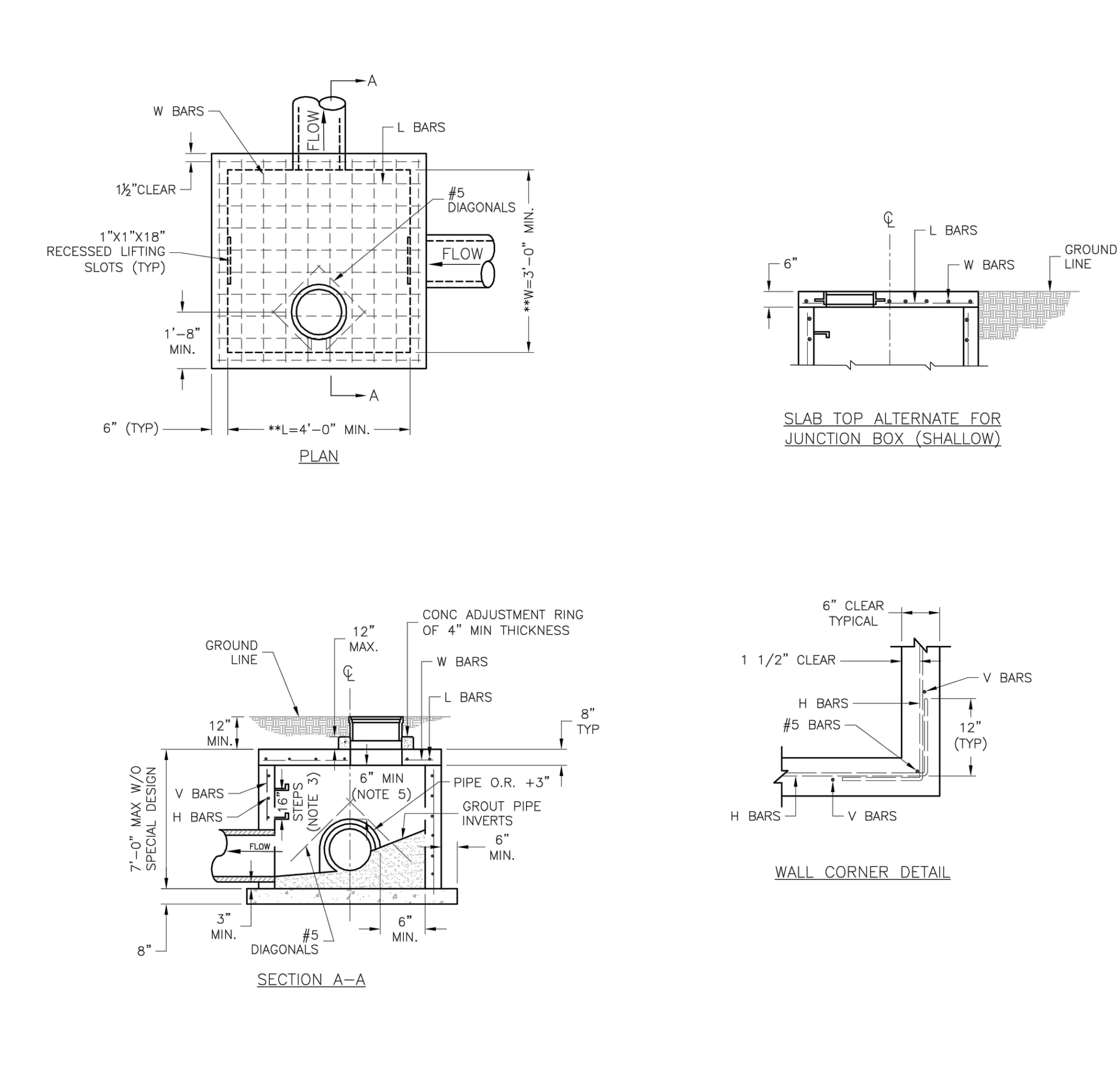
2020

LEE'S SUMMIT, MO

drawn by: CGW
checked by: JES
approved by: NDH
QA/QC by: JES
project no.: 019-4061
drawing no.:
date: 04/20/2020

SHEET
C139

STM-3 — JUNCTION BOX DETAIL



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

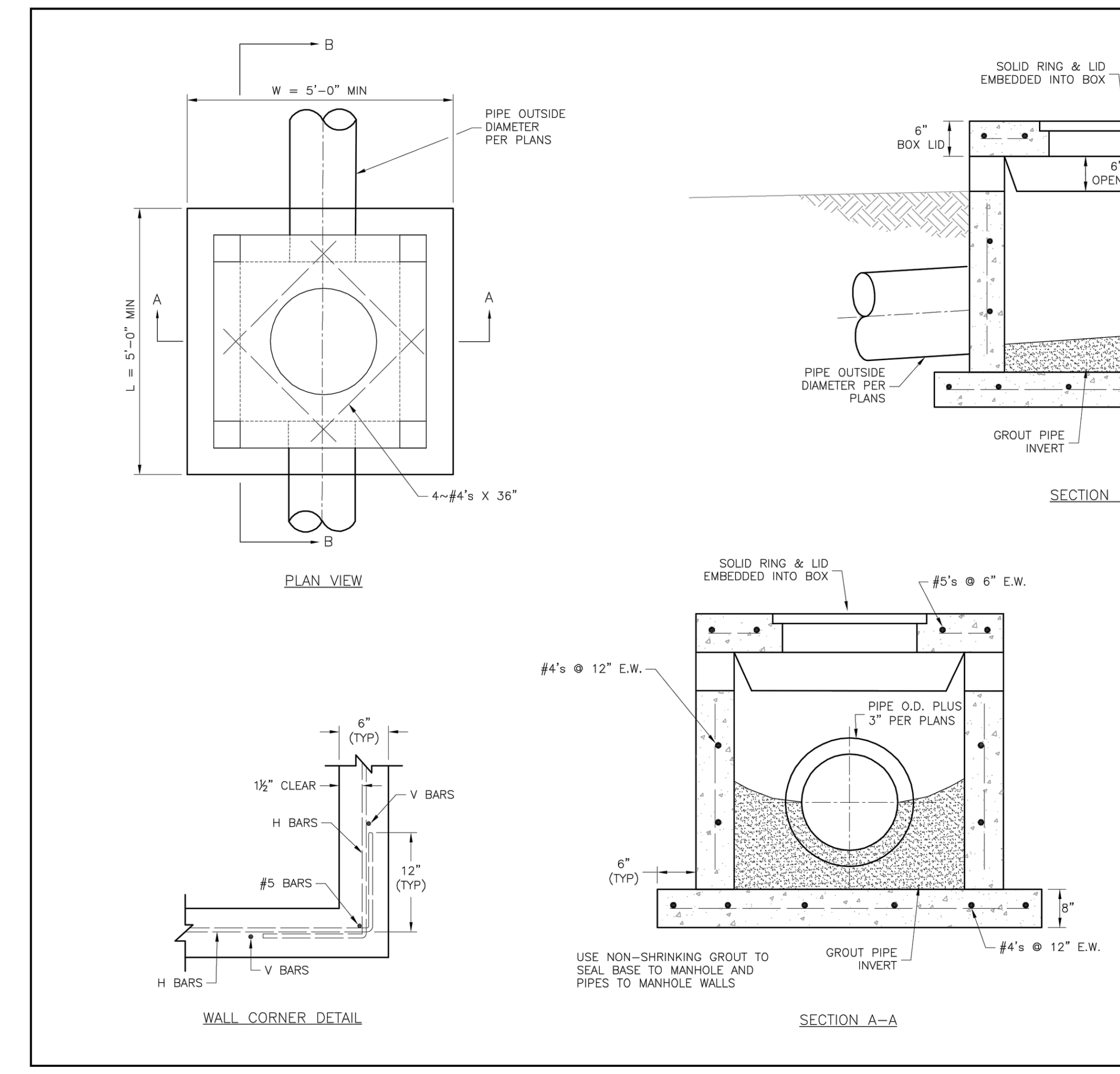
REINFORCING

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

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.

LEE'S SUMMIT MISSOURI — Project: STANDARD DETAILS, CITY OF LEE'S SUMMIT, MO, LEE'S SUMMIT, JACKSON COUNTY, MO — Sheet Name: JUNCTION BOX DETAIL — Drawn By: MJF — Checked By: DL — Date: 04/17 — Proj. #: — STM-3

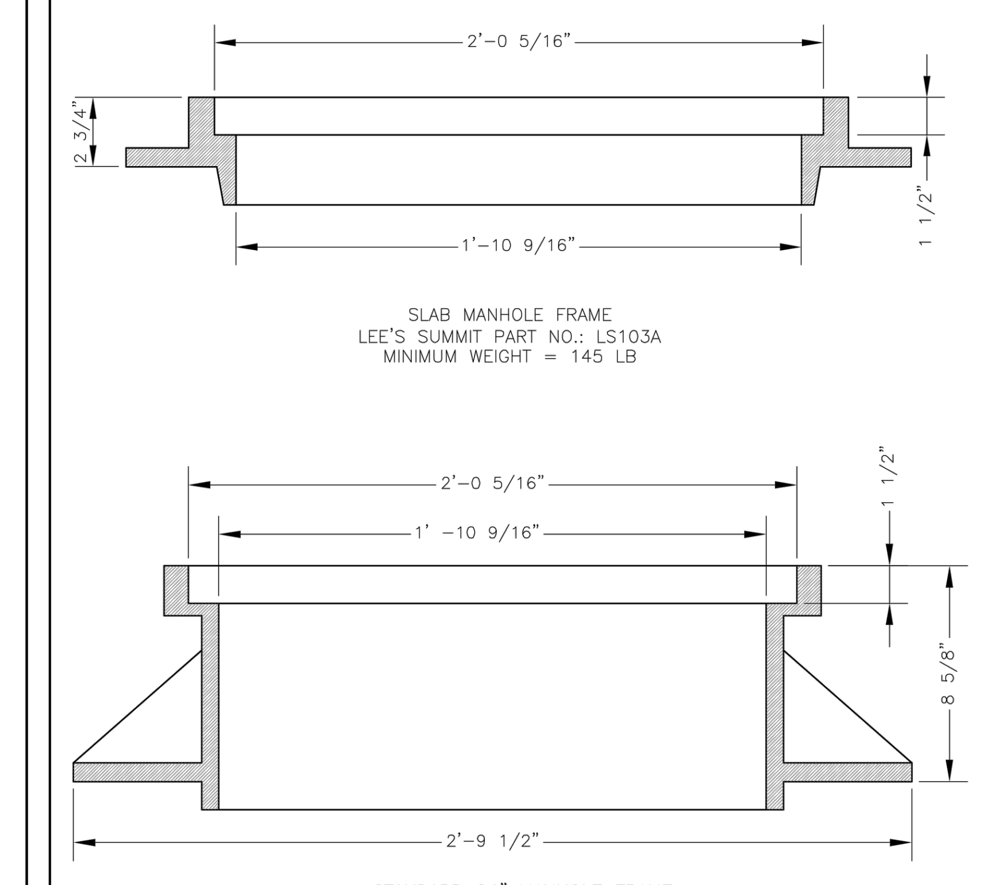
STM-2 — FIELD INLET DETAIL



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.

LEE'S SUMMIT MISSOURI — Project: STANDARD DETAILS, CITY OF LEE'S SUMMIT, MO, LEE'S SUMMIT, JACKSON COUNTY, MO — Sheet Name: FIELD INLET DETAIL — Drawn By: MJF — Checked By: DL — Date: 04/17 — Proj. #: — STM-2

STM-7 — STORM MANHOLE FRAME DETAIL



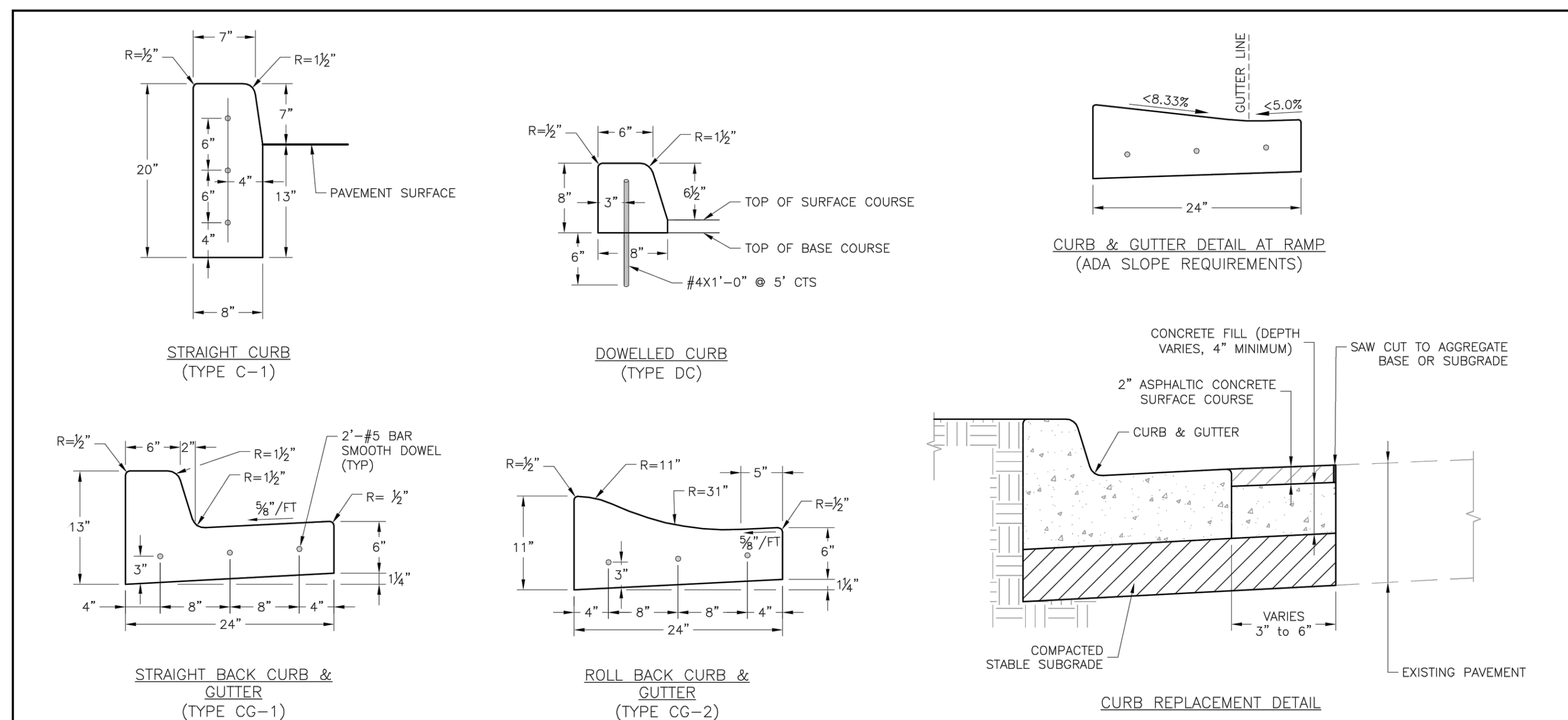
SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB

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 — STORM MANHOLE FRAME DETAIL — STM-7

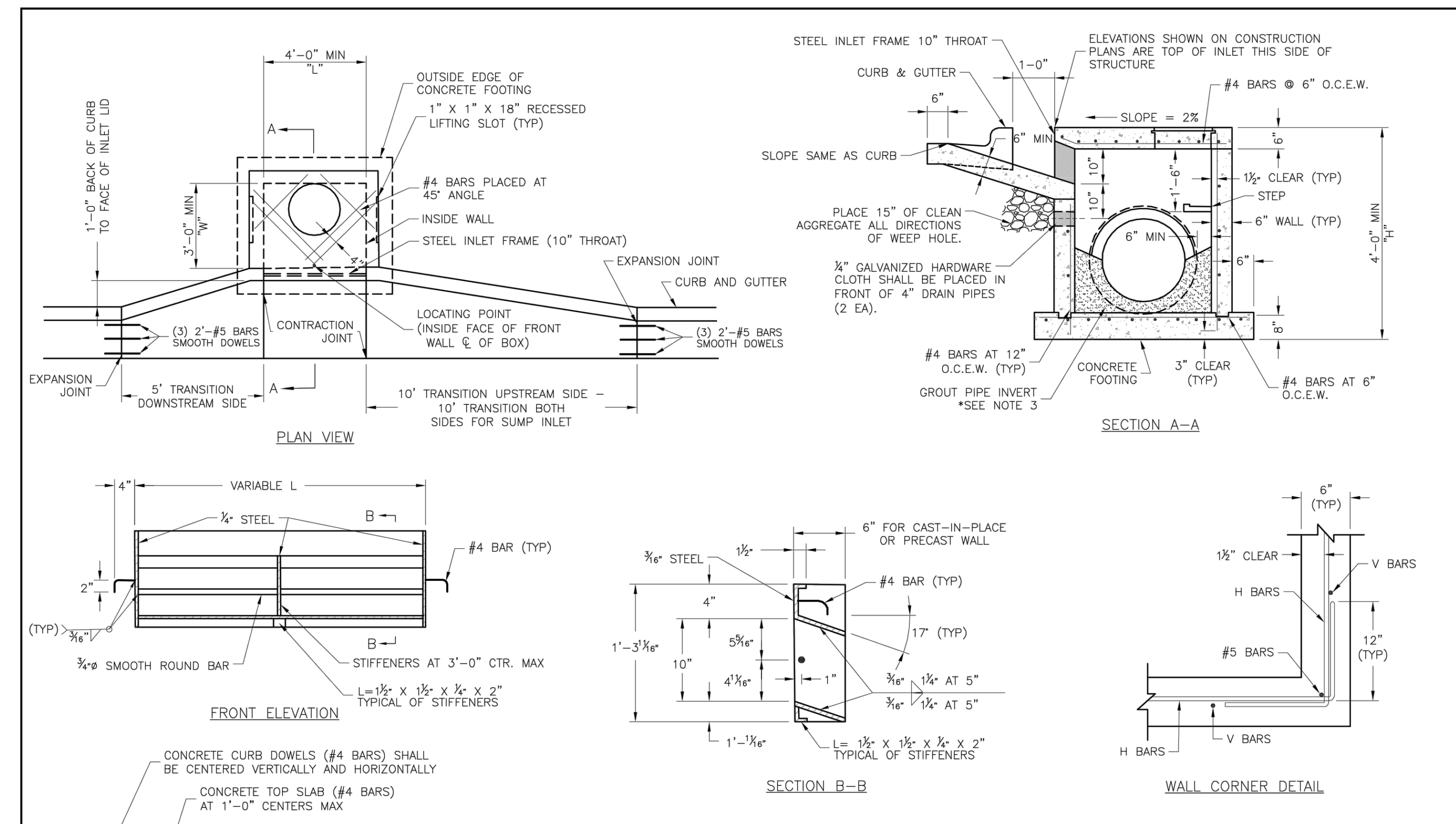
GEN-4 — CURB & GUTTER DETAIL



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 — Project: STANDARD DETAILS, CITY OF LEE'S SUMMIT, MO, LEE'S SUMMIT, JACKSON COUNTY, MO — Sheet Name: CURB & GUTTER DETAIL — Drawn By: MJF — Checked By: DL — Date: 04/17 — Proj. #: — GEN-4

STM-1 — CURB INLET DETAIL

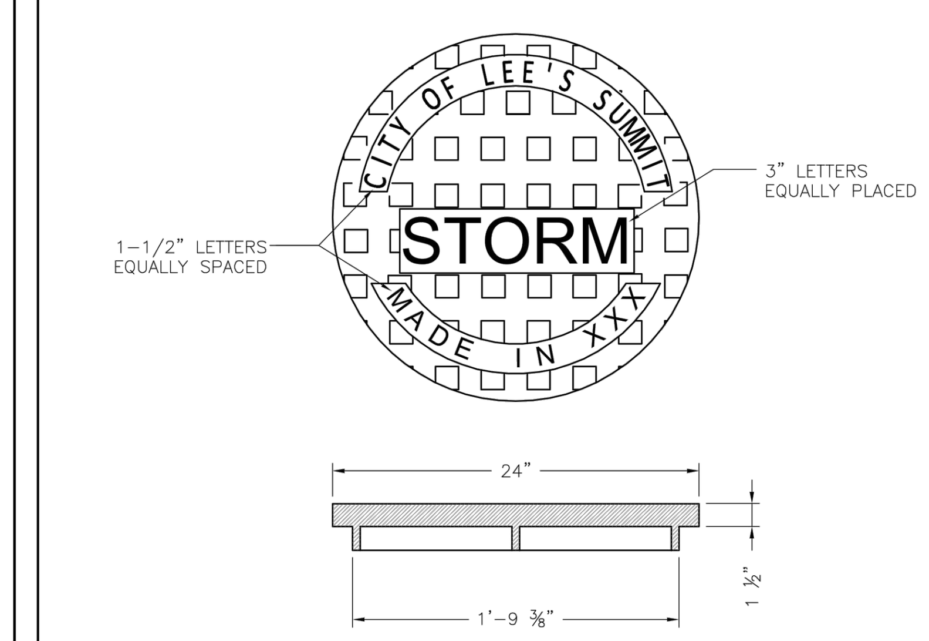


STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY)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

LEE'S SUMMIT MISSOURI — Project: STANDARD DETAILS, CITY OF LEE'S SUMMIT, MO, LEE'S SUMMIT, JACKSON COUNTY, MO — Sheet Name: CURB INLET DETAIL — Date: 04/17 — STM-1

STM-6 — STORM MANHOLE COVER DETAIL

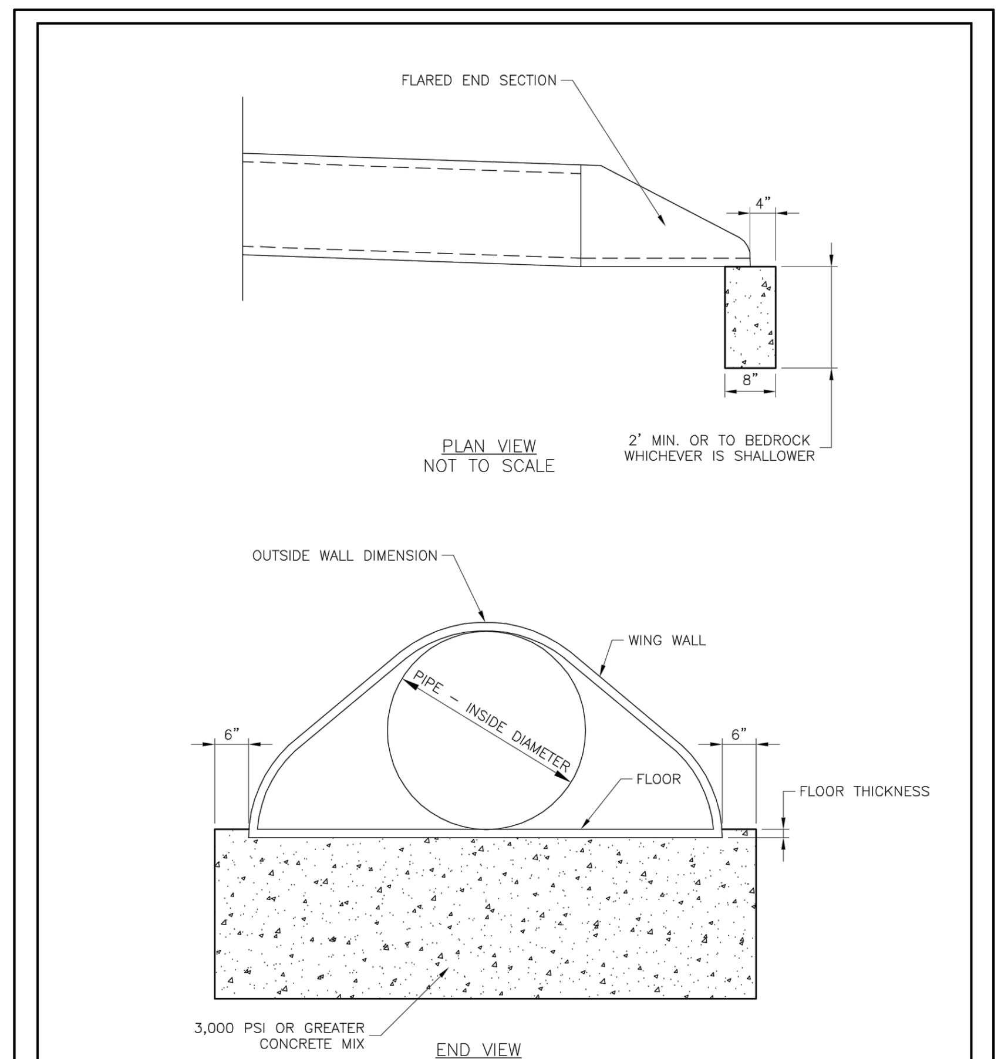


STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

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

LEE'S SUMMIT MISSOURI — STORM MANHOLE COVER DETAIL — STM-6

STM-5 — FLARED END SECTION SUPPORT DETAIL



LEE'S SUMMIT MISSOURI — FLARED END SECTION SUPPORT DETAIL — STM-5

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STATE OF MISSOURI — JULIE ELAINE SELLERS — NUMBER PE-2017000367 — PROFESSIONAL ENGINEER — 3/3/21

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	06/15/2020	REVISED PER CITY COMMENTS	
2	06/25/2020	REVISED PER CITY COMMENTS	

2020

STORM DETAILS
STREET AND STORM SEWER PLANS

HOOK FARMS
FIRST PLAT

LEE'S SUMMIT, MO

drawn by:	CGW
checked by:	JES
approved by:	NDH
QA/QC by:	JES
project no.:	019-4061
drawing no.:	
date:	04/20/2020

SHEET
C140

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